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Full document and appendices online

Watershed Management Plan

2026-2035

Prepared for
Bassett Creek Watershed Management Commission

60-Day Review Draft – July 2025

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Acronyms

AIS	Aquatic Invasive Species
BCWMC	Bassett Creek Watershed Management Commission BMPs Best Management Practices
BWSR	Minnesota Board lof Water and Soil Resources
CAMP	Community Assisted Monitoring Program
CFS	Cubic Feet per Second
CIP	Capital Improvement Program
CWA	Clean Water Act
DEIA	Diversity, Equity, Inclusion, Access
DWSMA	Drinking Water Supply Management Area
EWM	Eurasian Watermilfoil
FCP	Flood Control Project
FEMA	Federal Emergency Management Agency
FQI	Floristic Quality Index
GW	Groundwater
H&H	Hydrologic and Hydraulic Model
JPA	Joint Powers Agreement
LGU	Local Government Unit
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MIBI	Macroinvertebrate Index of Biological Integrity
MIDS	Minimal Impact Design Standards
MG/L	Milligrams per liter
ML	Milliliters
MLCCS	Minnesota Land Cover Classification System
MnRAM	Minnesota Rapid Assessment Method
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency

MPRB	Minneapolis Parks and Recreation Board
MS4	Municipal Separate Storm Sewer System
MUSA	Metropolitan Urban Service Area
MWMO	Mississippi Watershed Management Organization
NFIP	National Flood Insurance Program
NOAA	National Oceanographic and Atmospheric Administration
NWI	National Wetland Inventory
P8	Program for Predicting Polluting Particle Passage through Pits, Puddles and Ponds
SSTS	Subsurface (Individual) Sewage Treatment Systems
SWA	Subwatershed Assessment
SWMM	Storm Water Management Model
TAC	Technical Advisory Committee
TCMA	Twin Cities Metropolitan Area
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TRPD	Three Rivers Park District
ug/L	Micrograms per liter
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VIC	Voluntary Investigation and Cleanup
WCA	Wetland Conservation Act
WHPP	Wellhead Protection Plan
WMC	Watershed Management Commission
WMO	Watershed Management Organization
WMWA	West Metro Watershed Alliance
WOMP	Watershed Outlet Monitoring Program
WRAPS	Watershed Restoration and Protection Strategy
WWTP	Wastewater Treatment Plant

Executive Summary

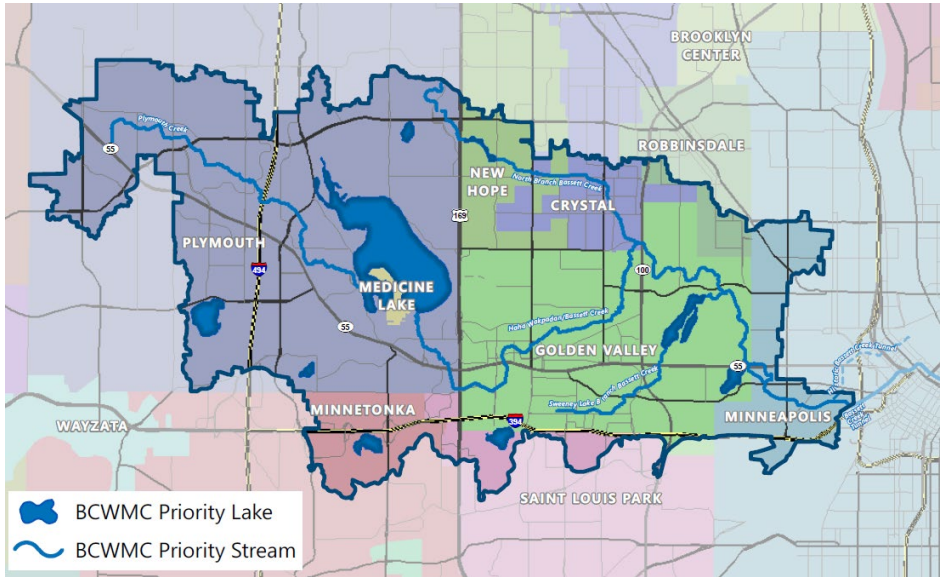
This BCWMC Watershed Management Plan (Plan) guides the management of water resources within the boundaries of the BCWMC to achieve the organization's vision and goals for the next ten years. It was developed with significant input from watershed residents, member cities, partners, and state and local agencies. The Plan provides data and background information; identifies watershed-wide and resource-specific issues; sets measurable goals; and describes applicable tools, policies, and activities aimed at achieving the goals.

The Bassett Creek Watershed Management Commission (BCWMC) established the following vision to provide strategic direction to its work.

Stewardship of the Ȟaȟá Wakpádaŋ / Bassett Creek Watershed to reduce flood risk and improve ecosystem health.

About Us – who we are

The BCWMC is a special purpose unit of local government that manages surface water resources, like lakes and streams, within 40 square miles in the northwestern area of the Twin Cities. It encompasses all the land that ultimately drains to Ȟaȟá Wakpádaŋ / Bassett Creek, including all or part of nine cities. The largest portion of the watershed lies in the cities of Plymouth and Golden Valley. The watershed also includes parts of New Hope, Crystal, Robbinsdale, Minneapolis, St. Louis Park, and Minnetonka, and the entire small city of Medicine Lake. There are ten priority lakes and four priority streams in the watershed. The final 1.7 miles of the creek flows under downtown Minneapolis in the Bassett Creek tunnel.



The BCWMC acknowledges that the waterways of the Ȟaȟá Wakpádaŋ / Bassett Creek encompass the homeland of the Dakota peoples, who nurtured the land and waters as relatives. The streams, lakes, and wetlands are living waters that are part of a broader ecosystem.

The BCWMC was originally formed as a joint powers organization among the nine cities as the Bassett Creek Flood Control Commission in 1968 to address significant flooding along the

creek. In 1984, the Flood Commission revised its joint powers agreement and became the BCWMC in accordance with provisions of the 1982 Metropolitan Surface Water Management Act. Much of the significant flooding in the watershed has been corrected, primarily through the extensive Bassett Creek Flood Control Project. And while flooding remains a concern and an area of focus for the BCWMC, much of our work is now centered on protecting and improving the quality of water in priority lakes and streams.

The BCWMC is managed by a nine-member Board of Commissioners – one commissioner and one alternate appointed from each member city. Each city also appoints a staff person to the Commission's technical advisory committee (TAC). The TAC provides recommendations on technical aspects of studies and projects, and provides input on budgets, policies, etc.

Work of the BCWMC is primarily funded with an operating budget and capital improvement program funds. Operating funds come mostly from assessments to the nine member cities, while capital improvement projects are funded through a tax on all watershed properties levied by Hennepin County on the BCWMC's behalf. State and local grant funds and development review fees often augment the BCWMC budgets, becoming an important source of current and future funding.

Purpose of Watershed Management Organizations (WMOs)

Because water does not follow political boundaries, the 1982 Surface Water Management Act required the formation of WMOs across the Twin Cities.

Purposes of WMOs include:

1. Protect, preserve, and use natural surface and groundwater storage and retention systems.
2. Minimize public capital expenditures needed to correct flooding and water quality problems.
3. Identify and plan for means to effectively protect and improve surface and groundwater quality.
4. Establish more uniform local policies and official controls for surface and groundwater management.
5. Prevent erosion of soil into surface water systems.
6. Promote groundwater recharge.
7. Protect and enhance fish and wildlife habitat and water recreational facilities.
8. Secure the other benefits associated with the proper management of surface and groundwater.

Priority Issues & Goals – what we're working on

Many of the lakes and streams in the watershed have degraded water quality and habitats, impacting aquatic life and recreation opportunities. Significant pollutants, coming mainly from stormwater runoff, include chloride (i.e., salt from winter deicers), nutrients, sediment, and bacteria. In addition, water quantity concerns – including flooding and drought conditions – also impact water resources and watershed communities.

To focus work for the next ten years, the BCWMC identified discrete watershed issues early in the planning process through input from state and local agencies and member cities, commissioner workshops, an online public survey, and a public open house. Issues were grouped into four categories: Waterbody and Watershed Quality, Flooding and Climate Resilience, Education and Engagement, and Organizational Effectiveness. Each issue was assigned a priority level of high, medium, or low. Some issues span multiple areas of watershed management, including the intent

to deliver projects and programs with an emphasis on diversity, equity, inclusion, and access. While specific issues regarding equity are categorized as a "medium" priority, helping to address current or past inequities will be incorporated across all BCWMC work – from representation on the Board of Commissioners, to building relationships with diverse audiences and selecting projects in vulnerable communities.

Once issues were identified and prioritized, goals were developed to describe the change or desired outcome expected by the end of 10 years. A process of adaptive management will be used to track progress and adjust activities depending on new data or changing conditions.

The high priority issues and associated goals include:

Category	High Priority Issue	High Priority Goal(s)
Waterbody and Watershed Quality	Impaired waters (degraded water quality)	Improve water quality in Medicine Lake such that it is removed from impaired waters list for nutrients (WQ1)
		Significantly improve water quality in Lost Lake and Northwood Lake (WQ2)
		Improve/maintain water quality and ecology in all other priority lakes and streams (WQ3 – WQ9)
	Chloride pollution (salt from winter deicers)	Reduce chloride pollution to lakes and streams (CHL1)
		Reduce chloride concentrations in Ȟaȟá Wakpádaŋ / Bassett Creek by 10% (CHL2)
Flooding and Climate Resilience	Impact of climate change on hydrology, water levels, and flood risk	Reduce flood risk in vulnerable areas (FLD1 – FLD4)
		Enhance climate resiliency (FLD5)
	Bassett Creek Valley flood risk reduction and stormwater management opportunities	Collaborate on regional improvements in Bassett Creek Valley (BCV1)
Organizational Effectiveness	Organizational capacity and staffing	Assess organizational structure, staffing needs, and funding mechanisms; implement recommendations (ORG1 – ORG2; FUND1 – FUND3)
	BCWMC funding mechanisms	
	Progress assessment	Assess progress toward plan goals (PA1 – PA2)

Issues that were assigned medium or low priority levels are also addressed in this Plan. However, these issues may receive lower levels of resources and effort, and may be primarily addressed in collaboration with partners, or as opportunities arise. These issues include:

- Aquatic invasive species
- Erosion
- Groundwater
- Ditch management
- Education
- Equity
- Wetlands
- Riparian areas and uplands
- Recreation
- Carbon footprint

Primary Tools and Activities – the work we're doing

The BCWMC uses various tools to make progress toward its goals including policies and requirements, education and engagement, and construction of capital improvement projects. Other important activities include inspection and maintenance of the Bassett Creek Flood Control Project structures; monitoring water quality and quantity; performing studies; mapping floodplains; and assisting with aquatic invasive species (AIS) management. Much of the work performed by the BCWMC is done in collaboration with partners such as member cities, Hennepin County, Three Rivers Park District, Minneapolis Park and Recreation Board, state and local agencies, lake groups, and others.

Over the next 10 years, the BCWMC will build on the success of many existing programs and activities with few changes. However, some new or expanded tools and activities will be used to better address priority issues and make accelerated progress toward goals. New activities are shown in red in the graphic below. The implementation schedule of the activities and capital improvement program can be found in Table 4-5 and Table 4-6, respectively, although the timing of some programs and projects may shift with a change in opportunities, partnerships, and available funds. While many of the activities are performed on a regular, routine basis, other discrete projects and studies are one-time activities and are scheduled in order to inform future work. Examples include sub-watershed assessments that are used to target and prioritize capital improvement projects or other programs to improve conditions in a specific waterbody. Similarly, development of a social vulnerability index will help prioritize work in areas where it is most needed and most impactful.

The annual budget (in 2025 dollars) is estimated to be between $1 million and $1.3 million for programs and activities (Table 4-5) and an average of $5 million per year for capital improvement projects (Table 4-6).

The implementation schedule and corresponding budget is ambitious. A shift in organizational structure and/or an expansion of funding mechanisms may be needed to realize full implementation potential and desired outcomes. Options for significant changes to the operations of the BCWMC will be analyzed through comprehensive assessments early in the life of the plan (See Table 4-5, activities EA-4 and EA-5).

CAPITAL IMPROVEMENT PROJECTS

- Up to 36 projects scheduled over 10 years
- Projects start with feasibility study
- Examples: streambank restoration, pond creation or expansion, flood risk reduction, stormwater reuse
- Use Indigenous land/water care practices, where appropriate (new activity)
- Public-private partnerships (potential new activity)

DEVELOPMENT REQUIREMENTS

- Appropriate stormwater management – infiltration and treatment
- No impacts to 100-year floodplain
- Stream and wetland buffer requirements
- Winter maintenance plans required (new activity)
- Construction erosion control

EDUCATION & ENGAGEMENT

- Build communication and engagement with diverse communities (new emphasis)
- Partner with West Metro Water Alliance and Hennepin County
- Watershed map, displays, educational materials
- Signage and Indigenous art (new activity)
- Trainings for commissioners and local officials (expanded activity)
- Volunteer opportunities

MONITORING, MODELING, STUDIES

- Routine, comprehensive monitoring of priority waters
- Hydrologic modeling (water flow and quantity after rainfall and snowmelt)
- Floodplain mapping
- Surveys and assessments to target future work (expanded activity)

FLOOD CONTROL PROJECT

- Routine inspections of structures
- Minor maintenance by cities
- Major repair by BWCMC, as needed

OTHER TOOLS

- Administration, operations, technical assistance
- Inter-agency planning and collaboration
- Aquatic invasive species (AIS) management
- Evaluation and reporting

Member City Responsibilities

As noted earlier, portions of nine cities lie within the Ȟaȟá Wakpádaŋ / Bassett Creek Watershed and the BCWMC exists as a joint powers organization among these "member cities." Member cities are very involved in the work of the BCWMC, and they have corresponding responsibilities. Each city appoints a BCWMC board commissioner, alternate commissioner, and technical advisory committee member. Each city contributes funds to the BCWMC operating budget through "city assessments" which are based on the area of land in the watershed and the tax valuation of that land. In many cases, the BCWMC enters agreements with cities to construct and maintain BCWMC capital improvement projects. The technical advisory committee, comprised of city staff, often reviews and makes recommendations to the Board of Commissioners on technical studies, projects, budgets, etc.

Actual requirements of member cities are the same or similar to requirements included in the 2015 watershed management plan.

Subject Area	Policy No.	Requirement
Local Plans/ Controls	5	Member cities must update their local water management plans to incorporate consistency with BCWMC goals, policies, and requirements. The BCWMC will review city local water management plans for consistency with BCWMC goals.
Local Plans/ Controls	6	Member cities must inform the BCWMC regarding updates to city ordinances or comprehensive plans that will affect stormwater management.
Development Requirements	9	Member cities must incorporate standards and requirements included in the Requirements document into their official controls (e.g., ordinances). Member cities must inform developers and other project applicants regarding BCWMC requirements.
Development Requirements	12	Member cities shall not issue construction permits, or other approvals relevant to controls intended to protect water resources, until the BCWMC has approved the project.
Development Requirements	13	For projects subject to BCWMC review and erosion and sediment control standards, the BCWMC requires that member cities perform regular erosion and sediment control inspections.
Data submission	19	Upon request (typically annually), member cities shall provide the BCWMC with information on development, redevelopment, and BMPs constructed within their city such that the BCWMC can appropriately update the models.
Aquatic Invasive Species	20	The BCWMC requires that member cities annually inspect wetlands classified as Preserve (or equivalent) for terrestrial and emergent aquatic invasive vegetation, such as buckthorn and purple loosestrife, and attempt to control or treat invasive species, where feasible.
Flood Control Project	25	Member cities must formally notify the Commission Engineer regarding their completed maintenance and repair actions on any of the FCP project features.
Flood Control Project	25	Member cities are responsible for routine maintenance and repair of FCP features as outlined in Table 4-4.

1 Introduction

The Bassett Creek Watershed Management Commission (BCWMC) *Watershed Management Plan* (Plan) sets the vision, policies, programs, and projects for managing Ȟaȟá Wakpádaŋ / Bassett Creek and other surface waters within the boundaries of the BCWMC for the next 10 years. This section includes the Commission's land and water acknowledgement statement and summarizes the role of watershed management organizations, the BCWMC's location, history, governance structure, and authority. It also gives an overview of past accomplishments, illustrates inter-agency coordination, and provides a summary of the plan development process.

1.1 Land and Water Acknowledgement

Adopted May 2024

The Bassett Creek Watershed Management Commission acknowledges that the waterways of the Ȟaȟá Wakpádaŋ, located in Mnisota Makoće, the homeland of the Dakota peoples, are living waters which are part of a larger living ecosystem.

Historically, the Ȟaȟá Wakpádaŋ provided material, nutritional, and spiritual sustenance to the Dakota peoples. We acknowledge the forced removal of the Dakota from the lands and waterways that nurtured them as relatives. And, we recognize the environmental degradation that continues in the watershed today.

The living waters of Ȟaȟá Wakpádaŋ remain significant to the Dakota and other Native peoples, including many who presently live in the watershed. The Bassett Creek Watershed Management Commission seeks to identify and integrate Native wisdom by collaborating with Indigenous peoples and communities to reduce the impacts of climate change and improve the ecosystem health for all living beings in the watershed.

Acknowledging the complex past and present traumas and triumphs is a step toward healing for the land, watershed, and peoples who live in the watershed today.

1.2 Role of Watershed Management Organizations

The BCWMC is a special purpose unit of local government that manages water resources on a watershed basis, like all watershed management organizations (WMOs). WMO boundaries generally follow natural watershed divides, rather than political boundaries. Thus, they often include several municipalities and counties.

Recognizing that water does not follow political boundaries, the State of Minnesota established the Watershed Act (Minnesota Statutes 103D) in 1955, which allowed for the creation of watershed districts anywhere in the state. In 1982, the Minnesota Legislature enacted the Metropolitan Surface Water Management Act (Minnesota Statutes 103B.201 – 103B.255). This act required the formation of a WMO, and the development and implementation of a watershed management plan, for each of the watersheds in the seven county Twin Cities metropolitan area. WMOs can be organized as joint powers agreement organizations among municipalities (e.g., BCWMC), as watershed districts (e.g., Minnehaha Creek Watershed District), or under county government (e.g., Scott County WMO).

The Metropolitan Surface Water Management Act states that the purposes of WMO water management programs are as follows (quoted from Minnesota Statutes 103B.201):

1. Protect, preserve, and use natural surface and groundwater storage and retention systems.
2. Minimize public capital expenditures needed to correct flooding and water quality problems.
3. Identify and plan for means to effectively protect and improve surface and groundwater quality.
4. Establish more uniform local policies and official controls for surface and groundwater management.
5. Prevent erosion of soil into surface water systems.
6. Promote groundwater recharge.
7. Protect and enhance fish and wildlife habitat and water recreational facilities.
8. Secure the other benefits associated with the proper management of surface and groundwater.

1.3 BCWMC Location and Boundary

The Ȟaȟá Wakpádaŋ / Bassett Creek watershed is located entirely within Hennepin County, in the northwestern portion of the Twin Cities metropolitan area. The watershed of the creek and its three main tributaries covers all or part of nine cities:

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

Figure 1-1 shows the location of the BCWMC in relation to the other WMOs in the seven-county metropolitan area. The BCWMC is adjacent to the following WMOs:

- Mississippi WMO – along eastern boundary of BCWMC
- Minnehaha Creek Watershed District – along southern and western boundary of BCWMC
- Shingle Creek WMC – along northern boundary of BCWMC
- Elm Creek WMC – along extreme northwestern boundary of BCWMC

The downstream end of the BCWMC is a tunnel which conveys the creek under downtown Minneapolis and flows into the Mississippi River below St. Anthony Falls. The jurisdictional boundary of the BCWMC ends at the tunnel entrance for activities on the land. Although the City of Minneapolis owns the tunnel infrastructure, through policies and agreements, the BCWMC is responsible for regular inspections and any significant repairs or maintenance within the tunnel.

The total drainage area of the BCWMC upstream of the tunnel is 39.7 square miles (~25,400 acres). Overall, the watershed is heavily developed with all of the land lying within the 2030 Metropolitan Urban Service Area (MUSA). The watershed ten priority lakes and four priority streams as well as numerous smaller lakes, ponds, and wetlands.

Boundaries with adjacent WMOs shift from time to time as new mapping information is available or when development changes drainage patterns. Most recently, the BCWMC officially updated its boundary with the Shingle Creek WMO which resulted in minor changes (2022). More significantly, in 2000, the BCWMC and the Mississippi WMO entered into a joint and cooperative agreement for

a larger boundary change. A legal description of the revised boundary was included as part of the agreement. This boundary change transferred 1,002 acres from the BCWMC to the Mississippi WMO to reflect the changed drainage conditions upon completion of the Bassett Creek Flood Control Project. With the project in place, the portion of watershed area directly tributary to the old Bassett Creek tunnel no longer flows to Ȟaȟá Wakpádaŋ / Bassett Creek.

Learn more about the BCWMC geography and natural features in Section 2.0 and Appendix A.

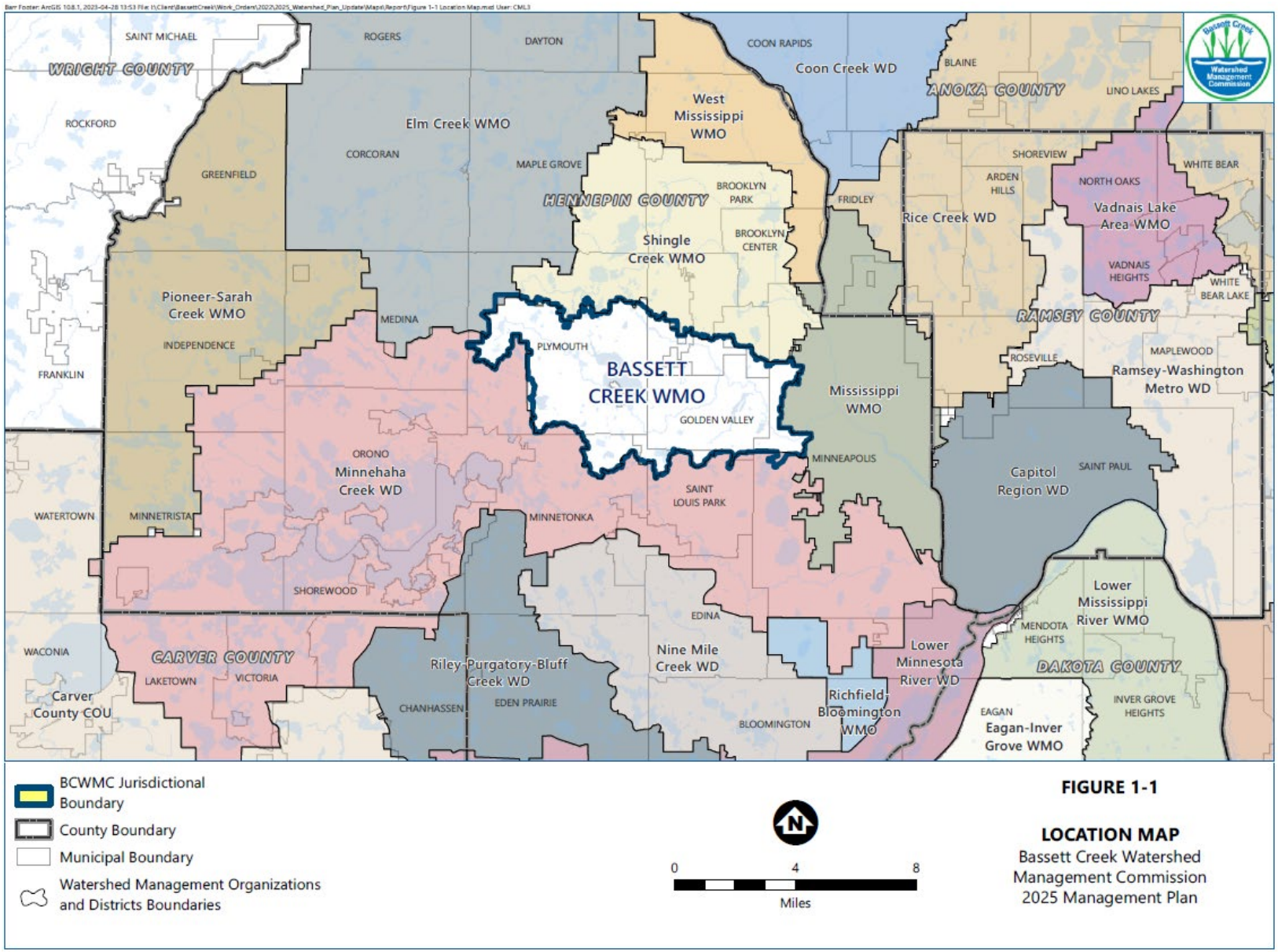


Figure 1-1 Location of the Bassett Creek Watershed Management Commission

1.4 History and Governance Structure of the BCWMC

The beginnings of the BCWMC stretch back nearly 60 years when flooding along the creek was recognized as a regional issue, transcending city boundaries and requiring cooperation to address the issue. Prior to the adoption of a formal joint powers agreement, the cities in the watershed acted together as a committee, which was formed to study and plan for flood control in the watershed. The committee members included city engineers and/or city council members. In 1968, the Bassett Creek Flood Control Commission was formed by adoption of a joint powers agreement (JPA) among the nine communities in the watershed. As required by the JPA, the BCWMC adopted the Watershed Management Plan for Ȟaȟá Wakpádaŋ / Bassett Creek in February 1972.

> The BCWMC's 50th anniversary celebration in 2019 included a booklet showcasing the organization's history and key accomplishments. Find it at www.bassettcreekwmo.org.

In accordance with provisions of the 1982 Metropolitan Surface Water Management Act, the Bassett Creek Flood Control Commission revised its JPA in 1984 and became the Bassett Creek Watershed Management Commission (BCWMC). The BCWMC adopted the *Bassett Creek Water Management Plan* in 1986. The Minnesota Water Resources Board (now the Board of Water and Soil Resources – BWSR) approved the plan on July 26, 1989, and the BCWMC printed the plan in 1990 (1990 Plan).

Also in accordance with the 1982 Metropolitan Surface Water Management Act and Minnesota Rules relating to Metropolitan Area Local Water Management, the BCWMC revised its JPA in 1993. The 1993 JPA was in effect until 2014, when it was extended with a new expiration date of January 1, 2025. In 2024, the JPA was refined and reorganized for clarity and to reflect current practices. No authorities of the BCWMC nor its member cities were expanded or retracted with the updated JPA. The new JPA was approved by each of the nine member city councils and is effective January 1, 2025 - January 1, 2033 (Appendix X).

The powers and duties of the BCWMC, taken from the joint powers agreement, include, but are not limited to:

1. Prepare and adopt an "overall plan" (watershed management plan).
2. Acquire necessary personal property to accomplish its purposes.
3. Contract for space, material, and supplies.
4. Make necessary surveys or use other information and develop projects to accomplish the purposes for which the BCWMC is organized.
5. Enter into contracts or cooperate with governmental agencies, private/public organizations, or individuals to accomplish the purposes for which the BCWMC is organized.
6. Order any member city to construct, clean, repair, alter, abandon, consolidate, reclaim or change the course or terminus of any ditch, drain, storm sewer or water course, natural or artificial, within BCWMC.
7. Order any member city to carry out improvements necessary to implement the BCWMC watershed

management plan.

8. Regulate, conserve and control the use of stormwater, surface water and groundwater within BCWMC.
9. Contract for or purchase insurance, as needed.
10. Establish and maintain devices for acquiring and recording hydrological and water quality data within BCWMC.
11. Enter upon lands to make surveys and investigations to accomplish the BCWMC's purposes.
12. Provide any member city with technical data or other information to assist the city in preparing its local watershed management plan.
13. Provide legal and technical assistance in connection with litigation or other proceedings between one or more of its members and any other unit of government relating to drainage or water quality within BCWMC.
14. Accumulate reserve funds and invest funds not currently needed for BCWMC operations.
15. Collect money from the BCWMC members, Hennepin County, and from any other BCWMC-approved source.
16. Make contracts, employ staff or consultants, incur expenses and make expenditures.
17. Obtain an annual audit of the BCWMC books and accounts.
18. Make its books, reports, and records available for and open to inspection by its member cities.
19. Recommend changes to the joint powers agreement to its member cities.
20. Exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth in the joint powers agreement and state law.
21. Cooperate with the Minnesota Department of Natural Resource (MDNR) in obtaining protected waters permits and complying with Minnesota law regarding protected waters.
22. Member cities may conduct separate or concurrent studies on any matter under study by the BCWMC.
23. Establish a procedure for establishing citizen or technical advisory committees and to provide other means for public participation.

Board of Commissioners

The BCWMC is managed by a nine member board of commissioners and nine alternate commissioners. Each of the nine member cities appoints one commissioner and one alternate. Alternate commissioners are voting board members when the primary commissioner is absent. The JPA gives each member city the responsibility to determine the eligibility or qualifications of its representatives (commissioner and alternate) on the board.

Table 1-1 BCWMC Commissioner Terms

Member City	Termination of Commissioner's Term
Crystal Golden Valley Medicine Lake	February 1, 2027, 2030, 2033, 2036, etc.
Minneapolis Minnetonka New Hope	February 1, 2028, 2031, 2034, 2037, etc.
Plymouth Robbinsdale St. Louis Park	February 1, 2026, 2029, 2032, 2035, etc.

The term of each commissioner and alternate is three years and until their successors are selected. Table 1-1 lists commissioner terms, which are staggered Commissioner vacancies must be filled in accordance with the JPA. Commissioners cannot be removed from the Commission prior to their term expiration except under the conditions given in the JPA. The commissioners serve without compensation from the BCWMC.. The BCWMC's organizational year begins on February 1st with the annual organizational meeting being the monthly meeting in February of each year. At the time of this writing, regular meetings for the BCWMC are held at 8:30 AM at the Golden Valley City Hall on the third Thursday of each month.

Funding Mechanisms

In 2024, the BCWMC amended its bylaws to change the BCWMC's fiscal year from February 1 – January 31 to a calendar year January 1 – December 31. There are two primary funding mechanisms for the Commission's work – assessments from member cities and capital funds levied through Hennepin County. City assessments are calculated using a formula based 50% on area in the watershed and 50% on tax valuation of the land in the watershed. The Commission's operating budget utilizes city assessments along with some grant funding and fees for development reviews for most non-capital expenses including planning, monitoring, technical analyses, administration, and education. The Commission utilizes Minnesota Statute 103B.251 to collect ad valorem taxes through Hennepin County for large capital projects. More information on funding mechanisms is found in Section 4.3.

Future Governance and Funding

Although the Commission's existing structure and funding mechanisms are sound, they may limit the capacity of the organization to implement more robust and complex projects and programs (see organizational effectiveness and funding mechanisms issues and goals in Sections 3.17 and 3.18). Options for changing the Commission's governance structures and/or funding mechanisms will be the focus of a comprehensive assessment in the first two years of this Plan's implementation. Changes to the Commission's operational structure or funding mechanisms may require changes to the joint powers agreement or this plan.

1.5 Past Accomplishments

The list of BCWMC's accomplishments is long, stretching back nearly 60 years and serves as solid foundation for the future! Early on, the Commission (known as a Flood Control Commission) was focused solely on reducing flooding along the creek. In partnership with the nine member cities, Hennepin County, the Minnesota Department of Transportation, the Minnesota Department of Natural Resources, and

the U.S. Army Corps of Engineers, the massive Bassett Creek Flood Control Project was completed in 1992. The project resulted in a 2.4-mile-long tunnel that carries the creek under downtown Minneapolis and into the Mississippi River. Additional flood control structures were built along the creek upstream through the watershed. Learn more about ongoing management of the Flood Control Project in Section 4.1.7.

While the BCWMC continues to work on flood reduction projects, it now concentrates much of its work on improving and protecting water quality in its priority lakes and streams. The Commission began routine water monitoring in the 1970s to help identify pollution issues and target improvements. It began a robust capital improvement program (CIP) emphasizing water quality improvement in 2004 and adopted the Minnesota Minimal Impacts Design Standards (MIDS) for large development and redevelopment projects in 2015.

Accomplishments from the CIP include the construction of 40 projects from 2004 to 2024 including streambank restoration projects, stormwater pond creation or expansion, flood reduction, underground stormwater storage, and in-lake treatments. A total of approximately $24,700,000 was levied through the county for these projects and leveraged over $5,000,000 in grant funding.

The CIP has resulted in significant outcomes including:

- 2,455 pounds of total phosphorus annually prevented from entering lakes and streams
- 661 tons of suspended solids annually prevented from entering lakes and streams
- 6.4 miles of streambanks restored
- 41.3 acre-feet of flood storage created
- 2 lakes removed from the list of impaired waters for nutrients (Wirth Lake and Sweeney Lake)

These and other activities and accomplishments of the BCWMC are reported in greater detail each year in the Commission's Annual Report found at www.bassettcreekwmo.org/document/annual-report-budget.

1.6 Coordination with Agencies and Partners

In addition to working closely with its member cities, the BCWMC works regularly with other units of state and regional governments responsible for managing waters and natural resources. Figure 1.2 summarizes the roles of these entities.



Figure 1-2 Roles of Agencies Involved in Water Protection

1.7 BCWMC Plan Development, Vision, and The Next 10 Years

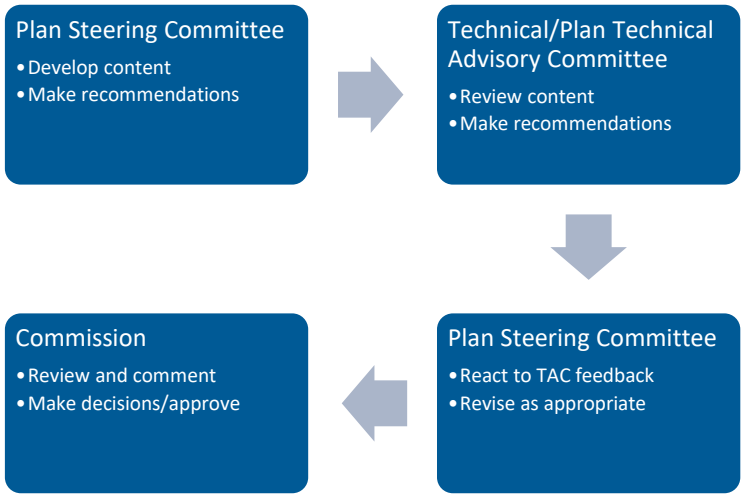
BCWMC Plan development began in 2022 and embarked, first, on gathering input from partners, member cities, members of the public, state agencies, and regional governments. With the recognition that members of minority communities were not involved with previous planning efforts, the Commission made a concerted effort to engage with historically underserved and minority communities to develop this plan. In April 2022, the Commission held a workshop on "equity in watershed management" to develop a shared understanding of equity principles – such as diversity, equity, inclusion, and access – and how they could be incorporated into watershed management. Staff and commissioners attended events and communicated with Minneapolis neighborhood associations and others, with the goal of gathering input from diverse voices. In February 2023, the Commission held a public open house to share information and continue gathering ideas and perspectives from audiences across the watershed. The Commission also used an online survey to collect input from partners and community members from June 2022 to January 2023. A detailed accounting of the stakeholder input process and results is found in Appendix F.

Development of this Plan also included a gaps analysis (Appendix E) to identify new or evolving issues that required updates relative to the 2015 Watershed Plan, new Commission priorities, and changes to regulatory, political, or social environments. The gaps analysis was paired with further evaluation of several complex issues (e.g., chloride management, linear project standards, climate resiliency) to determine the appropriate role for the Commission.

Table 1-2 List of Active Plan Steering Committee Members

Member	Service Period
Alternate Commissioner Shaun Kennedy (Committee Chair)	May 2023 - XX
Alternate Commissioner Jodi Polzin	May 2023 - XX
Commission Chair Catherine Cesnik	May 2023 - XX
Alternate Commissioner Stacy Harwell	May 2023 – Feb 2025
Commissioner Michael Welch	May 2023 – Oct 2024
Commissioner Joan Hauer	March 2024 - XX
Commissioner Paula Pentel	May 2024 - XX
Community Member Linda Loomis	May 2023 - XX
TAC Member Mark Ray, Crystal	May 2023 – Nov 2023
TAC Member Ben Scharenbroich, Plymouth	May 2023 - XX
TAC Member Eric Eckman, Golden Valley	Sept 2023 – May 2025

Concurrent with gathering input from partners and the public, and assessing gaps and more complex issues, a Plan Steering Committee was formed (Table 1-2). This committee worked for more than 2 years leading the effort to identify and prioritize issues, establish measurable goals, and develop an implementation plan incorporating a variety of policies, activities, and tools. The Plan Steering Committee developed initial Plan content or recommendations, sought and responded to feedback from the Technical Advisory Committee or broader Plan Technical Advisory Committee, and presented material to the Commission for decision-making or as informational as appropriate.



Generalized workflow of Plan content development.

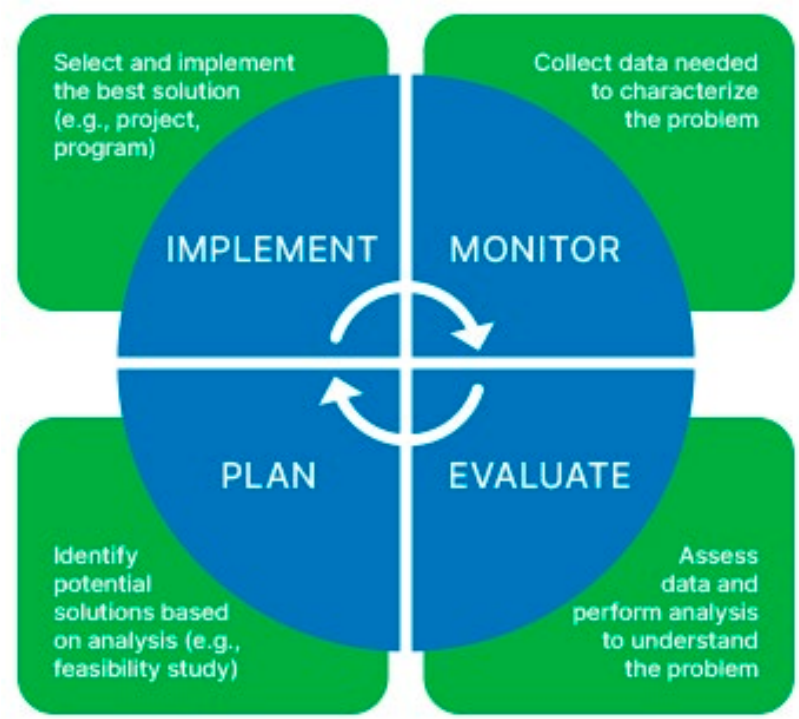
Vision

At the beginning of their work, the Plan Steering Committee updated the BCWMC vision statement to help center and guide the Commission's work:

Stewardship of Ȟaȟá Wakpádaŋ / Bassett Creek Watershed to reduce flood risk and improve ecosystem health.

The Next Ten Years

This plan provides the BCWMC with the foundation for guiding the implementation of projects and programs, and for enforcing standards and requirements. It is also a tool that ensures the BCWMC stays in tune with the issues and solutions needed in the future. Throughout plan implementation, BCWMC monitoring, modeling, studies, and assessments will continue to guide and target our work, ensuring that sound science and adaptive management are utilized at every turn and that progress toward goals is measurable and continuous.



Schematic of BCWMC's adaptive management approach.

2 Land and Water Resources Summary

This section summarizes the complete Bassett Creek Watershed Land and Water Resource Inventory found in Appendix A. Appendix A includes detailed data, information, and multiple maps describing the watershed. Deeper understanding of our current condition makes future actions more effective.

2.1 Climate and Precipitation

The climate of the Minneapolis-St. Paul area is a humid continental climate, characterized by moderate precipitation, wide daily temperature variations, large seasonal variations in temperature, warm humid summers, and cold winters with moderate snowfall. Climate data is often presented according to 30-year "climate normal" periods, the most recent spanning the period from 1991-2020. Several of the wettest years on record have been observed during the most recent climate normal period, including several wet years between 2010 and 2020. Conversely, 2022 – 2024 have been abnormally dry years of moderate to severe drought, record heat, and lower than normal rain and snowfall. Both conditions – abnormally wet years that can result in flood events, and abnormally hot, dry periods that impact water levels, ecosystems, and recreation – are identified as issues in this plan (see Section 3).

The amount, rate, and type of precipitation are important in determining flood levels and stormwater runoff rates. Average weather imposes little strain on the typical drainage system, but extremes of precipitation and snowmelt are important for designing storm water and flood control infrastructure. The National Oceanic and Atmospheric Administration (NOAA) maintains datasets on extreme precipitation events. At the time of Plan adoption NOAA's "Atlas 14" is the latest publication with estimates of precipitation amounts and intensity. NOAA is in the process of updating Atlas 14 precipitation data to account for temporal trends in historical data and incorporate future climate projections. These updates will be called Atlas 15 and are expected to be published in 2026.

Even with wide variations in climate conditions, climatologists have recorded four significant recent climate trends in the Upper Midwest (NOAA, 2013):

- Warmer winters – a decline in severity and frequency of severe cold; more warming periods leading to mid-winter snowmelt
- Higher minimum temperatures
- Higher dew points
- Changes in precipitation trends – more rainfall is coming from heavy thunderstorm events and increased snowfall

The Minnesota Board of Water and Soil Resources (BWSR) report on climate change trends and action plan notes that frequent, heavier, or longer-duration rainfall leads to increased runoff rates and erosion. This report and the Minnesota Pollution Control Agency's (MPCA) global warming website state that more intense precipitation events increase the likelihood of flooding and damage to structures, infrastructure, and natural environments. The MPCA also reports that Minnesota lakes have lost an average of 10 to 14 days of ice cover in the past 50 years, affecting lake ecosystems, fish communities, and outdoor recreation. One of the many signals stressing the importance of climate resiliency.

2.2 Population, Demographics, and Land Use

The BCWMC is located within the Twin Cities Metropolitan Area and includes portions of nine cities in Hennepin County. As a fully developed watershed, land in the BCWMC has been transformed over time from a natural landscape to urban and suburban land uses. Development of the watershed has coincided with population growth. The population of BCWMC member cities increased by approximately 20% between 1990 and 2020 (including over 50% growth in Plymouth) leading to higher density land uses. The population of BCWMC member cities is expected to increase by 5% to 15% by 2040 and to continue demographic trends toward an older population with more racial and ethnic diversity.

Low density residential is the major land use found in the Ȟaȟá Wakpádaŋ / Bassett Creek watershed (49%), followed by parks, recreational, and natural areas (11%), industrial land uses (8%), and open water (6%). Additional land uses found in the watershed include: undeveloped areas, institutional, major highways, retail/commercial, office space, medium density residential. Anticipated future land use is based on Metropolitan Council 2040 data and shown in Appendix A, Figure A-2. Land use data is useful to identify areas where redevelopment might offer opportunities for additional stormwater treatment or retrofits of existing stormwater infrastructure.

2.3 Topography and Soils

The topographic relief of the Ȟaȟá Wakpádaŋ / Bassett Creek watershed is minor with land sloping generally from higher elevations in the west to lower elevations in the east. The extensive urbanization of the watershed has greatly altered the natural topography. Many of the low, wetland areas that existed prior to urbanization have been eliminated or altered.

Surface soils throughout much of the Ȟaȟá Wakpádaŋ / Bassett Creek watershed contain varied amounts of clay, loam and sand. Soils in the watershed are generally moderately permeable and have high available moisture capacity depending on the relative amounts of clay and loam. Poorly drained and very poorly drained soils are also common in some areas throughout the watershed. Infiltration capacities of soils affect the amount of direct runoff resulting from rainfall. Infiltration capacity is categorized in hydrologic soil groups:

- Group A Low runoff potential—high infiltration rate
- Group B Moderate infiltration rate
- Group C Slow infiltration rate
- Group D High runoff potential—very slow infiltration rate

Soils in large portions of the eastern half of the watershed are not assigned to a hydrologic group because development has altered the existing soil, or data were unavailable prior to development. Of the remaining parts of the watershed with available soil information, only about 13% is considered hydrologic soil group A with high infiltration rates. The majority consists of hydrologic soil group B (30%), group C (26%), and group C/D soils (20%). With only a small portion of the watershed consisting of soils with higher infiltration rates, the Bassett Creek watershed has the potential to produce high volumes of runoff.

2.4 Geology and Groundwater

The Ȟaȟá Wakpádaŋ / Bassett Creek watershed is located in the northwestern portion of the Twin Cities basin – a bowl-like bedrock

structure underlying the Minneapolis-St. Paul metropolitan area that gently slopes to the southeast. The bedrock is overlain by a layer of glacial drift that varies from less than 50 feet thick to over 250 feet thick. Generally, the elevation of the bedrock surface is independent of surface topography.

The watershed is underlain by four major bedrock (deep) aquifers: (1) St. Peter Sandstone, (2) Prairie du Chien-Jordan, (3) Wonewoc Sandstone (formerly Ironton-Galesville Sandstone), and (4) Mt. Simon-Hinckley Sandstone. The cities of Plymouth, Minnetonka, Robbinsdale, and St. Louis Park obtain their water supplies from wells in three of these aquifers, the majority in the Prairie du Chien-Jordan. The Prairie du Chien-Jordan aquifer is high-yielding, more easily tapped than deeper aquifers, has very good water quality, and is continuous throughout most of the area. This is the most heavily used aquifer in Hennepin County, with yields above 2,000 gallons per minute throughout much of the Ȟaȟá Wakpádaŋ / Bassett Creek watershed. The MDNR closely reviews permits for groundwater withdrawals from the Prairie du Chien-Jordan aquifer to prevent or minimize impacts to nearby water resources of regional significance.

Surficial aquifers are water-bearing layers of sediment, usually sand and gravel, which lie close to the ground surface. The depth of the water table varies across the watershed but is generally tens of feet below the surface. Recharge to the surficial aquifers is primarily through the infiltration of precipitation and standing water. The ponds, lakes, and wetlands scattered throughout the watershed recharge the groundwater.

The growing population in the Twin Cities metropolitan area has put increased pressure not only on groundwater quantity but also on its quality. The Minnesota Department of Health (MDH) is responsible for the protection of groundwater quality and seeks to minimize contamination of water supply wells through its wellhead protection program. The MDH requires public water suppliers to develop wellhead protection plans (WHPPs) and delineate drinking water supply management areas (DWSMAs). In addition, stormwater management through infiltration is prohibited where site characteristics increase the risk of groundwater contamination.

2.5 Surface Water Resources

The Ȟaȟá Wakpádaŋ / Bassett Creek watershed has numerous streams, creeks, lakes, ponds, and wetlands. The Commission subdivided the watershed into 18 subwatersheds based on the drainage areas tributary to major surface waters and analyzed several metrics to classify 10 lakes and 4 streams as BCWMC priority waterbodies (Table 2-1; Figure 2-1). Other government units have identified or inventoried surface waters within the BCWMC specifically related to their management jurisdictions including:

- Public waters basins, watercourses, and wetlands – Minnesota Department of Natural Resources (MDNR)
- Public ditches – Hennepin County
- National Wetland Inventory (NWI) – US Fish and Wildlife Service (USFWS)

The furthest upstream reaches of the watershed originate upstream of Medicine Lake in western Plymouth as Plymouth Creek. This creek flows generally east and south, and flows into Medicine Lake in the southwest bay. The Main Stem of Ȟaȟá Wakpádaŋ / Bassett Creek begins at the Medicine Lake outlet, at the south end of the southeast bay of the lake. The Main Stem flows southeast through Plymouth, then easterly through Golden Valley, Crystal, and Minneapolis. The last 1.7 miles of the creek flows through the "new" Bassett Creek

tunnel and enters the Mississippi River near the Stone Arch Bridge beneath the water level of the River. The North Branch of Bassett Creek drains portions of eastern Plymouth and southern portions of New Hope and Crystal. It begins near Rockford Road (County Road 9) west of Highway 169, and flows east through New Hope and Crystal. The North Branch flows through Northwood Lake and Bassett Creek Park Pond, before joining the Main Stem of Ȟaȟá Wakpádaŋ / Bassett Creek immediately upstream of Highway 100. The Sweeney Lake Branch drains northern St. Louis Park and southern portions of Golden Valley. The Sweeney Lake Branch flows northeast through Schaper Pond and Sweeney Lake and joins the Main Stem in Theodore Wirth Regional Park just downstream of Sweeney Lake.

Table 2-1 lists the BCWMC's priority waterbodies along with basic information including priority level, current impairments (indicating water quality standards are not being met) and known aquatic invasive species (AIS).

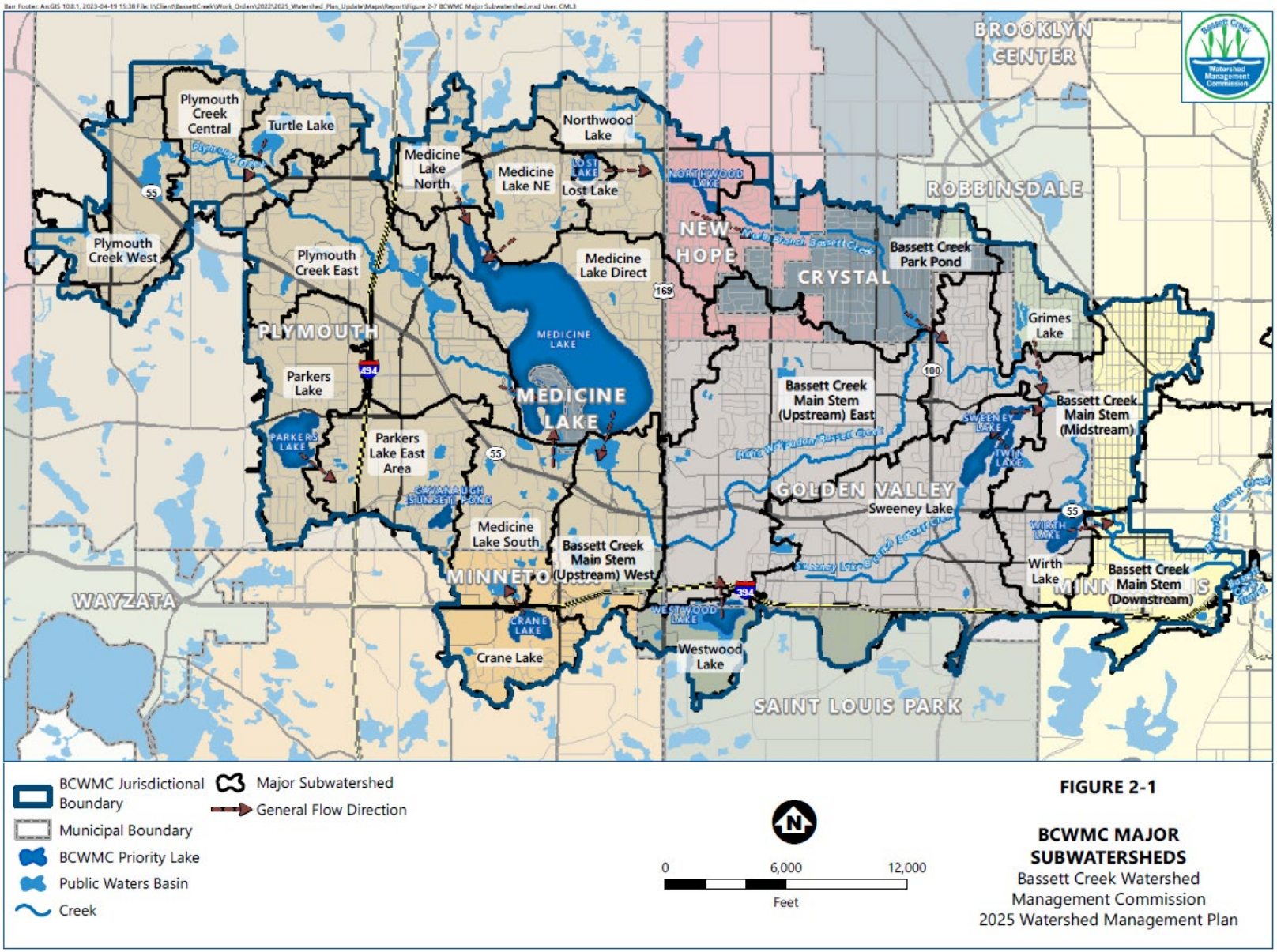


Figure 2-1 BCWMC Major Subwatersheds and Priority Waters

Table 2-1 Priority Waters in Bassett Creek Watershed

Name	Priority Level	Location	Size/ Length	Condition, Impairments, AIS[1]
Cavanaugh Pond (Sunset Lake)	Priority 2 shallow lake	Plymouth	13 acres	No impairments; good water quality; AIS = curly-leaf pondweed
Crane Lake	Priority 2 shallow lake	Minnetonka	30 acres	Impaired for high chlorides; AIS = curly-leaf pondweed
Lost Lake	Priority 2 shallow lake	Plymouth	22 acres	Impaired for high nutrients; AIS = curly-leaf pondweed
Medicine Lake	Priority 1 deep lake	Plymouth & Medicine Lake	902 acres	Impaired for high nutrients and degraded fish community; nearly impaired for high chlorides; AIS = zebra mussels, starry stonewort, curly-leaf pondweed, Eurasian watermilfoil
Northwood Lake	Priority 1 shallow lake	New Hope	15 acres	Impaired for high nutrients and chlorides AIS = curly-leaf pondweed
Parkers Lake	Priority 1 deep lake	Plymouth	97 acres	Impaired for high chlorides AIS = curly-leaf pondweed, Eurasian watermilfoil
Sweeney Lake	Priority 1 deep lake	Golden Valley	67 acres	Impaired for high chlorides; AIS = curly-leaf pondweed
Twin Lake	Priority 1 deep lake	Golden Valley	21 acres	No impairments; good water quality; AIS = curly-leaf pondweed
Westwood Lake	Priority 1 shallow lake	St. Louis Park	38 acres	No impairments; good water quality; AIS = curly-leaf pondweed
Wirth Lake	Priority 1 deep lake	Golden Valley	38 acres	Impaired for high chlorides; AIS = curly-leaf pondweed, Eurasian watermilfoil
Ȟaȟá Wakpádaŋ / Bassett Creek (main stem)	Priority 1 stream	Plymouth, Golden Valley Minneapolis	12 miles[2]	Impaired for high chlorides, degraded fish community; high bacteria
North Branch of Bassett Creek	Priority 1 stream	Plymouth, New Hope, Crystal	4.6 miles	Impaired for high bacteria
Plymouth Creek	Priority 1 stream	Plymouth	6.0 miles	Impaired for high chlorides, high bacteria, degraded macroinvertebrates
Sweeney Lake Branch of Bassett Creek	Priority 1 stream	Golden Valley	3.6 miles	Impaired for high bacteria

[1] "Impairment" indicates that State water quality standards are not being met; "AIS" denotes aquatic invasive species; lists do not include common carp which are found throughout the watershed. [2] From outlet of Medicine Lake to tunnel entrance.

Prior to development, much of the land within the BCWMC was wetland. Most wetland areas were drained or filled, originally for farming and then to make way for urban development. Today, wetlands represent only about 6% of the watershed (based on Minnesota Land Cover Classification System, MLCCS, data). In Minnesota, wetlands are protected by the Minnesota Wetland Conservation Act. BCWMC member cities identify and classify wetlands as part of local wetland inventories and/or require developers to delineate and classify wetlands as part of the development review process. In Minnesota, wetlands are typically classified according to their functions and values.

In addition to lakes, streams, and wetlands, the watershed is home to a number of significant ponds and smaller lakes such as Bassett Creek Park Pond, Grimes Pond, North and South Rice Ponds, Turtle Lake, and Spring Lake. Each of these basins are classified as public water lakes or public water wetlands. While these ponds and small lakes provide important habitats, community amenities, flood control, or other functions, they are not classified as priority waters by the BCWMC.

Two sections of Ȟaȟá Wakpádaŋ / Bassett Creek are officially considered public ditches, including a large portion of the Main Stem of Ȟaȟá Wakpádaŋ / Bassett Creek between Medicine Lake and Brookview Golf Course, and downstream of Highway 100 (Appendix A, Figure A-7). The original function of public ditches was to provide drainage for agricultural lands. Although these sections are now managed as creeks, the public ditch designation has not been removed.

2.6 Surface Water Quality

The lakes, ponds, streams, and wetlands of the Bassett Creek watershed are important community assets providing ecological and recreational benefits. Most of the goals, and the majority of the work of the BCWMC, focuses on improving or protecting these waters from the effects of pollution, development, climate change, and other detrimental impacts. As in most urban areas, the quality of lakes and streams is stressed by factors related to development. Stormwater runoff is a primary source of many pollutants including chlorides, phosphorus and other nutrients, sediments, pathogens/bacteria, trash, organic materials, hydrocarbons, metals, pesticides, and other toxins. Chlorides (i.e., salts from winter deicers), phosphorus, and suspended sediment are particularly detrimental to the ecological health and recreational use of lakes and streams. The BCWMC adopted the Minnesota Pollution Control Agency's water quality standards for these and other pollutants. Priority waters that do not meet water quality and ecological standards are listed as "impaired" by the State of Minnesota and shown in Table 2-1.

The quality of lakes and streams in the BCWMC has changed over time. Water quality reports and graphs with trends for key parameters can be found on the BCWMC website: www.bassettcreekwmo.org. One of the most significant changes is the increase in chloride concentrations in many lakes and streams. Conversely, water quality improvements in Wirth Lake and Sweeney Lake resulted in these lakes being removed from the impaired waters list for nutrients in 2017 and 2024, respectively. It is also notable that Twin Lake in Golden Valley continues to have excellent water quality, likely due to its small contributing watershed area.

The BCWMC implements a robust and comprehensive water monitoring program in its priority waters to track changes over time, target future work, inform its watershed-wide P8 model (pollutant loading model), and assess progress toward meeting goals. The BCWMC collaborates with various cities, park districts, and agencies

to augment and not duplicate water monitoring efforts. The complete water monitoring program is described in Appendix B.

2.7 Water Quantity and Flood Risk

The BCWMC was originally formed in 1969 to address flooding issues in the watershed. Flood risk reduction remains a primary focus of the BCWMC's work along with water quality improvements. The BCWMC works to minimize flooding along its "trunk system" which is defined as the priority streams along with structures and designated flood storage areas as shown in Appendix A, Figure A-11.

Beginning in the 1960s, aging stormwater infrastructure and rapid urbanization resulted in flooding problems in the Bassett Creek watershed. For decades, flooding caused damages to homes, businesses, and recreational areas along Ȟaȟá Wakpádaŋ / Bassett Creek; the worst problems occurred along the 1.5-mile long (old) Bassett Creek Tunnel, which was undersized and severely deteriorated. The BCWMC partnered with the US Army Corps of Engineers (USACE), Minnesota Department of Transportation (MnDOT), Minnesota Department of Natural Resources (MDNR), and member cities to address these issues with the construction of the Bassett Creek Flood Control Project (BCWMC Flood Control Project).

Between 1987 – 1996, the USACE and its partners constructed the $40 million (at the time of construction) Flood Control Project. The project manages flooding in portions of Golden Valley, Plymouth, Minneapolis, and Crystal and reduced flood elevations along the Ȟaȟá Wakpádaŋ / Bassett Creek corridor by 2 feet in Golden Valley, 1½ feet in Crystal, and up to 4½ feet in Minneapolis. The BCWMC Flood Control Project also reduced average annual flood damages by 62 percent. The principal feature of the BCWMC Flood Control Project is the "new" 1.7-mile tunnel under downtown Minneapolis.

The Flood Control Project is regularly inspected by the BCWMC, and repairs and maintenance are scheduled by cities and the BCWMC as needed. Learn more about the Flood Control Project in Section 4.1.7.

Although flooding and flood risk are a top concern, low water levels can also impact the ecological health and recreational use of lakes, streams, and wetlands. Water quantity in general – encompassing both high and low water levels is considered a high priority issue of the BCWMC (see Section 3).

The BCWMC routinely collects lake level and stream flow data which is used in its hydrologic and hydraulic model. The model is used to track changes over time, model flows, map floodplains, and analyze the impacts of development.

2.8 Natural Communities, Wildlife, and Habitat

Prior to western settlement, the Ȟaȟá Wakpádaŋ / Bassett Creek watershed was covered by two major natural communities. From the Mississippi River to Medicine Lake, a predominantly oak forest interrupted by tall grass prairie and marsh covered the watershed. A dense deciduous forest known as the "Big Woods" covered the area west of Medicine Lake characterized by elm, sugar maple, and basswood. Scattered remnants of this forest are still present throughout much of its original range. Historically, this area of Ȟaȟá Wakpádaŋ / Bassett Creek provided material, nutritional, and spiritual sustenance to the Dakota peoples. As conveyed in the Land and Water Acknowledgment Statement (Section 1.0), the BCWMC acknowledges the forced removal of the Dakota from the lands and waterways that nurtured them as relatives and recognizes the environmental impact of decades of agriculture and urban development – degradation that continues in the watershed today.

Despite agricultural disturbance followed by urbanization, there are some areas of biodiversity significance and some occurrences of federally- or state-listed rare animal species in the watershed as noted in the Minnesota Biological Survey and the National Heritage Information System, respectively. Conversely, non-native invasive species from other parts of the world are common throughout the watershed, significantly harming the ecology of surface waters, riparian areas, and uplands. Buckthorn is a common invasive shrub that often dominates uplands and riparian areas, exacerbating soil loss and devasting natural vegetation. Aquatic invasive species (AIS) such as curly-leaf pondweed and Eurasian watermilfoil are found in many lakes in the watershed. Relatively new infestations of zebra mussels and starry stonewort in Medicine Lake are also a concern. Table 2-1 includes information on AIS found in priority lakes. BCWMC's AIS management program is found in Section 4.1.6.

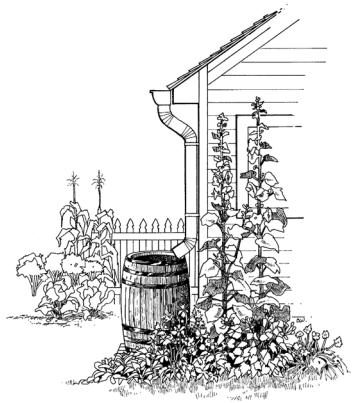
Aquatic plants, or macrophytes, are a natural and integral part of most lake communities. A lake's aquatic plants, generally located in shallow areas near the shoreline of the lake, provide habitat for fish, insects, and small invertebrates, provide food for waterfowl, fish and wildlife, produce oxygen, provide spawning areas for fish, help stabilize and protect shorelines from wave erosion, and provide nesting sites for waterfowl. The BCWMC routinely surveys macrophytes in priority lakes as part of its water monitoring program.

2.9 Pollutant Sources

The sources of water pollution in the Ȟaȟá Wakpádaŋ / Bassett Creek watershed are many and varied. There are many permitted sites, hazardous waste generators, and contaminated sites within the BCWMC. The MPCA maintains a database of these sites, which includes permitted sites (air, industrial stormwater, construction stormwater, wastewater discharge), hazardous waste generating sites, leak sites, petroleum brownfields, tank sites, unpermitted dump sites, and sites enrolled in the Voluntary Investigation and Cleanup (VIC) program. The location of these potentially contaminated or hazardous waste sites should be considered as areas redevelop and best management practices are implemented. The presence of soil contamination at many of these sites, if not removed, may limit or prevent infiltration as a stormwater management option.

In contrast to sites with known hazards, non-point source pollution cannot be traced to a single source or pipe. Instead, pollutants are carried to water in stormwater or snowmelt runoff, in seepage through the soil, and in atmospheric transport. Discharge from stormwater pipes is considered a non-point source discharge as the pollutants coming from the pipe are generated across the watershed contributing to the pipe, not at a single location.

As noted in Section 2.6 stormwater runoff is the major contributor of pollutants to surface waters. Stormwater collects pollutants from rooftops, driveways, parking lots, and streets before it flows into lakes and streams. Watershed residents can help decrease stormwater pollution by keeping streets and storm drains free of grass clippings and leaves which quickly decompose and release nutrients into the water. Using alternative deicers (such as grit) and/or sweeping up salt left on dry pavements also improves water quality downstream. Capturing rainfall in barrels or raingardens before it even leaves your property reduces stormwater runoff.



3 Issues and Goals

This section summarizes the priority issues addressed by this Plan. Priority issues are divided into four categories:

- Waterbody and Watershed Quality
- Flooding and Climate Resiliency
- Education and Engagement
- Organizational Effectiveness

Subsections specific to individual issues present the following information:

- Issue statement
- Narrative describing the issue
- Links to additional resources
- Desired future conditions
- Measurable goals
- BCWMC tools available to address the issue

Table 3-1 Priority Issues by Category

Category	Issue	Priority
Waterbody and watershed quality	Impaired Waters	High
	Chloride Loading	High
	Streambank and Gully Erosion	Medium
	Lakeshore Erosion	Medium
	Wetland Health and Restoration	Medum
	Aquatic Invasive Species	Medum
	Groundwater-Surface Water Interaction	Medum
	Degradation of Riparian Areas	Low
	Degradation of Upland Areas	Low
	Groundwater Quality	Low
Flooding and Climate Resiliency	Impact of Climate Change on Hydrology, Water Levels, and Flooding	High
	Bassett Creek Valley Floor Risk Reduction	High
	Groundwater Quantity	Low
Education and Engagement	Public Awareness and Action	Medium
	Engagement of Diverse Communities	Medium
	Recreation Opportunities	Low
Organiza-tional Effectiveness	Organizational Capacity and Staffing	High
	Funding Mechanisms	High
	Progress Assessment	Medium
	Projects and Programs Implemented through a DEIA Lens	Medium
	Public Ditch Management	Low
	Carbon Footprint of BCWMC Projects	Low

3.1 Impaired Waters – High Priority

Issue Statement

Some lakes and streams within the Ȟaȟá Wakpádaŋ / Bassett Creek watershed do not meet State water quality standards; some are listed as impaired for aquatic life function and recreational use due to pollutants such as nutrients, chloride, bacteria, and other stressors.

The Minnesota Pollution Control Agency (MPCA) administers the Federal Clean Waters Act (CWA) in Minnesota. In this role, the MPCA identifies and maintains a list of waterbodies that do not meet applicable state water quality standards adopted to promote intended waterbody uses including recreation, consumption of fish, and support of aquatic life. Waterbodies in the BCWMC that do not meet applicable standards are listed in Table 3-2 and in Appendix A.

The sources of water pollution in the watershed are many and varied. Potential pollutant sources include permitted point sources, potentially contaminated sites, leaking above- and below-ground storage tanks, unsealed wells, and non-point sources such as stormwater runoff. Internal loading of nutrients accumulated in lake sediments and from decades of watershed runoff and decaying aquatic plants can also be significant. For many BCWMC waterbodies, stormwater runoff is the major external contributor of pollutants. Pollutants in stormwater runoff include phosphorus and other nutrients, sediment, chlorides, oil, grease, chemicals (including hydrocarbons), metals, litter (e.g., plastics) and pathogens. Chloride pollution from runoff carrying road salt applied to roadways, parking lots, sidewalks, and other paved areas throughout the winter months is a particularly difficult challenge with no silver bullet solution (see more in Section 3.2).

Table 3-2 Summary of Impaired Waters within the BCWMC (approved 2024)

Waterbody	Impaired Use	Pollutant or Stressor
Crane Lake	Aquatic Life	Chloride (salt)
Parkers Lake	Aquatic Consumption	Mercury in Fish Tissue
	Aquatic Life	Chloride (salt)
Medicine Lake	Aquatic Consumption	Mercury in Fish Tissue
	Aquatic Recreation	Nutrients/Eutrophication
	Aquatic Life	Fish Bioassessments
Sweeney Lake	Aquatic Life	Chloride (salt)
Wirth Lake	Aquatic Consumption	Mercury in Fish Tissue
	Aquatic Life	Chloride (salt)
Lost Lake	Aquatic Recreation	Nutrients/Eutrophication
Northwood Lake	Aquatic Recreation	Nutrients/Eutrophication
Ȟaȟá Wakpádaŋ / Bassett Creek (Main Stem)	Aquatic Life	Chloride (salt)
	Aquatic Life	Macroinvert. Bioassess.
	Aquatic Life	Fish Bioassessments
	Aquatic Recreation	Fecal Coliform
Plymouth Creek	Aquatic Life	Macroinvert. Bioassess.
	Aquatic Life	Chloride (salt)
	Aquatic Recreation	Escherichia coli (bacteria)
North Branch Bassett Creek	Aquatic Recreation	Escherichia coli (bacteria)
Sweeney Branch Bassett Creek	Aquatic Recreation	Escherichia coli (bacteria)
Spring Lake	Aquatic Life	Chloride (salt)

See also Appendix A – Land and Water Resources Inventory.

In lakes, phosphorous is the pollutant of primary concern. As phosphorus loads increase, water quality degradation often accelerates, resulting in negative impacts such as excess algae growth (reflected in high chlorophyll a concentrations), and decreased water clarity (measured as Secchi depth). Combined, these deteriorated conditions are called "eutrophication." Algal blooms and invasive aquatic plants, such as Eurasian watermilfoil, purple loosestrife, and curly-leaf pondweed, can thrive and interfere with ecological function, recreational use, and the aesthetics of waterbodies. Some types of blue-green algae contain neurotoxins that can be harmful to people or pets if consumed. Sediment is also a pollutant of concern as it can carry phosphorus and other pollutants that bind to it. It contributes to poor water clarity that affects vegetation growth and deposits onto stream and lake beds, impacting aquatic habitat.



Medicine Lake's poor water quality and over abundance of algae impact aquatic life and recreation.

This plan also aims to reduce bacteria levels in streams. In urban settings, bacteria can come from pet waste, wildlife, leaking sanitary sewers, and biofilm build up in pipes.

Finally, lakes and streams can also be considered impaired because they are not meeting ecological standards for macroinvertebrates (i.e., bugs and other small aquatic life), aquatic vegetation, or fish communities. Habitat degradation is a result of multiple factors including declining water quality, changes to the climate and hydrology, recreational use, etc. Improvements to water quality, management of invasive species (more in Section 3.X), and improvements to streambanks, shorelines, and in-stream habitats can enhance aquatic communities.

Additional Resources

- Water quality summaries and monitoring reports for BCWMC priority waterbodies
- MPCA Impaired waters list
- MPCA What's in My Neighborhood potential pollutant sources and environmental information
- Minnesota Stormwater Manual summary of common pollutants in stormwater

Impaired Waters Desired Future Condition

Water quality in priority waterbodies meets or is better than applicable State water quality standards.

Impaired Waters Goals

WQ1: Achieve State eutrophication standards in Medicine Lake (see Table 3-3).

WQ2: Make statistically significant improvement in water quality toward achieving State eutrophication standards in Northwood Lake and Lost Lake (see Table 3-3).

WQ3: Maintain current conditions or improve water quality in priority lakes currently meeting State eutrophication standards: Cavanaugh Pond, Crane Lake, Parkers Lake, Sweeney Lake, Twin Lake, Westwood Lake, Wirth Lake (see Table 3-3).

Table 3-3 BCWMC Priority Lake Water Quality Compared to State Eutrophication Standards

Priority Lake	State Standard Total Phosphorus (ug/L)	Current Condition Total Phosphorus (ug/L)[1]	State Standard Chlorophyll *a* (ug/L)	Current Condition Chlorophyll *a* (ug/L)[1]	State Standard Secchi Depth (m)	Current Condition Secchi Depth (m)[1]
Cavanaugh Pond	60	39	20	9.1	>1.0	1.8
Crane Lake	60	28	20	7.0	>1.0	0.9[4]
Lost Lake	60	95	20	50	>1.0	0.8
Medicine Lake[2]	40	54	14	30	>1.4	1.8
Northwood Lake	60	223	20	72	>1.0	0.7
Parkers Lake	40	27	14	11	>1.4	2.8
Sweeney Lake[3]	40	34	14	14	>1.4	1.6
Twin Lake	40	15	14	3.6	>1.4	3.5
Westwood Lake	60	32	20	4.9	>1.0	1.3
Wirth Lake	40	28	14	8.1	>1.4	2.8

Red = does not meet standard/goal

(1) Based on summer average data collected 2013-2022 (will be updated with most recent data before plan adoption)

(2) Main basin (3) North basin (4) Crane Lake Secchi depth is limited due to dense aquatic plant growth

Impaired Waters Goals (continued)

WQ4: Reduce sources of bacteria (*E. coli*) to Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem, North Branch Bassett Creek, Plymouth Creek, and Sweeney Branch Bassett Creek (see Table 3-4).

WQ5: Maintain or improve water quality in priority streams to achieve State eutrophication standards (see Table 3-3) – Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem, North Branch Bassett Creek, Plymouth Creek, and Sweeney Branch Bassett Creek.

WQ6: Maintain total phosphorus loading to the Mississippi River of 0.35 lb/acre/year or less (as defined in the Lake Pepin TMDL).

Table 3-4 BCWMC Priority Stream Water Quality Compared to State Standards

Priority Lake	State Standard Total Phosphorus (ug/L)	Current Condition Total Phosphorus (ug/L)[1]	State Standard Total Suspended Solids (mg/L)	Current Condition Total Suspended Solids (mg/L)	State Standard *E. coli* (#/100 mL)[2]	Current Condition *E. coli* (#/100 mL)
Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem	100	195	30	9.1	126	168
North Branch Bassett Creek	100	91	30	73	126	537
Plymouth Creek	100	227	30	50	126	853
Sweeney Branch Bassett Creek	100	101	30	30	126	257

Red = does not meet standard/goal

(1) Based on summer average data collected 2013-2022 for Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem, 2018 for North Branch Bassett Creek, 2020 for Sweeney Branch Bassett Creek, and 2022 for Plymouth Creek

(2) 126 organisms per 100 mL as a geometric mean of not less than five samples within any month, nor shall more than 10% of all samples within a month exceed 1,260 organisms per 100 mL (note that BCWMC monitoring is limited to fewer than 5 samples per month)

Impaired Waters Goals (continued)

WQ7: Maintain or improve macroinvertebrate indices of biological integrity (MIBI) in priority streams: Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem, North Branch Bassett Creek, Plymouth Creek, Sweeney Branch Bassett Creek (see Table 3-5).

WQ8: Maintain or improve lake floristic quality indices (FQIs) and number of species towards achieving State standards for aquatic vegetation in Cavanaugh Pond, Crane Lake, Lost Lake, Medicine Lake, Northwood Lake, Parkers Lake, Sweeney Lake, Twin Lake, Westwood Lake, and Wirth Lake (see Table 3-6).

WQ9: Maintain or improve fish index of biologic integrity for applicable priority lakes.

Table 3-5 BCWMC Priority Stream Macroinvertebrate Data Compared to State Standards

Priority Stream	Location	State Std MIBI	Current Condition MIBI[1]	Years of Current MIBI
Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem	East of Brookridge	≥37	22.9	2015, 2018
Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem	Irving Avenue	≥37	22.0	2015, 2018
Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem	Rhode Island Avenue	≥37	17.6	2015, 2018
North Branch Bassett Creek	34th Street	≥37	23.0	2015, 2018
Plymouth Creek	Industrial Park Blvd	≥37	15.9	2015, 2022
Sweeney Branch Bassett Creek	Woodstock Avenue	≥43	45.5	2015, 2020

MIBI = Macroinvertebrate Index of Biological Integrity
State MIBI standards are based on "general use" category for Class 5 southern high-gradient streams (MIBI = 37) or Class 6 southern forest low-gradient stream (MIBI = 43)
Red = does not meet standard/goal
(1) Based on average of listed years

Table 3-6 BCWMC Priority Lake Aquatic Macrophyte (Plant) Data Compared to State Standards

Priority Lake	State Std FQI	Most Recent FQI[1]	10-year Average FQI[2]	State Std Species Richness	Most Recent Species Richness[1]	10-year Average Species Richness[2]	Year of Most Recent Data	Years of Average Data
Cavanaugh Pond	>17.8	25.0	25.0	11	19	19	2019	2019
Crane Lake	>17.8	18.6	18.8	11	13.5	14	2021	2016, 2021
Lost Lake	>17.8	20.6	11.8	11	8.0	14.5	2022	2017, 2022
Medicine Lake	>18.6	27.6	25.3	12	21	23.5	2020	2016, 2020
Northwood Lake	>17.8	14.1	14.5	11	11.2	11	2022	2016, 2019, 2022
Parkers Lake	>18.6	19.5	18.9	12	13	13	2021	2018, 2021
Sweeney Lake	>18.6	25.2	21.7	12	15.3	19.5	2020	2014, 2017, 2019, 2020
Twin Lake	>18.6	28.3	24.7	12	19	23	2020	2014, 2017, 2019, 2020
Westwood Lake	>17.8	20.1	19.0	11	13.7	15.5	2021	2015, 2018, 2021
Wirth Lake	>17.8	--	--	11	--	--	--	--

FQI = Floristic Quality Index: FQI is a measure of the quality of aquatic vegetation

Red = does not meet standard/goal based on 10-year average FQI

(1) Reflects the average of June and August measurements during the most recent monitoring year

(2) Reflects average of all measurements in the 10-year period from 2014-2023

Tools to address Impaired Waters

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Monitoring and Modeling – The BCWMC collects and reviews water quality data for priority waterbodies to assess conditions, trends, and progress towards goals (Appendix B). The BCWMC maintains a watershed-wide water quality model to identify areas of high pollutant loading ("hot spots") to target and evaluate the benefits of proposed improvements.

Studies and Assessment– The BCWMC performs subwatershed assessments (SWAs) and other studies to evaluate sources of pollution and opportunities for treatment.

Requirements for Development and Other Projects– The BCWMC evaluates development, redevelopment, and other project proposals for conformance performance standards to limit pollutant loading from the watershed.

Capital Projects – The BCWMC implements projects to reduce pollutant loading to priority waterbodies and improve aquatic habitats.

Education and Outreach – The BCWMC and its partners share materials encouraging the use of stewardship practices that limit pollution and promote protection of waters.

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; AIS Management; Evaluation and Assessment.



*The **Sweeney Lake Water Quality Improvement Project** significantly reduced phosphorus, improved water quality, and supported a balanced aquatic ecosystem in Sweeney Lake. Regular monitoring from 1985 to 2018 indicated that 74% of the time, nutirent concentrations exceeded the state standard . Further, the lake had a history of harmful algal blooms, negatively impacting the lake's recreational usability. Despite numerous best management practices installed or implemented in the lake's watershed over the years, water quality in Sweeney Lake had not improved.*

In 2018 the Sweeney Lake Association agreed to turn off the year-round aerators that had been running for decades. This change improved the water quality. The BCWMC project further reduced total phosphorus in the lake with a combination of curly-leaf pondweed control, carp management in upstream Schaper Pond and Sweeney Lake, and an alum treatment in Sweeney Lake.

Following the project, water quality in Sweeney Lake improved and the MPCA removed Sweeney Lake from the impaired waters list. for excess nutrients.

3.2 Chloride Loading – High Priority

Issue Statement

High chloride loading from use of winter deicers across the Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem watershed negatively impacts lakes, streams, and groundwater water quality.

Chloride is toxic to aquatic life in high concentrations. The State has established surface water standards for chloride of 230 mg/L for chronic (long term) exposure and 860 mg/L for acute (short term) exposure. Data collected from Twin Cities Metro Area (TCMA) lakes, wetlands, and streams identified several waterbodies that exceed the State standard including the following (see also Table 3-2):

- Crane Lake
- Parkers Lake
- Spring Lake
- Sweeney Lake
- Wirth Lake
- Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem (Main Stem)
- Plymouth Creek

In addition to the waters listed above, Medicine Lake is considered "nearly impaired" for chloride, meaning it is close to exceeding State standards.

The use of sodium chloride (salt) as a deicing agent for winter maintenance of impervious surfaces such as sidewalks, parking lots, and roads is a significant source of chloride pollution in the Ȟaȟá Wakpádaŋ / Bassett Creek watershed. As it melts snow and ice, chloride dissolves into the melted water and is transported in runoff to lakes, streams, and wetlands. Residential water softeners may also be a significant source of chloride. In the BCWMC, chloride from water softeners is transported downstream to municipal wastewater treatment plants (WWTPs) that discharge to the Mississippi River. However, typically wastewater treatment is not effective in removing chloride.



Chloride is extremely persistent in the environment and is considered a "permanent pollutant" because it dissolves in water and there is no practical way to remove it. Protecting surface waters from excess chloride pollution is more effective than restoring impaired surface waters. Designing sites with consideration for winter maintenance and low-salting needs is a critical step in source control. While only some BCWMC priority waterbodies are currently listed as impaired due to chloride, the BCWMC considers all waterbodies at risk due to chloride loading from the highly impervious land use throughout the watershed. Additionally, while there are some regulations about salt storage, there are no State or local rules or laws that regulate the

amount, timing, or equipment used to spread deicing salts. And, while there are trainings, education, and "Smart Salt" certification courses, there is no licensing program for salt applicators.

Additional Resources

- MPCA summary information about chloride as a stormwater pollutant
- Smart Salting training resources from the MPCA
- Twin Cities Metropolitan Area Chloride Management Plan

Chloride Loading Desired Future Condition

Priority waterbodies meet applicable State chloride standards.

Chloride Loading Goals

CHL1 Reduce chloride loading to, and concentrations in lakes and streams at risk of chloride impairment and those not meeting State standards.

CHL2: Reduce average chloride concentrations in Ȟaȟá Wakpádaŋ / Bassett Creek by 10% at the Watershed Outlet Monitoring Program (WOMP) station.

Table 3-7 BCWMC Priority Waterbody Chloride Data Compared to State Standards

Priority Waterbody	State Chronic Std Chloride (mg/L)	Current Condition Average Chloride[1] (mg/L)	State Acute Std Chloride (mg/L)	Current Condition Maximum Chloride[1] (mg/L)	Number of Observations
Cavanaugh Pond	230	59	860	70	12
Crane Lake[3]	230	718	860	820	6
Lost Lake	230	31	860	33	12
Medicine Lake	230	162	860	375	318
Northwood Lake	230	104	860	274	12
Parkers Lake[3]	230	257	860	716	103
Sweeney Lake[3]	230	276	860	371	48
Twin Lake	230	117	860	139	26
Westwood Lake	230	81	860	99	12
Wirth Lake[3]	230	200	860	512	306
Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem[2,3]	230	165	860	664	259
North Branch Bassett Creek	230	88	860	219	12
Plymouth Creek[3]	230	180	860	382	25
Sweeney Branch Bassett Creek	230	218	860	348	18

Red = water quality does not meet State chloride standard

(1) Based on all measurements 2013-2022

(2) As measured at watershed outlet monitoring program (WOMP) location

(3) A lake or stream is considered impaired if two or more measurements exceed the chronic criterion within a 3-year period or if one measurement exceeds the acute criterion

Tools to address Chloride Loading

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Education and Engagement – The BCWMC works with partners to support training, communications, and other outreach promoting strategies to minimize chloride pollution including Smart Salting Certification training; Low Salt, No Salt MN campaigns; and Low Salt Design workshops.

Requirements for Development and Other Projects— The BCWMC's Requirements for Development and Other Projects document now requires that chloride management plans be developed and followed on sites where stormwater maintenance agreements are in place.

Monitoring and Modeling – The BCWMC collects and reviews water quality data for priority waterbodies to assess chloride concentrations, trends, and progress towards goals. The BCWMC maintains a watershed-wide water quality model to identify areas of high pollutant loading ("hot spots") to target and evaluate opportunities for treatment or load reduction.

Studies and Assessment– The BCWMC performs subwatershed assessments (SWAs) and other studies to evaluate sources of chloride pollution and opportunities for source load reduction.

Inter-agency Planning – the BCWMC coordinates with state and local partners to identify, evaluate, and implement strategies to reduce salt use and chloride loading.

Other tools: Operations, Administration, and Technical Assistance; CIP; Evaluation and Assessment.



*The **MPCA Smart Salting** program helps improve winter maintenance operator effectiveness and reduce chloride pollution while keeping roads, parking lots, and sidewalks safe. Participating organizations have been able to reduce their salt use by 30 to 70%. In addition, the training has been shown to prevent chloride contamination in lakes, rivers, and streams. More information is available at:* Smart Salting training | Minnesota Pollution Control Agency (state.mn.us)

3.3 Lakeshore Erosion – Medium Priority

Issue Statement

Erosion along lake shorelines degrades water quality and negatively impacts lake ecology.

The extent and severity of lakeshore erosion issues within the watershed is not comprehensively known and additional data is needed. The extent of lake shoreline within private property highlights the importance of partnering with a wide range of individuals and groups to sustainably implement practices to address shoreline erosion concerns.

Shoreline erosion occurs when land at the edge of a waterbody is eroded by wave action. Wave action is primarily driven by wind but can also be driven or exacerbated by powered watercraft. Shoreline erosion can result in the loss or degradation of habitat, increased sediment and nutrient loading to lakes, increased maintenance of recreational facilities, and diminished access. Shoreline erosion problems may be amplified by high water, frequent water level fluctuations, and the absence of lakeshore vegetation (i.e., buffers).

Shoreland ordinances adopted by BCWMC member cities include standards to minimize erosion and protect shoreline areas but are often only triggered by significant redevelopment activity. Eroded shorelines are often stabilized using "hard armoring" techniques like riprap that do not provide the water quality filtration or habitat benefits of vegetation or other soft-armoring stabilization methods. *A healthy, vegetated buffer along the shoreline of Medicine Lake*



Desired Future Condition

Shorelines along priority lakes have buffers with native vegetation and no excessive erosion.

Lakeshore Erosion Goals

LK1: Establish a baseline of lakeshore conditions along all priority lakes.

LK2: Increase the percentage of properties with native buffers on nutrient-impaired lakes.

Tools to address lakeshore erosion

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Studies and Assessments – The BWCMC will inventory shoreline conditions of priority lakes for erosion issues and presence of buffers.

Education and Engagement – The BCWMC and its partners communicate the benefits of vegetated shorelines and may develop a program to cost share shoreline restoration projects.

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; Monitoring and Modeling; Studies and Assessments; CIP; Evaluation and Assessment.

3.4 Wetland Health and Restoration – Medium Priority

Issue Statement

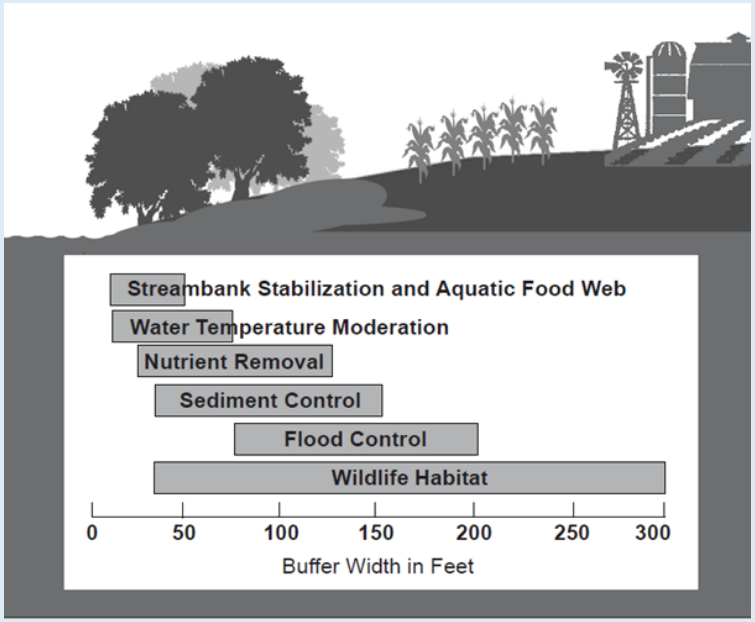
The function, value, and quantity of wetlands within the Ȟaȟá Wakpádaŋ / Bassett Creek watershed have been negatively impacted by development and the changing climate.

Healthy wetlands are critical components of the hydrologic system and positively affect soil systems, groundwater and surface water quality and quantity, wildlife, fisheries, aesthetics, and recreation. Beneficial functions of wetlands include (but are not limited to):

- Maintaining stream baseflow
- Recharging groundwater
- Providing flood storage and attenuating peak flows
- Providing erosion protection
- Physically filtering particulates (and pollutants attached to particulates) from runoff
- Providing wildlife habitat



Although the benefits of vegetated buffers to downstream resources can be difficult to quantify, wider buffers can achieve a broader range of and/or more significant benefits.



Source: Riparian Forest Buffers: Linking Land and Water. 2004. Alliance for the Chesapeake Bay.

Healthy wetland functions also contribute to the overall resiliency of the landscape to climate extremes. The ecological benefits of wetland communities are increased when they are physically or functionally connected with other native communities. As a fully developed urban landscape, many of these functions have been impaired or lost, requiring action.

Many wetlands within the Ȟaȟá Wakpádaŋ / Bassett Creek watershed have been impacted by development and other human activities including draining, filling, altering outlet elevations, reducing drainage area, removing vegetation for access or aesthetics, allowing the encroachment and proliferation of invasive plants, and diverting stormwater to wetlands. These impacts can diminish the beneficial hydrologic functions of wetlands and tip the ecological balance to benefit invasive plant species, further reducing the benefits to water quality, wildlife, fisheries, amphibians, and humans.

The establishment of vegetated buffers is a common practice to protect existing wetlands. There are also potential opportunities for the BCWMC and its partners to implement additional protection and restoration efforts.

Desired Future Condition

Wetland function and values are sustained and enhanced, and no additional wetland acres are lost to development.

Wetland Health and Restoration Goals

WET1: Establish baseline wetland conditions through watershed-wide wetland inventory and assessment; identify priority wetlands.

WET2: Restore or enhance priority wetlands as opportunities arise or as adjacent CIP projects are planned.

Tools to address wetland health and restoration:

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Studies and Assessments – BCWMC member cities inventory and classify wetlands according to functions and values, comprehensively or on an as needed basis. The BCWMC will work with cities to develop a watershed-wide wetland inventory and identify priority wetlands or restoration.

Capital Improvement Program – The BCWMC will incorporate wetland restoration into capital projects as opportunities arise.

Project Review – The BCWMC reviews development, redevelopment, and other projects relative to performance standards that require vegetated buffers adjacent to wetlands. Wetland buffer standards are implemented by member cities.

The BCWMC also administers the Wetland Conservation Act (WCA) for the cities of Medicine Lake, Robbinsdale, and St. Louis Park. Other member cities administer WCA within their cities.

The WCA provides basic protections to minimize wetland impacts and requires mitigation for those impacts.

Education and Engagement – The BCWMC and its partners communicate the beneficial functions of wetlands and promote stewardship practices that protect wetlands.

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; Monitoring and Modeling; AIS Management; CIP; Evaluation and Assessment.

3.5 Aquatic Invasive Species – Medium Priority

Issue Statement

Aquatic invasive species (AIS) present in the Ȟaȟá Wakpádaŋ / Bassett Creek can negatively impact water quality, and lake and stream ecology, and are exacerbated by climate trends.

Aquatic invasive species (AIS) is a term given to invasive species that inhabit lakes, wetlands, rivers, or streams and outcompete or inhibit the growth of native species. The presence of AIS can impair the ecological, aesthetic, and recreational functions of aquatic, wetland, and shoreland areas.

Several waterbodies within the Ȟaȟá Wakpádaŋ / Bassett Creek watershed are known to contain AIS populations (Table 2-1). Some AIS contribute directly to nutrient loading in lakes and streams (e.g., curly-leaf pondweed, carp). Other AIS impact lake ecology by creating less diverse habitats that support fewer species and are less resilient to climate extremes.

Based on their potential environmental impact and the difficulty of eradication once a waterbody is infested, the BCWMC seeks to prevent the spread of AIS and manage the AIS already present. The BCWMC partners with the Minnesota Department of Natural Resources (MDNR) and other partners in AIS management efforts. The MDNR administers a statewide Invasive Species Program. More information is available at: Aquatic Invasive Species - Programs, Reports, and Partners | Minnesota DNR (state.mn.us)

Species prioritized in the BCWMC AIS rapid response plan include:

Curly-leaf Pondweed *(Potamogeton crispus)*:

This submersed aquatic plant grows vigorously during early spring, outcompeting native species for nutrients. After curly-leaf pondweed dies out in early to mid-summer, decay of the plant releases nutrients and consumes oxygen, creating conditions that can increase sediment release of phosphorus. This process may result in algal blooms during the peak of the summer season, impacting recreation and inhibiting native plant growth by reducing water clarity and blocking sunlight.

Common Carp

Carp feeding techniques disrupt shallow-rooted plants, which can reduce water clarity and possibly release phosphorus bound in sediment, leading to increased algal blooms and a decline in native aquatic plants. Common carp are present throughout the watershed and are typically spread between lakes by the accidental inclusion and later release of live bait, but can also migrate through natural or built channels.

Zebra mussels (*Dreissena polymorpha*)

Zebra mussels were identified in Medicine Lake in 2017 and are present in several surrounding watersheds. Their huge populations attach to hard surfaces, encrust boat motors and hulls, may greatly reduce lakefront property values, and their sharp shells cut swimmers feet. Ecologically, they filter enormous quantities of microscopic algae, alter energy flow through aquatic systems, smother and cause extinctions of native bivalves, and promote toxic bluegreen algal blooms through their selective filtration. Although the presence of zebra mussels may improve overall water clarity, other water quality issues are likely to persist.

Eurasian watermilfoil (*Myriophyllum spicatum*)

This invasive aquatic plant reproduces from fragments and seeds. Nearly any fragment of the plant stem can produce a new viable plant. Eurasian watermilfoil (EWM) can survive over the winter and outcompete native species in the spring. The plants often form a canopy throughout the summer that shades out native plants. EWM is spread most commonly by inadvertent transport by boaters. EWM's fast growth rate, ability to spread rapidly by fragmentation, and its ability to effectively block out sunlight needed for native plant growth often result in monotypic stands. Monotypic stands of EWM provide only a single habitat and threaten the integrity of aquatic communities, including disrupting predator-prey relationships. Dense stands of EWM also inhibit recreational uses like swimming, boating, and fishing. Cycling of nutrients from sediments to the water column by EWM may lead to deteriorating water quality and algae blooms of infested lakes.

Starry stonewort (*Nitellopsis obtusa*):

Starry stonewort was discovered in Medicine Lake in 2018. It is an invasive green alga that can grow tall and dense, forming mats on the surface that interfere with recreation and potentially displace native plant species (MAISRC, 2017c). The spread of starry stonewort is estimated to be through human movement of fragments from lake to lake. It was first recorded in Minnesota in 2015.

Desired Future Condition

No new AIS infestations in lakes or creeks. Existing AIS are managed such that they are not negatively impacting beneficial functions.

Aquatic Invasive Species Goals

AIS1: Prevent new AIS infestations in lakes or creeks throughout the watershed.

AIS2: Mitigate the impact of existing AIS infestations through application of BCWMC policies and practices.

Tools to address aquatic invasive species

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

AIS Management – The BCMWC performs select actions in priority waters consistent with its *AIS Rapid Response Plan* (BCWMC, 2018) and the guidance included in this Plan. Activities seek to reduce the potential establishment, spread, and harmful impacts of a species when new infestations are detected through coordinated containment and suppression and/or eradication.

Monitoring and Modeling – The BCWMC and partners monitor for select AIS as part of its water quality monitoring program.

Education and Engagement – The BCWMC educates lake homeowners and boaters about AIS threats and impacts, ways to prevent transportation of AIS to new waters, and AIS identification to promote early detection of new infestations (see sidebar).

Inter-Agency Planning – The BCWMC coordinates with state and regional partners in performing AIS management actions.

Other tools: Operations, Administration, and Technical Assistance; CIP; Evaluation and Assessment.

AIS Early Detection Is Key

In August 2023, a routine plant survey in Sweeney Lake led to the discovery of a small patch of Eurasian watermilfoil (EWM) – which was new to the lake. The BCWMC's AIS Rapid Response Plan was put into action. BCWMC quickly partnered with the lake association, MDNR, Hennepin County, and the City of Golden Valley to apply herbicides to the EWM within 4 days. Unfortunately, another area of EWM was found later that year, after the window for treatment had closed. In spring of 2024, lake residents stayed completely off the lake to prevent fragmenting and moving the EWM to another area of the lake, and patiently waited for another herbicide treatment. Surveys of the lake later that year and in early 2025 found **no** EWM still remaining in the lake, potentially meaning the EWM was successfully eradicated – a rare result with such a prolific plant! Discovering the plant before it had a chance to become widespread was key to success. Now lake residents are learning to identify AIS so they can detect early infestations.



3.6 Streambank and Gully Erosion – Medium Priority

Issue Statement

Excessive erosion along streambanks and gullies negatively impacts stream geomorphology, water quality, aquatic habitat, and floodplain function.

Erosion of streambanks, gullies, ditches and other natural conveyances of runoff is a natural process. Landscape changes often associated with urbanization, however, can significantly accelerate this process leading to more significant negative impacts. Increased impervious area generates larger runoff volumes and higher runoff rates, leading to increased erosion. Development activity may result in the loss or degradation of vegetation that provides stability to natural runoff conveyances. More frequent and intense precipitation events resulting from climate change can exacerbate channel erosion issues.

Streambank, ravine, and gully erosion degrade the appearance, usability, ecological health, and water quality of streams. Possible impacts include, but are not limited to:

- Moving or widening channels can encroach on utilities, trails, roads, and structures resulting in increased maintenance and public health and safety risk.
- Deposited sediment can limit the effectiveness of stormwater infrastructure to limit flood risk and improve water quality.
- Undercutting or sloughing of streambanks results in the loss of riparian trees and vegetation that provide pollutant filtration, habitat, and temperature-regulating benefits.
- Sedimentation of the channel bed degrades habitat for macroinvertebrate (aquatic bug) communities.
- Impacts to/loss of pool-riffle stream structure degrades fish and invertebrate habitat.
- Elevated in-stream sediment and pollutant concentrations stress fish populations.
- Increased pollutant loading contributes to downstream water quality issues or impairments.

Add detail based on results of stressor ID study when available.

The extent and severity of streambank, ravine, and gully erosion issues vary across the Ȟaȟá Wakpádaŋ / Bassett Creek watershed. The BCWMC has completed several streambank stabilization projects along various sections of priority streams to address known issues. Additional evaluation is needed to identify and prioritize streambank erosion issues that can be addressed through projects and programs of the BCWMC and its partners.



A section of eroding streambank along the Main Stem of Bassett Creek evaluated in 2023.

Desired Future Condition

Streambanks and gullies throughout the watershed are naturally stable with no excessive erosion that negatively impacts the beneficial functions of waterbodies or infrastructure.

Streambank and Gully Erosion Goals

STRM1: Achieve stable streambanks along all priority streams (Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem, North Branch Bassett Creek, Plymouth Creek, and Sweeney Branch Bassett Creek) such that streambanks are not contributing to pollution downstream nor threatening infrastructure or public health.

STRM2: Stabilize gullies that most significantly contribute to reduced water quality downstream.

Tools to address Streambank and Gully Erosion

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

CIP – The BCWMC has implemented several projects along priority streams to restore streambank areas and improve water quality. Additional streambank restoration and/or gully repair are included in the 10-year CIP in Table 4-6.

Requirements for Development and Other Projects— The BCWMC reviews development, redevelopment, and other projects relative to performance standards that require vegetated buffers adjacent to priority streams.

Monitoring and Modeling – The BCWMC monitors macro-invertebrates in BCWMC priority streams to assess stream health.

Studies and Assessment– The BCWMC performs subwatershed assessments (SWAs) and other studies to evaluate areas of significant erosion and sediment loading.

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; Education and Engagement; Evaluation and Assessment.



The BCWMC funded the City of Golden Valley's construction of the ***Ȟaȟá Wakpádaŋ / Bassett Creek Main Stem Restoration Project (10th Avenue to Duluth Street)*** *in 2015 and 2016. This project restored streambanks along a 9,500-foot reach of Bassett Creek in Golden Valley. The project stabilized and re-vegetated areas of bank erosion and bank failure to improve water quality and habitat. Restoration techniques include bioengineering methods, which primarily use vegetation materials, and structural methods, which use rock and other non-vegetative materials. The project reduces the total phosphorous load by an estimated 60-100 pounds per year and reduces the total suspended sediment load by an estimated 70-100 tons per year.*

3.7 Groundwater-Surface Water Interaction – Medium Priority

Issue Statement

The uncertainty of groundwater – surface water interactions complicates our ability to protect, restore, and responsibly manage natural resources.

Surface water and groundwater are interdependent. Runoff and snowmelt that infiltrate the ground surface may ultimately discharge to streams, lakes, and wetlands or percolate to deeper aquifers. Groundwater levels higher or lower than adjacent surface water features (i.e., gradient) can result in flow to or from those features, respectively. The amount of groundwater-surface water interaction depends on soil and bedrock characteristics and gradient. The temporal and spatial variability of these factors make it difficult to quantify the exchange of water between surface waters and the groundwater.

The interaction of groundwater and surface water can negatively impact both resources. Declines in groundwater levels may result in decreased baseflow to streams, which can in turn result in decreased water quality and ecosystem function. Lower water levels in lakes may limit recreational use, reduce habitat areas, and increase growth of aquatic plants including invasive species. Development of the landscape replaces pervious surfaces with impervious or less-pervious surfaces, limiting recharge to groundwater. In addition, infiltration of stormwater runoff may carry pollutants that can contaminate vulnerable groundwater supplies (see Section 3.10).

Interactions between groundwater and surface water resources may be exacerbated by changes in Minnesota's climate. Prolonged periods of drought may result in increased groundwater use, reduced infiltration, and lowered aquifer levels. Extended wet periods, conversely, may elevate groundwater levels and alter flow gradients in the surficial aquifer.

Desired Future Condition

Areas with significant groundwater – surface interaction are identified and potential negative impacts due to interaction are minimized.

Hennepin County develops and implements a county groundwater plan.

Groundwater-Surface Water Interaction Goals

GWSW1: Understand groundwater-surface water interaction characteristics of BCWMC priority waterbodies.

GWSW2: Reduce or mitigate negative impacts of groundwater-surface water interactions during development and project implementation.

Tools to address groundwater-surface water interaction

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Requirements for Development and Other Projects– The BCWMC's *Requirements for Development and Redevelopment Proposals* details circumstances where stormwater infiltration is limited or prohibited for the protection of groundwater (consistent with the MPCA Construction Stormwater General Permit).

Studies and Assessments – BCWMC studies address the influence of groundwater on the condition and management of priority waterbodies.

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; Monitoring and Modeling; CIP; Education and Engagement; Evaluation and Assessment.

3.8 Degradation of Riparian Areas – Low Priority

Issue Statement

Degraded riparian areas allow excess pollutant loading to water resources, contribute to impairments (water quality and biological), and result in decreased ecological function and habitat.

Healthy riparian areas provide water quality, hydrologic, and habitat benefits for the ongoing health of the watershed. Vegetation and organic debris present in healthy riparian areas provide soil stability and reduce erosion of lakeshore and streambank areas (see Sections 3.3 and 3.6). Vegetation obstructs the flow of runoff, thereby decreasing water velocities, allowing infiltration, and further reducing the erosion potential of stormwater runoff. Leaf litter from vegetation can also increase the organic content of the soil and increase adsorption and infiltration. Riparian vegetation scatters sunlight and provides shade, reducing water temperature in the summer. Healthy riparian areas also have habitat benefits, providing food and shelter for native wildlife, fish, and amphibians. These areas provide separation and interspersion areas for animals, to reduce competition and maintain populations.

The benefits of healthy riparian areas increase with width and species complexity (see also Section 3.4). Development of the watershed has disturbed and degraded much of the riparian area along streams and lakes. Diverse riparian vegetation has been removed, thinned, or replaced for residential lawns, recreational access, and aesthetic reasons. Increased stormwater runoff volumes and peak flow rates can also overwhelm established riparian ecosystems leading to their degradation. The amount of riparian area located on private property limits the BCWMC's and its partners' understanding of the scope and severity of degraded riparian areas and also limits opportunities for the BCWMC and its partners to implement improvements.

Desired Future Condition

Riparian areas throughout the watershed are ecologically healthy with well established, diverse native vegetation.

Degraded Riparian Area Goals

RIP1: Establish and maintain native vegetation along streams, where required.

RIP2: Restore degraded riparian areas adjacent to BCWMC CIP projects.

Tools to address degraded riparian areas

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Requirements for Development and Other Projects– The BCWMC's *Requirements for Development and Redevelopment Proposals* requires vegetated buffers be maintained or established adjacent to priority streams for projects triggering BCWMC review.

CIP– The BCWMC has implemented several projects along priority streams to restore degraded streambanks and riparian areas and improve water quality.

Studies and Assessments – Subwatershed assessments of priority streams evaluate riparian conditions and identify opportunities for improvements.

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; Monitoring and Modeling; Education and Engagement; Evaluation and Assessment.

3.9 Degradation of Upland Areas – Low Priority

Issue Statement

Natural areas in uplands may be threatened by development pressure, lack of proper management, and negative impacts from climate change.

Natural upland areas (i.e., not wetland or shoreline areas) are present throughout the watershed as part of city and county parks and other green space (Appendix A, Figure A-1). Watershed residents and visitors enjoy natural areas for recreational and aesthetic viewing purposes. These areas provide varied environmental benefits from mature vegetation and permeable land that promotes infiltration, mitigates urban heat island effects, and provides habitat.

Some natural areas within the BCWMC have been classified as particularly high value. The MDNR's Minnesota Biological Survey (MBS) classified an area south of Wirth Lake as an area of moderate biodiversity (Appendix A, Figure A-8) due to the presence of rare species and moderately disturbed native plant communities. Natural upland areas provide habitat benefits within a fully developed landscape. The MDNR defined a portion of the BCWMC as an "ecological corridor" based on the connection of habitat areas (Appendix A, Figure A-8).

Protection of natural upland areas is necessary to preserve the recreational, aesthetic, and ecological benefits they provide. Conversion of upland natural areas to other land uses may result in permanent loss. Small losses may result in greater cumulative impacts due to the loss of connectivity. Changes in Minnesota's climate may also negatively impact natural upland areas as native

species face pressure from invasive species, extended wet and dry periods, and temperature pressure.

Desired Future Condition

Natural areas throughout the watershed are well managed, ecologically healthy, and accessible to the public, where possible. High quality uplands are not lost or negatively impacted by development projects.

Degraded Upland Area Goal

WQ24: Consider and support preservation or enhancement of upland natural areas within BCWMC purview.

Tools to address degraded riparian areas

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Education and Engagement – The BCMWC promotes the use of conservation and stewardship practices that support healthy uplands.

Monitoring and Modeling – BCWMC water quality models assess the impact of pollutant loading from upland areas draining to priority waterbodies.

Inter-agency Planning – The BCWMC cooperations with state agencies and local land use authorities to promote guidance and/or regulations that protect upland areas from environmental degradation.

Other tools: Operations, Administration, and Technical Assistance; Evaluation and Assessment.

3.10 Groundwater Quality – Low Priority

Issue Statement

Groundwater quality impacts public health as a source of drinking water and may be threatened by infiltration of stormwater and associated pollutants.

Groundwater is the primary source of drinking water in Minnesota. The BCWMC member cities of Medicine Lake, Minnetonka, Plymouth, Robbinsdale, and St. Louis Park obtain municipal drinking water supplies from groundwater aquifers while a small number of residents obtain drinking water from private wells. Maintaining clean, safe groundwater supplies by protecting groundwater from contamination is critical to public health. Once contaminated, groundwater clean-up is expensive and technically complex, even when feasible.

Groundwater quality may be compromised by varied surface and near-surface activities and sources, including commercial and industrial waste disposal, landfills, leaking underground storage tanks, subsurface sewage treatment systems (SSTS), mining operations, accidental spills, feedlots, and fertilizer/pesticide applications. Infiltration of stormwater runoff can also transport chloride and other pollutants into groundwater supplies (Section 3.7).

To limit groundwater contamination, the Minnesota Department of Health (MDH) works with public water suppliers to define wellhead protection areas and drinking water supply management areas (DWSMAs) subject to additional protections (Appendix A, Figure A-5). Much of the western half of the Bassett Creek watershed is located within DWSMAs of moderate vulnerability. The MPCA limits or prohibits infiltration of stormwater within portions of some DWSMAs (depending on vulnerability), in areas of high groundwater, areas of high infiltration rates, and in karst areas. Stormwater infiltration restrictions can limit treatment opportunities for development and redevelopment projects.

Desired Future Condition

Groundwater is safe to drink, meets all drinking water standards, and is not adversely impacted by pollutants.

Groundwater Quality Goals

GWQT1: Prevent negative impacts to groundwater quality from proposed projects reviewed by the BCWMC.

GWQT2: Prevent negative impacts to groundwater quality from BCWMC projects.

Tools to address groundwater quality

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Requirements for Development and Other Projects– The BCWMC's *Requirements for Development and Redevelopment Proposals* details circumstances where stormwater infiltration is limited or prohibited for the protection of groundwater

Education and Outreach – The BCWMC and its partners share materials encouraging best practices that limit the potential for contamination of groundwater resources.

Inter-agency Planning – The BCWMC participates groundwater protection planning efforts as opportunities arise.

Other tools: Operations, Administration, and Technical Assistance; CIP; Evaluation and Assessment; Capital Improvement Program.

3.11 Impact of Climate Change on Hydrology, Water Levels, and Flood Risk – High Priority

Issue Statement

The watershed is increasingly seeing the impacts of climate change. Extreme fluctuations in precipitation amounts and intensities increase flood risk and prolonged drought cycles that contribute to significant changes to water level and stream flow and may negatively impact the natural and built environment, (e.g. ecology, water quality, public health and safety, economy, and recreation).

The condition of the waters within the BCWMC is a function of the hydrologic cycle (i.e., the process in which precipitation becomes runoff and flows downstream before evaporating or infiltrating). Precipitation, snowmelt, and other elements of the hydrologic cycle vary from year to year. However, climatologists have found four significant climate trends in the Upper Midwest (NOAA, 2013):

- Warmer winters – a decline in severity and frequency of severe cold; more warming periods leading to mid-winter snowmelt
- Higher minimum temperatures
- Higher dew points
- Changes in precipitation trends – more rainfall is coming from heavy thunderstorm events and increased snowfall

These trends can lead to extreme fluctuations in water levels and flows beyond what the landscape normally experiences (i.e., altered hydrology). Higher intensity precipitation events typically produce more runoff than lower intensity events with similar total precipitation amounts; higher rainfall intensities are more likely to exceed the capacity of the land surface to slow and infiltrate runoff and may overwhelm natural and constructed drainage systems (e.g., storm sewers).

Flooding from increased precipitation can damage the built environment such as commercial buildings, residential buildings, roads, and more. The BCWMC and its member cities have invested heavily in studies and capital projects to reduce flood risk within the watershed (see Flood Control Project sidebar). Climate trends threaten to increase risk of flooding within the watershed, creating new issues, reducing the effectiveness of existing projects, and increasing future infrastructure maintenance needs.

In addition to flooding concerns, increased precipitation can damage the natural environment by degrading natural wetlands, and destabilizing bluffs and trees (BWSR, 2022). Frequent, heavier, or longer-duration rainfall leads to increased soil erosion and transportation of pollutants that degrade the water quality of downstream water bodies. Prolonged periods of drought and long-term temperature trends can stress native vegetation and promote invasive species in addition to having negative impacts on aquatic, riparian, and upland ecologies; water quality; and flood risk.

The rate of change in the climate dictates that our efforts on adaptation need to scale accordingly. Although climate trends are well-documented, the impact of these trends on waters, natural features, and communities within the BCWMC is uncertain. The BCWMC seeks to better understand the potential impacts of climate change as a first step in implementing strategies to mitigate these impacts.

BCWMC Flood Control Project

Aging stormwater control facilities and rapid urbanization caused the Ȟaȟá Wakpádaŋ / Bassett Creek watershed to experience flooding problems beginning in the 1960s. Severe storms in the summers of 1974, 1978, and 1987 resulted in millions of dollars in damage to homes and infrastructure. A modest storm (2.5 inches over 24 hours) in the spring of 1975 was exacerbated by wet antecedent conditions, again resulting in damage to homes. In a 1982 design memorandum, the US Army Corps of Engineers (USACE) estimated the damages sustained by Ȟaȟá Wakpádaŋ / Bassett Creek flooding were approximately $4 million per year (extrapolated to 2014 dollars). The worst problem was the 1.5-mile long Bassett Creek Tunnel, which was undersized and severely deteriorated.

To address the major flooding along Ȟaȟá Wakpádaŋ / Bassett Creek, the BCWMC cooperated with the USACE, Minnesota Department of Transportation (MnDOT), Minnesota Department of Natural Resources (MDNR), and its member cities to construct the Bassett Creek Flood Control Project, including construction of a "new" tunnel running 2.4 miles under downtown Minneapolis (see Section 4.1.7). Although major flooding along the creek has been addressed, some homes remained in the floodplain following the construction of the Flood Control Project. In addition, the BCWMC and member cities are aware of local flooding issues within the watershed that are not adjacent to Ȟaȟá Wakpádaŋ / Bassett Creek (e.g., DeCola Ponds, Medicine Lake Road).

Floodplain Management

The 100-year floodplain includes the areas that are expected to be inundated as a result of a precipitation event with a 1% chance of occurring in any given year. The BCWMC maintains a hydraulic and hydrologic model to estimate floodplain extents. The Federal Emergency Management Agency (FEMA) has also mapped floodplains within the watershed. To reduce the risk of damage to property, infrastructure, and public health, the BCWMC and member cities have adopted policies and other requirements that govern development activity within the BCWMC-defined floodplain.

Additional Resources

- National Oceanographic and Atmospheric Administration Precipitation Frequency Data (e.g., Atlas 14)
- Hennepin County Climate Vulnerability Assessment
- Minnesota DNR Climate Change Website

Desired Future Condition(s)

Watershed residents, businesses, and infrastructure are protected from flood damages and water fluctuations.

Waterbodies are resilient to changes in water levels and climate such that their beneficial functions are maintained or enhanced.

Impact of Climate Change on Hydrology Goals

FLD1: Identify areas, populations, and ecosystems most vulnerable to flooding and hydrologic risk resulting from existing and future climate trends.

FLD2: Reduce flood risk for structures and infrastructure within the floodplain.

FLD3: Implement at least 3 CIP projects that reduce flood risk on structures and infrastructure.

FLD4: Evaluate the impacts of climate trends on hydrology, ecology, and recreation of priority streams and lakes.

FLD5: Enhance climate resilience through BCWMC projects and programs by incorporating climate mitigation and adaptation functions, including in the majority of BCWMC CIP projects.

Tools to address the impact of climate change on hydrology

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Requirements for Development and Other Projects– – the BCWMC reviews project proposals for compliance with performance standards established to minimize the risk of flooding, including rate control requirements, minimum building elevations, and floodplain use restrictions.

CIP – the BCWMC and member cities implement capital projects to reduce flood risk as a primary benefit.

Modeling and Monitoring – the BCWMC maintains a watershed-wide hydrologic model that identifies areas at risk of flooding and monitors water levels and flows.

Flood Control Project – the BCWMC and member cities maintain and operate the BCMWC Flood Control Project.

Studies and Assessments– the BCWMC performs studies to estimate the potential impacts of climate change on waters and communities, identify areas of risk, and evaluate mitigation strategies

Education and Engagement – the BCWMC shares resources to promote climate resiliency and conservation practices among watershed residents.

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; Evaluation and Assessment.

3.12 Bassett Creek Valley Flood Risk Reduction and Stormwater Management Opportunities – High Priority

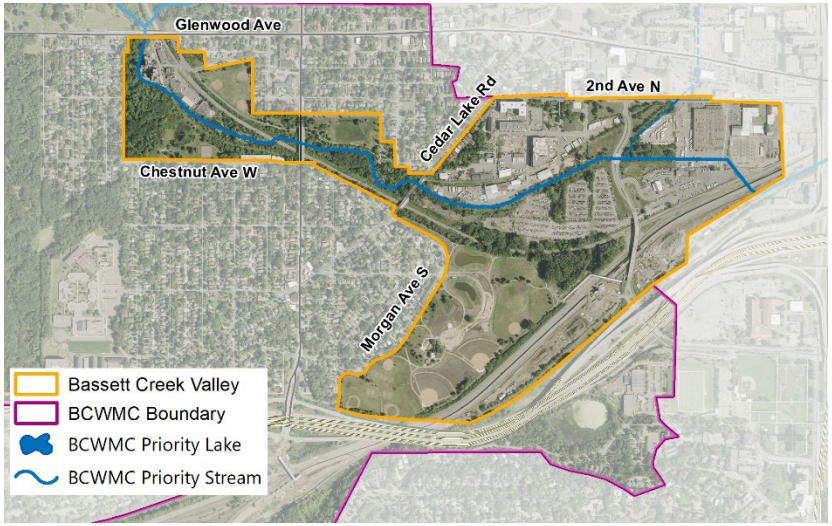
Issue Statement

Current conditions in the Bassett Creek Valley present significant challenges to sustainable development, resilient and healthy ecosystems, and people due to floodplain extents, environmental hazards, and limited space for stormwater management.

Bassett Creek Valley is a portion of the watershed located downstream of Glenwood Avenue in the City of Minneapolis (see inset figure). The approximately 230-acre area is fully developed with a mix of primarily park/recreation, transportation, and industrial land use. The area is surrounded by vibrant and diverse residential neighborhoods including Bryn Mawr, Harrison, and Heritage Park.

Redevelopment in the Bassett Creek Valley is anticipated, although there are significant environmental challenges including high groundwater, extensive floodplains, and contaminated soils. Within the valley, there are commercial, residential, and industrial properties located within the Bassett Creek floodplain. Existing land use, topography, and pressure for future development limit opportunities for projects that improve water quality, restore ecology, and reduce flood risk.

Recognizing increased redevelopment potential and associated challenges, the BCWMC and the City of Minneapolis collaborated on the Bassett Creek Valley Floodplain and Stormwater Management Study (2019) to assess the potential for developing a regional approach to stormwater and floodplain management, as well as improved aesthetics and community access to the creek. The BCWMC seeks to partner with the City, Hennepin County, and others to implement projects within the valley that take a coordinated approach to achieve multiple benefits. Given that the challenges facing the Bassett Creek Valley are endemic in the watershed, partnerships leading to innovative solutions will be the primary pathway to success moving forward.



Additional Resources

- Bassett Creek Valley Floodplain and Stormwater Management Study (2019)

Desired Future Condition

The Bassett Creek Valley supports healthy ecosystems and communities with reduced flood risk, improved water quality, and neighborhood access to the creek corridor.

Bassett Creek Valley Flood Risk Reduction Goals

BCV1: Collaborate on evaluation, sequencing, and implementation of multi-beneficial projects within the Bassett Creek Valley to create regional flood storage, reduce floodplain by at least 8 acres, improve regional stormwater management, and improve creek access.

Tools to address Bassett Creek Valley flood risk reduction

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Inter-agency Planning – The BCWMC coordinates with partners including Hennepin County and the City of Minneapolis to explore potential improvement opportunities in areas like Bassett Creek Valley.

CIP – the BCWMC and member cities implement and support stormwater management projects to achieve multiple benefits in areas like the Bassett Creek Valley.

Requirements for Development and Other Projects– the BCWMC reviews project proposals for compliance with performance standards established to minimize the risk of flooding, including rate control requirements, minimum building elevations, and floodplain use restrictions.

Other tools: Operations, Administration, and Technical Assistance; Studies and Assessments; Monitoring and Modeling; Flood Control Project; Education and Engagement; Evaluation and Assessment.

3.13 Groundwater Quantity – Low Priority

Issue Statement

Groundwater levels may be negatively impacted by overuse, loss of recharge, or extreme changes in precipitation.

Maintaining dependable and safe groundwater supplies is critical to human and environmental health and to the economic and social vitality of communities. Groundwater is the primary source of drinking water in Minnesota. The BCWMC member cities of Medicine Lake, Minnetonka, Plymouth, Robbinsdale, and St. Louis Park obtain municipal drinking water supplies from groundwater aquifers. Industrial users also rely on consistent groundwater supplies for their operations.

Groundwater is a finite resource with inputs and outputs. The input is generally rainwater and snowmelt that seeps into the ground (recharge). The outputs can be groundwater that is pumped out for human use and groundwater that naturally seeps into lakes, wetlands, and streams. The inputs and outputs need to be managed to ensure a sustainable groundwater supply. Development generally results in more impervious area and more compacted soils, decreasing opportunities for infiltration and recharge. Development often parallels population increases that may lead to additional groundwater use.

Climate trends can also affect groundwater quantity. Temperature, precipitation patterns, and drought conditions can impact infiltration and alter consumptive use (leading to local groundwater use restrictions in some cases).

Various agencies are responsible for managing groundwater in the BCMWC including the MDNR, Minnesota Department of Health (MDH), Metropolitan Council, and Hennepin County. While groundwater is an important resource that must be conserved, the BCWMC has established its role as primarily one of support for other groundwater management agencies. Another example of how partnerships are required to drive our future.

Additional Resources

- Groundwater Management | Minnesota DNR
- Metropolitan Region Water Supply Planning Atlas - Metropolitan Council

Desired Future Condition(s)

Groundwater levels support drinking water needs and do not negatively impact groundwater-sensitive resources.

Groundwater Quantity Goals

GWQT1: Reduce negative impacts to groundwater quantity from proposed projects in the Ȟaȟá Wakpádaŋ / Bassett Creek watershed.

GWQT2: Incorporate stormwater reuse practices into 2 BCWMC CIP projects.

Groundwater Quantity Goals (continued)

GWQT3: Increase the use of groundwater conservation practices among watershed residents.

GWQT4: Increase groundwater recharge through required and encouraged stormwater infiltration practices.

Tools to address groundwater quantity

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include:

Education and Outreach – The BCWMC and its partners share materials encouraging conservation of groundwater resources.

Capital Improvement Program – The BCWMC will seek opportunities for stormwater reuse projects in conjunction with CIP projects.

Requirements for Development and Other Projects– The BCWMC reviews project proposals for compliance with performance standards established to promote groundwater infiltration and minimize negative groundwater impacts.

Inter-agency Planning – The BCWMC participates groundwater management planning efforts as opportunities arise.

Other tools: Operations, Administration, and Technical Assistance; CIP; Evaluation and Assessment.

3.14 Public Awareness and Action – Medium priority

Issue Statement

Lack of knowledge and resources for action limit the ability and interest of watershed residents and stakeholders to be good caretakers of the BCWMC waterbodies and ecosystems.

Public education and engagement plays an important role in protecting local waters and ecosystems. Everyday actions taken by those who live, work, and recreate within the Ȟaȟá Wakpádaŋ / Bassett Creek watershed may have positive or negative impacts on the surrounding environment. Through education and engagement, the BCWMC, member cities, and partners can raise awareness about these impacts, both positive and negative, and reinforce the benefits of positive actions.

Increasing the visibility of the BCWMC can lead to increased community participation in watershed planning, volunteer action, and positive conservation and stewardship practices. The BCWMC Education and Engagement Plan (Appendix C) details the topics, messages, audiences, partners, and methods used by the BCWMC to engage watershed communities and residents.

Education and engagement is also critical to building communities' trust in the BCWMC and public support necessary to efficiently implement capital projects. As a joint powers organization, all BCWMC projects are implemented in close cooperation with member cities. Developing relationships between watershed residents and the BCWMC promotes a CIP process that is transparent, cooperative, and considerate of community input**.**

Key education topics to promote positive ecosystem impacts:

- Stormwater runoff (keep streets clean, infiltrate rainwater)
- Invasive species recognition
- Appropriate salt/deicer use
- Water conservation
- Pick up pet waste
- Native and pollinator-friendly planting
- Maintenance of shoreline vegetation (i.e.. buffers)

Additional Resources

- BCWMC Website
- BCWMC Education and Engagement Plan (Appendix C)
- www.cleanwatermn.org/
- West Metro Water Alliance - Clean Water

Desired Future Condition

Watershed residents and stakeholders understand their relationship with and impact on waterbodies and ecosystems and are good caretakers of these ecosystems through their actions and behaviors.

Public Awareness and Action Goals

PAA1: Increase public knowledge of and participation in programs or practices for waterbody and ecosystem caretaking

PAA2: Increase the number of people who access watershed information and improve accessibility to information.

PAA3: Support community science and volunteer efforts

Tools to address public awareness and action

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Education and Engagement – the BCWMC maintains and implements an Education and Engagement Plan (Appendix C) that outlines activities to increase community visibility, issue awareness, and participation

Inter-agency Planning – the BCWMC coordinates its education and engagement actions with member cities, West Metro Watershed Alliance, Hennepin County, and other local and regional partners

Capital Projects – the BCWMC and member cities perform targeted engagement in association with planned capital improvements

Other tools: Operations, Administration, and Technical Assistance; Inter-agency Planning; Monitoring and Modeling; AIS Management; Evaluation and Assessment.

3.15 Engagement of Diverse Communities – Medium Priority

Issue Statement

Efforts are needed to engage and build relationships with communities that have been underrepresented in past BCWMC planning, programs, and projects.

The BCWMC recognizes that the watershed includes a diverse population representing a broad range of socio-economic demographics (e.g., spoken language, age, income). The BCWMC acknowledges that the voices and opinions of many minority communities in the watershed have not been sought nor heard. While the BCWMC further recognizes that deliberate action is needed to engage with and build relationships across the watershed, focusing on underrepresented communities is central to making the Plan relevant across the entire watershed. The BCWMC Education and Engagement Plan (Appendix C) identifies the strategies and methods used to engage with diverse communities.

As part of developing relationships with underrepresented communities, the BCWMC recognizes that the watershed and its waters are located on Dakota land. The BCWMC adopted a land acknowledgement statement (see Section 1.1) and seeks to incorporate Dakota place names into its projects and programs.

Desired Future Condition(s)

All communities, and especially those historically and currently underrepresented, are positively engaged in relevant BCWMC planning, programs, and projects.

Additional Resources

- BCWMC Education and Engagement Plan (Appendix C)
- https://metroblooms.org/

Engagement of Diverse Communities Goals

EDIV1: Establish and maintain relationships and communication avenues with underrepresented communities.

EDIV2: Seek, consider, and respond to input from all impacted communities as part of the BCWMC's plans, programs, and projects.

EDIV3: Incorporate Dakota place names, history, culture, and Indigenous knowledge into BCWMC projects and programs.

Tools to address engagement of diverse communities

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Education and Engagement – The BCWMC implements an Education and Engagement Plan (Appendix C) that outlines activities to increase engagement with diverse communities.

Inter-Agency Planning – The BCWMC coordinates with member cities and partners like West Metro Watershed Alliance to leverage local relationships to engage underrepresented groups.

Other tools: Operations, Administration, and Technical Assistance; Studies and Assessments; Monitoring and Modeling; AIS Management; CIP; Evaluation and Assessment.

3.16 Recreation Opportunities – Low priority

Issue Statement

Opportunities to protect or enhance recreational use of, and access to, natural areas in the watershed may be lost without proactive consideration by the BCWMC and its partners in their activities.

Many people use the waters and natural areas within the watershed for recreational purposes, including boating, swimming, fishing, walking or riding on trails, and aesthetic viewing. Several BCWMC waters are bordered by parks maintained by BCWMC member cities, Three Rivers Park District, or Minneapolis Parks and Recreation Board. The MDNR Lakefinder website lists and maps water access points and includes information about local fisheries, including fish stocking activity.

While recreational opportunities are included in the original statute creating watershed management organizations it is in the context of first addressing water quality and flood risk. Recreational functions and benefits are not the primary motivation for BCWMC programs or projects. However, as many BCWMC projects are located in or adjacent to its priority waters, there may be opportunities to enhance or maintain recreational functions as part of BCWMC projects. Understanding how watershed residents value and use priority waters for recreation allows the BCWMC to recognize opportunities for added recreational benefits and evaluate if those opportunities are worth pursuing in partnership with BCWMC member cities or other organizations. \

Additional Resources

- BCWMC Watershed Map
- LakeFinder | Minnesota DNR

Desired Future Condition

Recreational uses and access are maintained or enhanced, as appropriate, for priority waterbodies.

Recreation Opportunity Goals

REC1: Support recreational uses of and access to lakes, streams and natural areas, particularly in underserved communities.

REC2: Consider protecting and enhancing recreational functions of and access to waterbodies and natural areas during BCWMC planning and projects.

Tools to address recreation opportunities

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Inter-agency Planning – The BCWMC coordinates with Minneapolis Park and Recreation Board, Three Rivers Park District, and other partners with primary recreational roles.

Monitoring and Modeling – BCWMC and partner monitoring efforts evaluate the ability of priority waterbodies to support intended recreational uses.

AIS Management -. BCWMC and partner AIS management efforts contribute to maintaining intended recreational uses of priority waterbodies.

Other tools: Operations, Administration, and Technical Assistance; Education and Engagement; Evaluation and Assessment; Capital Improvement Program.

3.17 Organizational Capacity and Staffing – High priority

Issue Statement

Current BCWMC staff capacity and organizational structure are likely not sufficient to achieve intended goals and effectively execute projects and programs.

The BCWMC currently operates as a joint powers organization cooperatively governed by a commission that includes one Commissioner and one Alternative Commissioner appointed by each member city. The BCWMC's governance structure, authorities, and funding mechanisms are described in Section 1 and defined in its Joint Powers Agreement (JPA, see Appendix G).

In 2021, the Minnesota Board of Water and Soil Resources (BWSR) completed a routine performance review of the BCWMC to assess progress on implementation of the 2015 Watershed Plan (Appendix D). BWSR commended the BCWMC for their work in implementing core programs, rules, the Wetland Conservation Act, planning efforts, and building partnerships. Some recommendations for improvements included prioritizing the development of an education and outreach strategy and reviewing the capital improvement program to identify specific barriers limiting implementation of some large projects.

These recommendations highlight the potential need for increased staff capacity. The BCWMC employs an Administrator (part time) and receives legal, audit, and engineering services through hired consultants. As a joint powers organization, the BCWMC relies heavily on cooperation and collaboration with its nine member cities to implement programs and projects, including participating in the BCWMC's Technical Advisory Committee (TAC).

This Plan includes an ambitious implementation program (see Section 4) with multiple studies, programs, and capital projects intended to achieve the BCWMC's goals. The BCWMC's current governance structure and staff capacity is likely insufficient to implement all elements of this Plan. Changes to the BCWMC's organizational structure and/or capacity may result in more complete and/or more efficient implementation of this Plan.

The BCWMC has operated as a joint powers organization similar to its current structure since its inception. Any changes to the BCWMC's organizational structure must be carefully evaluated and the potential risks weighed against the BCWMC's history of successful watershed management operations.

Additional Resources

- Joint Powers Agreement (Appendix G)
- Level II Performance Evaluation (Appendix D)

Desired Future Condition

BCWMC organization exists in its most efficient and effective structure to achieve its identified goals.

Organizational Capacity and Staffing Goals

ORG1: Understand the options, benefits, and challenges of various organizational structures for effective and efficient management of the Bassett Creek watershed through a comprehensive assessment undertaken in the first year of Plan implementation.

ORG2: Improve organization capacity, efficiency, and effectiveness as warranted and desired by implementing outcomes of organizational assessment.

Tools to address organizational capacity and staffing

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Evaluation and Assessment – During the first year of implementation, the BCWMC will perform a comprehensive assessment of organizational structure options.

Operations, Administration, and Technical Assistance – The BCWMC leverages its Administrator and consultants to execute the BCWMC Plan and associated roles.

Inter-agency Planning – the BCWMC collaborates with its nine member cities and many local, regional, and state partners to efficiently implement its Plan, projects, and programs.

Evaluation and Assessments – the BCWMC regularly evaluates its progress and accomplishments relative to this Plan.

Other tools: Flood Control Project; CIP; Education and Engagement.

3.18 Funding Mechanisms – High Priority

Issue Statement

Additional funding sources and/or alternate funding mechanisms for BCWMC administration and implementation are needed to achieve the most efficient, equitable, and robust outcomes.

The BCWMC funds its operations, projects, and programs through a variety of funding mechanism including a general fund supported by member city contributions, CIP funds levied through Hennepin County, and grants (see Section 4.3).

This Plan includes an ambitious implementation program (see Section 4) with multiple studies, programs, and capitol projects intended to achieve the BCWMC's goals. The BCWMC's current funding mechanisms, may not be adequate to fully support implementation of this Plan.

New or expanded funding mechanisms may be available to the BCWMC to promote further program and project implementation without increasing the financial burden to member cities and, indirectly, watershed residents. For example, public-private partnerships are a possible funding stream that may be leveraged to implement multi-benefit projects on private property in coordination with redevelopment.

Further evaluation is necessary to identify the benefits and risks of different funding options and determine the most appropriate mechanisms to fund BCWMC operations, projects and programs.

Additional Resources

- Federal grant opportunities (https://www.grants.gov/)
- State focused foundations (https://mcf.org/)
- National foundations (e.g., https://fundingnaturebasedsolutions.nwf.org/programs/watershed-and-flood-prevention-operations/)

-

Desired Future Condition

BCWMC operations are adequately funded for ongoing administration and robust implementation.

Funding Mechanism Goals

FUND1: Understand potential funding mechanisms for BCWMC work related to various organizational structures through an assessment undertaken in the first year of Plan implementation.

FUND2: Expand potential funding streams through grants and partnerships with public and private entities.

FUND3: Improve funding capacity in conjunction with changes to the organizational structure and functions of the BCWMC.

Tools to addressing funding mechanisms

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Evaluation and Assessment – During the first year of implementation, the BCWMC will perform a comprehensive assessment of potential funding mechanism.

Operations, Administration, and Technical Assistance – The BCWMC Administrator and budget committee manage the BCWMC budget and pursues grant and cost-share funding.

Inter-agency Planning – the BCWMC collaborates with its nine member cities and many local, regional, and state partners to efficiently fund its Plan, projects, and programs.

Evaluation and Assessments – the BCWMC regularly evaluates its budget, expenditures, and revenues.

Other tools: Requirements for Development and Other Projects; Flood Control Project; CIP; Education and Engagement.

3.19 Progress Assessment – Medium Priority

Issue Statement

Evaluation of progress toward achieving 10-year goals is critical to process improvement.

This Plan includes a 10-year implementation schedule (see Table 4-5) that outlines the activities performed by the BCWMC in pursuit of its goals. While Table 4-5 presents the BCWMC's activities at a planning level, the BCWMC develops a more detailed work plan and budget to direct activities annually.

Coordination of the BCWMC's annual work plan with the overall Plan implementation schedule is necessary to achieve the BCWMC's 10-year goals. The BCWMC performs biennial assessment of progress towards goals using metrics that tie implementation activities to one or more Plan goals. Evaluation of these metrics allows the BCWMC to determine if its actions are having the intended impacts.

Many factors within or outside of the BCWMC's control can limit or accelerate progress towards goals. Having an accurate understanding of Plan progress and influencing factors allows the BCWMC to determine if changes to goals or planned implementation activities are appropriate. Progress assessment is essential to the use of adaptive management techniques.

Additional Resources

- BCWMC Annual Reports

Desired Future Condition

BCWMC is effective in its implementation through evaluation and adaptive management.

Progress Assessment Goals

PA1: Understand the effectiveness of implementation and progress towards reaching each of this plan's 10-year goals.

PA2: Implementation activities are adapted to reflect changing conditions or pace of progress.

Tools to address program assessment

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Evaluation and Assessment – The BCWMC reports its accomplishments in an annual report (submitted to BWSR) and assesses progress towards goals at least every two years.

Monitoring and Modeling – BCWMC uses monitoring data to assess progress towards water quality and other measurable goals.

Other tools: Operations, Administration, and Technical Assistance; Studies and Assessments.

3.20 Projects and Programs Implemented through a DEIA Lens – Medium priority

Issue Statement

Additional focus is needed to ensure equity in the delivery of BCWMC projects, programs, and decision making.

The BCWMC serves socio-economically diverse population of residents. Its population has also grown more racially and ethnically diverse over time. The percentage of people of color in Hennepin County increased from 21% in 2000 to 32% in 2020 (US Census Bureau). This trend is anticipated through 2040.

Different communities have had varying engagement with the BCWMC and experiences with its projects and programs. The BCWMC also recognizes that different communities can disproportionately experience flood risk, climate vulnerability, water quality, and other negative impacts. Deliberate efforts to identify and address DEIA (diversity, equity, inclusion, and access) issues are needed to ensure that BCWMC work considers input from all impacted communities and is delivered across the watershed to equitably benefit residents.

One strategy to increase equity in the delivery of BCWMC services is to increase representation of diverse communities among BCWMC commissioners and consultants, as well as increase BCWMC outreach and build relationships with residents of diverse communities (see Section 3.15).

Additional Resources

- Hennepin County Climate Vulnerability Assessment
- BCWMC Education and Engagement Plan (Appendix C)

Desired Future Condition

BCWMC work is equitably implemented.

Projects and Programs Implemented through a DEIA Lens Goals

DEIA1: Prioritize and implement programs and projects with guidance from social vulnerability metrics.

DEIA2: Diversify representation on BCWMC Board of Commissioners, contractors, consultants and vendors such that they reflect community diversity.

Tools to address projects and programs implemented through a DEIA lens

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Planning and Collaboration – The BCWMC coordinates with member cities and partners to leverage local relationships to engage underrepresented groups in project planning.

The BCWMC will develop and/or leverage existing social vulnerability indices to inform the targeting, design, and implementation of BCWMC projects and programs.

CIP – The BCWMC and member cities perform targeted engagement in association with planned capital improvements.

Education and Engagement – the BCWMC maintains and implements a Education and Engagement Plan (Appendix C) that outlines activities to increase community visibility, issue awareness, and participation.

Other tools: Operations, Administration, and Technical Assistance; Evaluation and Assessment.

3.21 Public Ditch Management – Low Priority

Issue Statement

The Plan must address management of the public ditches within BCWMC jurisdiction (per MN Statutes 103B)

Judicial ditches and county ditches are public drainage systems established under Chapter 103E of Minnesota Statutes and are under the jurisdiction of the county. There are three stream segments classified as county ditches in the BCWMC (Appendix A, Figure A-7). Regardless of their original function, the BCWMC and member cities currently manage public ditches to ensure their continued function as streams or altered waterways. The BCWMC manages public ditches that are part of its trunk system; member cities manage portions that are not part of the trunk system.

Per Minnesota Statute 363B.61, cities or watershed management organizations (WMOs) within Hennepin County may petition the county to transfer authority over public ditches to the city or WMO. The BCWMC has not petitioned Hennepin County to transfer this authority (due in part to the limitation that the BCWMC cannot own property per the Joint Powers Agreement). Hennepin County may transfer authority over public ditches to the member cities, if the member cities request such action.

Additional Resources

- Minnesota Public Ditch Law (MS 103E)
- County ditches (Appendix A, Figure A-7)

Desired Future Condition

Public ditches in the watershed are either transferred to municipal authority or abandoned, where appropriate.

Public Ditch Management Goals

PD1: Public ditches function in a manner that allows their current use as streams and altered waterways.

PD2: If ditch authority is transferred to the member cities, the BCWMC and cities will manage the ditches similar to other BCWMC waterways.

Tools to address public ditch management

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Inter-agency Planning – the BCWMC collaborates with its nine member cities, Hennepin County, and other partners as necessary to plan and carryout activities affecting judicial ditches.

Other tools: Operations, Administration, and Technical Assistance; Monitoring and Modeling.

3.22 Carbon Footprint of BCWMC Projects – Low Priority

Issue Statement

Carbon released in the construction and ongoing maintenance of BCWMC projects is not currently considered and contributes to climate change.

Scientific consensus establishes carbon emissions as a contributor to climate change and that reduced emissions in all aspects of society are needed to avoid the most severe impacts of climate change (Hennepin County Climate Action Plan). BCWMC projects contribute to carbon emissions through the manufacture, transportation, installation, and maintenance of materials.

BCWMC feasibility studies have not, prior to this Plan, considered the carbon footprint or material lifecycle impacts of project options. Understanding the lifecycle impact and relative carbon emissions of different project options will allow the BCWMC to make decisions that consider its contribution to climate impacts. The BCWMC may leverage existing tools or approximate methods to promote efficient analysis of a complex problem.

What is a carbon footprint?

A carbon footprint refers to the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by an action over a given time. For a person, it refers to the cumulative impact driven by one's behaviors - a person's carbon footprint depends on the food they eat, how they travel, how they heat and cool our homes, and other factors.

The carbon footprint for an average person in the United States is 16 tons per year – this is about four times the global average and one of the highest rates in the world. Calculate your own carbon footprint and how different behaviors can change it. What is your carbon footprint? | Carbon Footprint Calculator

Additional Resources

- Climate Change: Atmospheric Carbon Dioxide | NOAA Climate.gov
- Embodied Carbon in Construction Calculator – EC3 https://carbonleadershipforum.org/ec3-tool/

Desired Future Condition

The BCWMC understands the carbon footprint or lifecycle impacts of its activities and considers mitigative measures during implementation.

Carbon Footprint of BCWMC Projects Goals

CF1: Consider the use of available tools to assess the impact and mitigate the effects of BCWMC activities on greenhouse gas emissions.

Tools to address the carbon footprint of BCWMC projects

The BCWMC uses several tools to address this issue; tools are further described in Section 4.1. The most relevant tools include

Studies and Assessments – The BCWMC considers available tools to assess BCWMC's impact on greenhouse gas emissions.

Capital Projects – The design, construction, and maintenance of BCWMC projects may be optimized to limit greenhouse gas emissions.

Other tools: Operations, Administration, and Technical Assistance; Education and Engagement; Evaluation and Assessment.

4 Implementation Program

The BCWMC implementation program consists of the policies, programs, activities, and projects carried out by the BCWMC and its member cities to achieve the 10-year goals described in Section 3.0. The roles, policies, and tools for implementation are described in Section 4.1. Section 4.2 includes Table 4-5 – the schedule and estimated budgets for Activities and Program Implementation, and Table 4-6 – the BCWMC 10-year Capital Improvement Program. Information related to funding mechanisms, funding sources, and long-term funds are found in Section 4.3. Member city responsibilities and information related to local water management plan adoption are found in Section 4.4, including Table 4-4 which lists requirements of member cities. Finally, procedures for amending this plan are found in Section 4.5. Implementation is where visions become future realities through engagement and hard work.

4.1 BCWMC Roles, Policies and Tools for Implementation

The following sections describe the operational tools the BCWMC uses to address issues and pursue its goals and the roles of the BCWMC, member cities, and other agencies. These sections provide guidance and include BCWMC policies (numbered and shown in bold) within the specific areas. Although some policies are new or revised from previous policies, most are carried over from the 2015 Watershed Management Plan. Additional details and guidance of select tools are also included in relevant Plan appendices (e.g., Education and Engagement Plan, Monitoring Plan) and in the BCWMC Requirements for Improvements and Development Proposals ("Requirements document").

Activities related to these tools and policies are found the Activities and Program Implementation Schedule (Table 4-5) and the Capital Improvement Program Schedule (Table 4-6).

The tools include:

- Operations, Administration, Technical Services
- Inter-agency Planning and Collaboration
- Review of Development, Redevelopment, and Other Projects
- Studies, Subwatershed Assessments, and Other Non-Capital Projects
- Monitoring and Modeling
- Aquatic Invasive Species Management
- Flood Control Project and Trunk System Maintenance
- Capital Improvement Program (CIP)
- Education and Engagement
- Evaluation and Assessment

There are often multiple tools that are used to address a particular issue and each tool can be used to make progress on goals for multiple issues. The matrix in Table 4-1 presents these complex relationships.

Table 4-1 Matrix of Priority Issues and Applicable Tools

ISSUE	PRIORITY	TOOLS									
		Operations, Administration	Inter-Agency Coordination	Development Requirements	Studies & Assessment (BCWMC lead)	Monitoring & Modeling	AIS Management	Flood Control Project	CIP	Education & Engagement	Evaluation & Assessment
Impaired Waters	Hi	X	X	X	X	X	X		X	X	X
Chloride Loading	Hi	X	X	X	X	X			X	X	X
Streambank & Gully Erosion	Med	X	X	X	X	X			X	X	X
Lakeshore Erosion	Med	X	X		X	X			X	X	X
Wetland Health & Restoration	Med	X	X	X	X	X	X		X	X	X
Aquatic Invasive Species	Med	X	X			X	X		X	X	X
GW – Surface Water Interaction	Med	X	X	X	X	X			X	X	X
Degradation of Riparian Areas	Low	X	X	X	X	X			X	X	X
Degradation of Upland Areas	Low	X	X			X				X	X
Groundwater Quality	Low	X	X	X					X	X	X
Flooding & Impact of Climate Change on Hydrology	Hi	X	X	X	X	X		X	X	X	X
Bassett Creek Valley	Hi	X	X	X	X	X		X	X	X	X
Groundwater Quantity	Low	X	X	X					X	X	X
Public Awareness & Action	Med	X	X			X	X		X	X	X
Engagement of Diverse Communities	Med	X	X		X	X	X		X	X	X
Recreation Opportunities	Low	X	X			X	X			X	
Organizational Staff & Capacity	Hi	X	X					X	X	X	X
Funding Mechanisms	Hi	X	X	X				X	X	X	X
Progress Assessment	Hi	X			X	X					X
Implementation with DEIA Lens	Med	X	X						X	X	X
Public Ditch Management	Low	X	X			X					
BCWMC Project Carbon Footprint	Low	X			X				X	X	X

4.1.1 Operations, Administration, Technical Services

The BCWMC operates as a joint powers organization among nine member cities with no employees and no physical office space. It contracts all services from consultants including an administrator, legal counsel, accountants, and technical experts/engineers. These positions are sometimes referred to as "BCWMC staff" for simplicity. Additional contractors or consultants may also be used to perform tasks such as website updates/hosting, education and outreach, communications, etc.

The BCWMC regularly convenes a technical advisory committee (TAC) consisting of staff from each of the member cities and the Minneapolis Park and Recreation Board which provides input on many BCWMC activities - particularly technical studies and capital projects. At times the TAC also comments on budgets and policies, or other matters as requested by the Board of Commissioners (Commission).

The BCWMC maintains a "roles and responsibilities" document which outlines specific tasks and responsibilities for its key staff, commissioners, alternates, and TAC. The BCWMC holds contracts with each of the consulting staff and seeks proposals from legal and engineering firms biennially as required by MN Statutes 103B.227, Subd. 5.

The BCWMC Administrator implements the strategic direction set by the Commission, acts as the primary point of contact for the BCWMC, coordinates the work of other consultants, and provides leadership, communication, project management, and overall coordination of BCWMC activities.

The BCWMC Engineers provide technical expertise, implement the BCWMC's monitoring and modeling programs, ensure functionality and maintenance of the Flood Control Project, review development/redevelopment/project proposals, and perform studies or technical reviews as directed by the Commission.

The organizational structure and staff capacity of the BCWMC will be assessed for efficiency and effectiveness in the first two years of this Plan's implementation. Changes to the staffing structure or staff capacity may be updated during the life of this plan to meet future needs.

4.1.2 Inter-Agency Planning and Collaboration

The BCWMC is one of many organizations responsible for managing natural resources within its jurisdictional area and collaborates with partners to implement this Plan. This collaboration is critical to much of the Commission's work and is especially important with respect to those resources and/or issues listed below for which the BCWMC is not the primary managing entity. A robust mechanism for collaborating and partnering with others helps improve the Commission's organizational capacity, extending its reach and impact. It also improves government efficiency and the responsible use of public funds.

Groundwater

The BCWMC recognizes the groundwater management authorities of other local and state agencies and identifies the BCWMC's role as primarily one of support and collaboration. The BCWMC encourages and supports public and private landowners to pursue conservation practices and supports cities in the implementation of their water

conservation grant or cost-share programs. These activities will help address the Commission's issues of groundwater quality and quantity.

The BCWMC encourages local, regional, and state agencies to develop a groundwater action plan and will collaborate on implementation of a plan if/when it's developed in an effort to gain a better understanding of groundwater-surface water interaction and develop management strategies that consider the protection of both resources (Policy 1).

Public Ditches

There are two sections of Ȟaȟá Wakpádaŋ / Bassett Creek that are officially considered public ditches including a large portion of the Main Stem of Bassett Creek between Medicine Lake and Brookview Golf Course, and downstream of Highway 100 (Appendix A, Figure A-7). The original function of public ditches was to provide drainage for agricultural lands. Although these sections are now managed as creeks, the public ditch designation has not been removed. The BCWMC encourages member cities to petition Hennepin County to transfer authority over public ditches in the BCWMC to the member cities (per MN Statute 383B.61). BCWMC goals related to public ditches indicate that if authority is transferred to the member cities, the BCWMC and cities will manage these drainages similar to other BCWMC waterways, in accordance with the BCWMC's latest adopted Plan.

In consideration for the original function of public ditches to provide drainage of agricultural lands, the BCWMC will support the efforts of other entities to pursue legislation abandoning public ditches on land zoned non-agricultural.

The BCWMC will manage public ditches that are part of the trunk system the same as its priority streams, reflecting their functions as urban waterways, and consistent with the BCWMC Requirements document (Policy 2).

Member cities are responsible for management of public ditches that are not on the trunk system but are currently part of their municipal drainage system.

Rare Species and Land Conservation

Although the BCWMC's work is primarily concentrated on aquatic resources, the BCWMC encourages and supports public and private landowners to maintain, preserve, and restore open space and native habitats. The BCWMC promotes and encourages the protection and restoration of natural and native shoreland, riparian corridors, prairies, and woodlands, and will incorporate restoration of these areas in its projects and programs as opportunities arise. Collaboration with others will help make progress toward BCWMC goals related to degraded upland habitats.

The BCWMC will submit data, as available, and recommends others to submit data regarding occurrences of rare and endangered species and native plant communities to the State's Natural Heritage Information System (Policy 3).

The BCWMC will cooperate, when appropriate and as resources allow, with partners and organizations that identify and work to preserve connected greenway corridors and other natural areas

and recommends that member cities participate in these efforts (Policy 4).

4.1.2.1 Community Planning and Design

The BCWMC relies on the member cities for primary management of runoff and local water management issues. The BCWMC works to provide leadership, encourage collaboration, and assist member cities with local and intercommunity water management issues. Member cities may request that the BCWMC provide technical assistance, coordination, or dispute resolution for specific issues. This may include calculating the apportionment of costs between adjoining cities for water resource projects with intercommunity participation.

Member cities must update their local water management plans to incorporate consistency with BCWMC goals, policies, and requirements. The BCWMC will review city local water management plans for consistency with BCWMC goals. (Policy 5).

Member cities must inform the BCWMC regarding updates to city ordinances or comprehensive plans that will affect stormwater management. (Policy 6)

The BCWMC may review proposed changes to member city development regulations (e.g., zoning and subdivision ordinances) at its discretion or the request of the member cities (Policy 7).

4.1.2.2 Dispute Resolution

If watershed management disputes should arise between the BCWMC member cities, member cities may refer these to the BCWMC for resolution. The BCWMC will hear the disputes and endeavor to reach a mutually agreeable solution whenever possible. Under the joint powers agreement, the BCWMC's findings and recommendations are not binding unless the parties to the dispute make a prior agreement to that effect.

The BCWMC will follow this process for the hearing of such disputes (Policy 8):

1. The BCWMC will mediate inter-community disputes relating to watershed management problems within the Bassett Creek watershed, as requested by member cities.

2. Disputes will be referred to a committee of three BCWMC members or alternate members from member communities who are not parties to the dispute. Members will be appointed by the BCWMC chair or vice-chair, which will also appoint one of the three members as the chair of the committee.

3. The committee chair will call a meeting where each party to the dispute will be allowed to present its suggestions to resolve the dispute.

4. The committee may consult with the members of the BCWMC staff and TAC and will prepare findings and recommendations to resolve the dispute.

5. The committee's recommendation will be presented to the full BCWMC, which may accept, reject, or amend the recommendation before forwarding the findings and recommendations to the parties of the dispute.

Disputes between a member city and the BCWMC regarding the allocation of project costs shall be resolved using the procedures described in the JPA (see Appendix G).

4.1.3 Requirements for Development, Redevelopment, and Other Projects

The BCWMC does not have a permit program (i.e., does not issue permits for development, redevelopment, or other projects) but it does review projects that trigger specific criteria for compliance with BCWMC requirements and performance standards published in the BCWMC *Requirements for Improvements and Development Proposals* (as amended) (Requirements document). For non-linear projects, (Minimal Impact Design Standards (MIDS) from the MN Stormwater Manual were adopted by the Commission in conjunction with its 2015 Watershed Plan and will continue to be in effect with this 2026 Watershed Plan.

BCWMC development requirements are a primary and critical function of the Commission that reduces the potentially harmful impacts of stormwater runoff. At a high level, requirements address:

- Floodplains (e.g., minimum building elevations, floodplain storage standards, allowable uses in floodplains)
- Stormwater rate control
- Water quality (including infiltration and pollutant removal requirements)
- Erosion and sediment control
- Lake, Stream, and Wetland impacts (including stream and wetland buffer requirements)
- Diversion of surface water runoff
- Utility crossings and bridges
- Modifications to the Bassett Creek tunnels
- Groundwater quality and quantity

The BCWMC has established criteria ("triggers") to determine which projects require BCWMC project review and which requirements apply to specific projects. Generally, BCWMC requirements apply to any project (linear or non-linear) that creates one or more acres of new or fully reconstructed impervious area. Specific requirements and triggers for review are included in the most current version of the Requirements document.

Member cities must incorporate standards and requirements included in the Requirements document into their official controls (e.g., ordinances). Member cities must inform developers and other project applicants regarding BCWMC requirements (Policy 9).

The BCWMC requires public agencies to comply with the requirements and standards published in the Requirements document (Policy 10).

The BCWMC will work with member cities to periodically review and update the Requirements document outside of the Plan update process (Policy 11).

4.1.3.1 Project Review and Permitting Process

The BCWMC relies on its member cities to review development and redevelopment proposals for compliance with BCWMC requirements, when applicable, and to issue permits only after compliance has been determined.

Member cities shall not issue construction permits, or other approvals relevant to controls intended to protect water resources, until the BCWMC has approved the project (Policy 12)

Member cities must inform the BCWMC of development, redevelopment, and other project proposals that trigger review per the BCWMC Requirements document. Prior to BCWMC conducting its formal review, city staff completes their review and establishes that the development, redevelopment, or other project proposal conforms to their local municipal ordinances and regulations. The BCWMC will then review the proposal and submit their comments and recommendations to the city and other appropriate governmental agencies prior to the city or other governmental agency giving their final approval or disapproval, or the granting of any required permits.

For projects subject to BCWMC review and erosion and sediment control standards, the BCWMC requires that member cities perform regular erosion and sediment control inspections (Policy 13).

To ensure consistent enforcement of erosion and sediment control requirements, the BCMWC may assist cities with inspection activities upon request.

At the request of member cities and/or project proposers, the BCWMC will provide information and assistance in the preliminary planning stages of improvements or land development proposals. The BCWMC will also review projects that would not otherwise trigger review per the Requirements document at the request of the member cities.

The BCWMC will review applications to the Minnesota Department of Natural Resources (MDNR) for public waters work permits and groundwater appropriations permits (Policy 14).

4.1.3.2 Wetland Conservation Act

The BCWMC cooperates with member cities to manage wetlands. Proper wetland management can help improve wetland health and is involved in wetland restoration projects – a medium level priority issue for the Commission. Most cities in the watershed serve as the Local Governmental Unit (LGU) administering the Wetland Conservation Act (WCA). The BCWMC will assist the member cities with managing wetlands in accordance with the WCA, as requested. The MnDOT is the LGU within its rights-of-way.

The BCWMC will serve as the local governmental unit responsible for administering the Wetland Conservation Act in member cities, when officially delegated. The BCWMC is currently the LGU for the Cities of St. Louis Park, Robbinsdale, and Medicine Lake (Policy 15).

Per the requirements of WCA, each city must maintain a comprehensive wetland inventory or inventory, classify, and assess

the functions and values of wetlands on an as-needed basis. The BCWMC adopts and encourages member cities to use the latest iteration of the Minnesota Rapid Assessment Method (MnRAM) when performing functions and values assessments until such time as the Minnesota Board of Water and Soil Resources publishes a replacement to MnRAM.

The BCWMC encourages member cities to complete comprehensive wetland management plans as part of their local water management plans and encourages member cities to pursue wetland restoration projects, as opportunities allow (Policy 16).

4.1.4 Studies, Subwatershed Assessments, and Other Non-capital Projects

The BCWMC conducts studies and other non-capital projects to assess watershed and resource conditions and to identify and evaluate opportunities for improvements across multiple issue areas. Studies and the data obtained allow the BCWMC and its partners to objectively assess improvement opportunities and prioritize and target actions that are feasible and most effective in accomplishing their goals.

Studies are an important element of the BCWMC's adaptive management approach. Studies rooted in sound science provide the information the BCWMC and partners need to take appropriate actions. Further studies and monitoring evaluate the results of these actions, allowing the BCWMC and partners to adjust implementation strategies, as needed.

BCWMC studies focus on the priority issues identified in this plan (see Section 3) and are included in the Activities and Program Implementation schedule (see Table 4-5). The BCWMC may perform targeted monitoring as part of these studies in addition to routine BCWMC and/or partner monitoring efforts (see Section 4.1.5.1 and Appendix B).

The BCWMC will cooperate with member cities, the MPCA and other partners to develop water quality studies (e.g., total maximum daily load (TMDL) studies)) and/or perform subwatershed assessments for degraded priority waterbodies and those listed on the MPCA's impaired waters 303(d) list. (Policy 17)

The BCWMC will work to align recommended actions resulting from these studies and assessments into its Activities and Program Implementation schedule (see Table 4-5) and will seek funding partners and grant opportunities for implementation.

When updated precipitation is published (e.g., Atlas 15), the BCWMC will reevaluate flood elevations and flood risk based on the most recent precipitation data and identify potential actions for flood risk reduction, including partnering with and applying for grants from Federal and State agencies or other partnerships.

4.1.5 Monitoring and Modeling

The BCWMC uses data based on sound science to make decisions and target actions that are most likely to achieve BCWMC goals. The BCWMC routine monitoring and modeling of the watershed provides data used to assess and target work across almost all issues and goals. Additionally, Section 4.1.4 describes the BCWMC's use of

targeted studies and assessments to collect data not available through routine BCWMC efforts.

4.1.5.1 Monitoring

The BCWMC uses monitoring data to evaluate the condition of the watershed and waterbodies, evaluate trends, and assess progress towards water quality and ecological goals. Recent BCWMC monitoring activities and results are summarized in the Land and Water Resource Inventory in Appendix A. Generally, BCWMC-led monitoring includes:

- Lake water quality monitoring (including chemistry, phytoplankton, and zooplankton)
- Lake aquatic vegetation monitoring
- Lake level monitoring
- Stream biological monitoring
- Stream flow and water quality monitoring

The BCWMC will continue to perform routine monitoring of the BCWMC's priority waterbodies consistent with the *BCWMC Monitoring Plan* (Appendix B), the guidance and policies described in this section, and actions included in the BCWMC Activities and Program Implementation schedule (see Table 4-5) (Policy 18).

The BCWMC prepares an annual monitoring report for waterbodies monitored by the BCWMC the previous year, posts the data on its website, and submits the data to the MPCA in an appropriate format.

The BCWMC may perform additional studies or investigations outside of routine monitoring to achieve specific objectives (see Section 4.1.4). The BCWMC also cooperates and coordinates with partners to augment the collection of monitoring data, avoid duplication of monitoring efforts, and participate in joint and volunteer monitoring programs, including (but not limited to):

- Metropolitan Council Watershed Outlet Monitoring Program (WOMP)
- Metropolitan Council Citizen Assisted Monitoring Program (CAMP)
- Member city monitoring programs
- Three Rivers Park District monitoring programs
- Minneapolis Park and Recreation Board monitoring programs

The BCWMC uses an adaptive management approach to most efficiently pursue its highest priorities. The BCWMC may update the BCWMC Monitoring Plan or conduct studies, as needed, in response to changing waterbody and watershed conditions.

4.1.5.2 Modeling

The BCWMC uses models to support and prioritize its projects and programs. Models are useful to assess current resource and watershed conditions and to evaluate the potential impact of future changes including climate trends, land use changes, and improvement projects. The BCWMC has developed and maintains a watershed-wide, water quality model and hydrologic and hydraulic model (H&H). The BCWMC uses these models to evaluate flood risk and water quality impacts of proposed BCWMC and partner projects (see Sections A.7.3 and A.8.6 of Appendix A).

The BCWMC's watershed-wide H&H model is based on the EPA's Storm Water Management Model (SWMM) framework. The BCWMC periodically updates the H&H model to reflect updated watershed conditions and precipitation data. The current iteration of the H&H model includes precipitation amounts based on the National Oceanographic and Atmospheric Administration's (NOAA's) Atlas 14 publication. Publication of Atlas 15, including updated precipitation data and future climate forecasts is expected after adoption of this Plan. The BCWMC is currently undertaking a project to update model inputs related to watershed topography and impervious areas and to convert the existing model into an alternative SWMM modeling software. The BCWMC will also update the SWMM model to incorporate the most current precipitation data when it is published.

The BCWMC's watershed-wide water quality model is built in the P8 modeling framework. The P8 model estimates pollutant (e.g., sediment, phosphorus) loading from the watershed and pollutant removal achieved by downstream best management practices (BMPs), but does not simulate in-lake or in-stream water quality. The BCWMC uses the P8 model to identify areas of high pollutant loading and/or limited treatment (i.e., hot spots) and estimate the performance of proposed improvement projects. The BCWMC periodically updates the P8 model to reflect current watershed conditions.

Upon request (typically annually), member cities shall provide the BCWMC with information on development, redevelopment, and BMPs constructed within their city such that the BCWMC can appropriately update the models (Policy 19).

The BCWMC shares model results with member cities and other partners to support local resource management issues and member city MS4 reporting requirements.

4.1.6 Aquatic Invasive Species Management

BCWMC goals related to aquatic invasive species (AIS) issues include preventing the spread of AIS and lessening the impacts of AIS. To that end, the BCWMC works with its member cities and partners to manage AIS to protect and improve water quality and ecological health of BCWMC priority waterbodies. The BCWMC monitors for the presence of AIS plants as part of its monitoring program (see Appendix B) and reviews available fish survey data relative to AIS presence.

The BCWMC requires that member cities annually inspect wetlands classified as Preserve (or equivalent) for terrestrial and emergent aquatic invasive vegetation, such as buckthorn and purple loosestrife, and attempt to control or treat invasive species, where feasible (Policy 20).

The BCWMC cooperates with partners to train groups or individuals on early detection of AIS in all waterbodies. BCWMC roles may include advertising training sessions, recruiting participants, assisting with venue coordination, reimbursing registration costs for Commissioners and volunteers, and modest funding support. This includes recruiting and training volunteers to detect zebra mussels on all Priority 1 lakes, aiming for at least one volunteer in each lake quadrant. The BCWMC may also provide funds to assist boat launch owners with inspections, equipment purchase, educational signage, and staff training through an AIS Prevention Grant Program.

The BCWMC developed an AIS Rapid Response Plan that describes BCWMC and partner actions taken in response to the detection of some AIS. AIS management will be performed with an adaptive management approach as conditions change and new information becomes available.

The BCWMC will consider the following AIS management actions as conditions warrant and consistent with the AIS Rapid Response Plan (Policy 21):

- Herbicide spot treatments of AIS plants where the following conditions are met:
  - Treatment of the plant is considered a management tool for improving water or habitat quality according to an approved management plan (e.g., TMDL); and
  - Another entity or organization is sharing the cost of the treatment
- Herbicide spot treatment of AIS plants considered on a case-by-case basis for lakes without an approved plan
- Whole lake herbicide treatments in coordination with the MDNR
- Carp population management in Priority 1 lakes if fish surveys and other data indicate that carp are a significant problem
- Water level management to manage AIS considered on a case-by-case basis if the action is recommended in an approved management plan
- Biological treatment (e.g., beetles to manage purple loosestrife) considered on a case-by-case basis

The BCWMC may periodically convene meetings of lake groups and other interested parties to discuss issues and management options concerning AIS. The BCWMC also communicates activities and information regarding AIS through its education and engagement program (see Appendix C). Actions may include:

- Providing printed educational materials during events
- Distributing newsletter articles to cities about AIS
- Adding AIS information to news items to the BCWMC website home page
- Considering ideas or requests from cities/lake groups for tailored educational materials through the Education Committee's annual work and budget planning

4.1.7 Flood Control Project and Trunk System Management

The BCWMC "Trunk System" and Flood Control Project (FCP) are described in Appendix A, Section A.8. Appendix A, Figure A-11 presents the waterbodies and watercourses included in the trunk system. The FCP is considered critical infrastructure and includes the 2.4-mile Bassett Creek Tunnel that travels under Minneapolis to the Mississippi River, and several smaller control structures upstream along the trunk system. Proper inspection and maintenance of the FCP is crucial to a high priority goal of reducing flood risk throughout the watershed. In general, the trunk system includes the primary streams of the watershed (Ȟaȟá Wakpádaŋ / Bassett Creek, Plymouth Creek, North Branch of Bassett Creek, and Sweeney Lake Branch of Bassett Creek), along with connected, significant ponds and storage areas (e.g., Grimes Pond, North and South Rice Ponds)

Appendix A, Table A-25 lists the FCP infrastructure and water storage areas; these elements are also shown in Appendix A, Figure A-11.

The BCWMC cooperates with its member cities to manage the trunk system and FCP to minimize the risk of flooding and associated negative impacts. The BCWMC manages the trunk system according to its Joint Powers Agreement (Appendix G), the guidance and policies described in this section, and actions included in the BCWMC Activities and Program Implementation Schedule (see Table 4-5).

4.1.7.1 System Modifications

The BCWMC requires the following criteria to be met for all proposed modifications to the BCWMC FCP or the trunk system, including those to existing control structures, structures along the trunk system, and structures between storage sites (Policy 22):

- All proposed changes must be submitted to the BCWMC for review and approval.
- The location and design of any control structures, including all proposed culverts or other controls, are also subject to BCWMC approval.
- The effect of the 100-year storm on potentially impacted control structures, portions of the trunk system, and storage sites must be assessed by the project proposer to ensure that the design does not adversely affect FCP performance.

The BCWMC will not approve changes to the BCWMC Flood Control Project system that would result in negative impacts to the Flood Control Project system components or performance (Policy 23).

The BCWMC will update, as necessary, the existing 100-year water elevations to reflect any increases resulting from modifications to the FCP system, following the approval of those modifications by the BCWMC, local and state agencies, and after a public hearing on the modification plan has been held (if required).

As part of its planning roles and responsibilities (see Section X), the BCWMC reviews changes in local water management plans, comprehensive land use plans, and other plans, for their effect on the FCP, trunk system, and associated floodplains, when such plans are submitted to BCWMC.

A joint and cooperative agreement (JCA, see Appendix G) between the BCWMC, Mississippi Watershed Management Organization (MWMO), and City of Minneapolis defines additional management obligations for the old tunnel and new tunnel, both of which are part of the BCWMC FCP. Section 5.1 of the JCA requires the City of Minneapolis to maintain 50 cubic feet per second (cfs) capacity in the old tunnel during the 100-year storm event to accommodate the overflow of stormwater that cannot be accommodated in the new tunnel. Section 6 of the JCA includes obligations relating to the new tunnel, which require BCWMC approval prior to performing the following activities:

- Increasing the drainage area tributary to the new tunnel.
- Adding connections or outlets to the new tunnel
- Altering the runoff to the new tunnel for the 10-, 50-, or 100-year rainfall event.

The BCWMC expects to finalize a new JCA regarding the Bassett Creek tunnel with the City of Minneapolis sometime in 2025.

4.1.7.2 FCP Inspection, Maintenance, and Repair/Rehabilitation/Replacement

The BCWMC will continue to implement an inspection and maintenance program for FCP features consistent with the *Bassett Creek Flood Control Project Operation and Maintenance Manual* with the following increased inspection frequencies (Policy 24):

- Annual inspection of all non-tunnel FCP features
- Inspection of the double box culvert at least every 5 years
- Inspection of 3rd Avenue Deep Tunnel at least every 5 years (in conjunction with City of Minneapolis I-94 tunnel inspection)
- Inspection of the 2nd Street Deep Tunnel 10 years

The BCWMC funds the FCP inspection program through its FCP Long-term Maintenance Fund. The BCWMC may consider funding more frequent/complex inspections if requested by member cities.

The BCWMC will distribute annual inspection reports to cities (and copy the US Army Corps of Engineers) regarding the condition and maintenance and/or repair needs of the FCP features in their cities.

Member cities must formally notify the Commission Engineer regarding their completed maintenance and repair actions on any of the FCP project features (Policy 25).

The BCWMC will include city maintenance information in the following year's inspection reports. The BCWMC's communication of the annual inspection report will note that the cities are required to report on their maintenance and repair actions. The inspection and reporting are essential to ensure the BCWMC maintains its eligibility to receive federal funds to repair or replace FCP features in the event of an emergency.

Member cities are responsible for routine maintenance and repair of FCP features as outlined in Table 4-2 (Policy 26).

Member cities (or other road authority) where the FCP structures are located are responsible for maintenance, repair and replacement of road crossings, and their corresponding conveyance structures, that were installed as part of the FCP.

Some maintenance and repair activities may be classified as major based on the extent. The BCWMC will reimburse cities (if requested) for maintenance and repairs that are over $25,000, using funds from the FCP Long-term Maintenance Fund. Cities must perform regular, routing maintenance and repair activities before receiving BCWMC funding to prevent excessive reimbursement costs resulting from neglected routine activities. Cities shall inform the BCWMC in advance (e.g., two years) of their request for reimbursement.

The BCWMC will identify major repair, rehabilitation, and replacement activities, as needed, through its inspection process and will consider adding maintenance and repair projects that are more than $100,000 to the BCWMC CIP (see Table 4-6). These projects will be funded by the ad valorem levy (via Hennepin County).

Table 4-2 FCP Routine and Major Maintenance and Repair

Classification as Routine vs. Major	Maintenance or Repair Activity
Routine	Vegetation: removal of trees, removal of brush, chemical treatment of stumps, control of noxious weeds, establish vegetation on bare areas.
Routine	Removal of debris: woody debris, riprap, trash from channel, inlets, culverts
Routine	Repair erosion; channels, inlet and outlet structures, culvert ends
Routine	Repair/replace riprap: on inlet and outlet ends of culverts, channels, banks
Routine	Remove sediment from channels, structures, culverts, etc.
Routine	Repair/maintain guard rails, hand-rails and fencing: remove rust, prime and paint, repair damaged rails and posts, replace rusted-out sections, repair cables, replace posts, repair chain link fence
Routine	Repair concrete pipe: repair joints, tie-bolts, spalling, connection to culverts, breakage
Routine	Repair/maintain debris barrier: removal of debris, repair cables, replace poles
Routine	Repair/maintain tunnel inlet trash rack: repair/replace trash rack rods, loose or broken, vandalized, bent
Routine	Repair/replace catch basins, manholes, casting assemblies, grates
Routine	Street repairs: pavement, curb and gutter, cracks, depressions, settlement
Varies by extent	Repair scouring/undercutting at structures and culvert outlets
Varies by extent	Repair concrete structures: cracking, spalling, breakage
Varies by extent	Culverts/Bebo sections: joints, settlement, separation, concrete spalling, wing walls –movement and breakage
Major	Repair/replace gabion baskets
Major	Remove sediment/dredge ponds, basins, etc.
Major	Tunnel repairs: concrete and other repairs to the new Bassett Creek tunnel

The BCWMC maintains an FCP emergency repair fund for funding emergency repairs of FCP features. Member cities shall perform the initial response to an emergency involving FCP structures, as the BCWMC is not equipped to perform emergency management and response services. The BCWMC shall assist the cities in obtaining reimbursement for the emergency response, either through BCWMC funds or grants (e.g., FEMA funding).

4.1.8 Capital Improvement Program (CIP)

The BCWMC will continue implementing a robust capital improvement program (CIP) utilizing MN Statute 103B.251 to collect funds levied by Hennepin County to study, design, and construct large capital projects aimed at improving or protecting water quality, reducing flood risk, and/or mitigating water quantity issues. This Plan builds off the success of the BCWMC's CIP that began in 2005, and enhances CIP implementation with further guidance and tools. The complete 10-year schedule of capital projects is presented in Table 4-6.

Only projects that meet one or more "gatekeeper" criteria will be considered by the BCWMC for inclusion in the CIP:

1. Project is part of the BCWMC trunk system (See Appendix A, Figure A-11)
2. Project improves or protects water quality in a priority waterbody
3. Project addresses an approved Total Maximum Daily Load (TMDL), watershed restoration and protection strategy (WRAPS), or subwatershed analysis (SWA)
4. Project addresses flooding concern, or other high priority water quantity issue

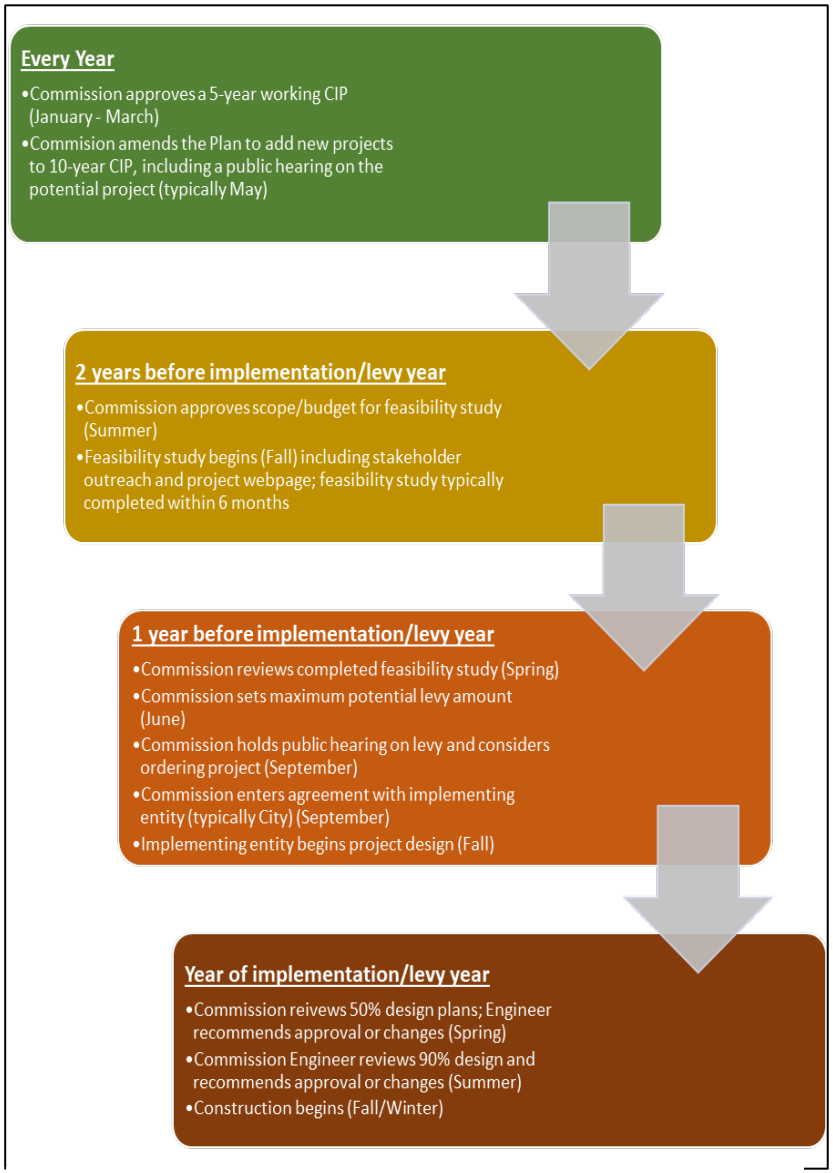


Figure 4-1 Typical CIP Process

The BCWMC focuses its resources on projects that primarily address water quality and water quantity issues; additional benefits are considered when identifying and prioritizing projects. **Improvements to the ecological health of the waterbody or project area will be incorporated into most capital projects. The BCWMC will aim to incorporate Indigenous land and water care practices into their capital projects, where appropriate (Policy 27).** [Activity S-14 in Programs and Activities Table 4-5 is development of a guidance manual on Indigenous Land and Water Care.]

Table 4-6 lists the CIP projects the BCWMC plans to implement over the next 10 years. The 10-year CIP includes planning level costs and general timeframes for implementation. In addition to Table 4-6, the BCWMC maintains a "working version" of its CIP that covers a 5-year period. The BCWMC annually reviews its working CIP to consider whether new projects should be added to the CIP or whether project implementation dates and funding sources should be changed, as necessitated by changing priorities, funding availability, partnering opportunities, or other factors. New projects suggested by the BCWMC or member cities are sent to the Technical Advisory Committee (TAC) for consideration. The TAC develops a draft working CIP which is reviewed and revised by the BCWMC. Following another round of TAC review, the BCWMC approves the working CIP.

To prioritize the most impactful projects for addressing BCWMC goals, the BCWMC scores and ranks projects being evaluated for inclusion in the working CIP using a prioritization matrix. The BCWMC will maintain and use this matrix as a guidance document and may update it, as needed. The matrix includes criteria in four

Elements of a CIP Feasibility Study

- Identified Commission goals (from Watershed Management Plan) that are addressed by each alternative
- Clearly analyzed pros and cons of each alternative
- Estimated annualized costs per pound pollutant removal or cost per acre-foot additional flood storage for each alternative
- Identified permitting requirements
- Estimated costs for each alternative that are appropriate for the level of detail in the study
- Identification of potential eligible project costs
- Estimated life span of the alternatives
- A "30-year cost" for each alternative
- Evaluation of new and/or innovative approaches or technologies, as appropriate.
- Input gathered from the public, technical agencies, and partners
- Consideration for incorporating educational signage and/or public art

Figure 4-2 Feasibility Study Elements

over-arching categories with specific criteria in each including (but not limited to):

"Primary benefits" such as
- Project addresses a TMDL, WRAPS, or SWA
- Project addresses chloride pollution
- Project addresses a pollution "hot spot"
- Project addresses a flooding concern or other high priority water quantity issue

"Jurisdiction" such as
- Project is in intercommunity subwatershed
- Project is located in area of social vulnerability

"Opportunity" such as
- Project partners are identified
- Coordinated with redevelopment or infrastructure project

"Secondary benefits" such as
- Habitat
- Educational
- Groundwater improvements

Once the BCWMC adds a project to its working CIP, the BCWMC follows the process outlined in the JPA and depicted in Figure 4-1. CIP project implementation begins with the preparation of a feasibility study, which evaluates information, data, and outcomes for various alternatives. The study results in clearly analyzed alternatives for the desired outcome and enough specificity to judge the merits of each alternative, and the benefits (or lack thereof) of the project itself. In evaluating project alternatives, the BCWMC will consider low impact design principles, life-cycle impacts, and Indigenous care practices guidance, as applicable. Figure 4-2 includes elements that should be included in BCWMC feasibility studies. The list may be updated over time and is retained as a guidance document outside of this Plan.

If, after reviewing the feasibility report, the BCWMC approves implementation of the project, the BCWMC must hold a public hearing on the proposed project, giving at least 45 days' notice to the clerk of each member city. After the hearing, the BCWMC may order the project by a two-thirds vote of its members and then certify a levy to Hennepin County for the cost of the project. The BCWMC may also apply for grant funds to cover project costs.

There are different phases of CIP project implementation, including design, permitting, public engagement, bidding, construction, and on-going maintenance. Once a CIP project is ordered, the BCWMC may enter an agreement with a member city or other partner to implement all or some phases of the project. Or the BCWMC may implement the entire project on its own. This flexibility can maximize efficiency in the CIP program as entities cooperate on projects understanding that staff capacity, strengths, and experience differ between projects and among partners. Project designs must be approved by BCWMC commissioners at the 50% and 90% stage before project construction can move forward.

Most, but not all, CIP project costs are eligible for funding via BCWMC CIP project funds. Table 4-3 lists the types of CIP project costs that are either eligible or potentially eligible to be funded using BCWMC CIP project funds.

The BCWMC will pay 100% of the project costs determined to be fully eligible per Table 4-3. The BCWMC may pay a portion (up

to 100%) of other project costs determined to be potentially eligible per Table 4-3, as determined on a case-by-case basis. (Policy 28)

The CIP project feasibility studies should provide enough cost information for the BCWMC to discuss and decide which project costs are eligible for funding or reimbursement from the BCWMC's CIP project funds. For CIP projects implemented by entities other than the BCWMC, the BCWMC would reimburse these CIP project costs to the implementing entity, as outlined and specified in an implementation agreement.

Long term (on-going) maintenance of BCWMC-funded CIP projects (such as stormwater ponds, streambank stabilization, underground storage, pipes, culverts, etc.) is typically the responsibility of the city where the project is located and is memorialized in an agreement with the city or other partner, as appropriate. This is due, in part, to the Joint Powers Agreement not allowing the BCWMC to own property. The BCWMC may pursue the establishment of a CIP Maintenance Levy through Hennepin County for maintenance of certain types of projects (typically non-structural projects) such as alum treatments, carp management, regular dredging, etc. Some smaller CIP project maintenance performed by cities can also be funded through the Commission's Channel Maintenance Fund, including pond dredging and streambank repair. Once a project has come to the end of its expected life, a new CIP project to reconstruct or rehabilitate the project could be added to the CIP list.

To date, the BCWMC's CIP has focused projects on public lands such as parks and easements along stream corridors. However, moving forward, space for improvement projects on public land is dwindling. It is likely that the BCWMC may want to partner with non-public entities (including developers) on CIP projects. To enable this, the BCWMC will assess options for creating public-private partnerships or developing a cost share program(s) with public, private, or non-profit entities that incentivizes these entities to implement practices that go "above and beyond" pollutant removals or flood management required by regulations. The BCWMC could develop such a program utilizing the experience of other watershed organizations with similar programs; the program could result in significant watershed improvements within the context of the CIP.

For projects not currently included in Table 4-6, the BCWMC must initiate a plan amendment to add the project to its CIP prior to certifying a levy to Hennepin County. The amendment process is described in Section 4.5 and requires a public hearing. Inclusion of a project in the BCWMC CIP allows the BCWMC to certify a levy to Hennepin County for the project, as well as apply for various grant funds. Following adoption of the plan amendment, the BCWMC will proceed with certifying a levy to Hennepin County, and project implementation as described herein.

The BCWMC may implement the projects listed in Table 4-6 on a different schedule than shown in the table as circumstances dictate. For example, the availability of grants and partnerships could result in either acceleration or delay of projects. The BCWMC will consider such shifts in the schedule or adjustments to budgets as consistent with this Plan and will not require a plan amendment.

Table 4-3 CIP Project Costs Eligible for Funding through the BCWMC's CIP Project Fund

A. Project costs wholly eligible for reimbursement from BCWMC:	
Feasibility study costs	
Pre-project planning, monitoring (e.g., fish surveys, feasibility study review/follow-up)	
Plan amendment costs	
Grant application & administration costs	
Permitting costs and fees	
Engineering and design costs (plans & specs)	
Construction costs	
Project bidding & advertising fees	
Construction administration & observation costs	
Warranty period monitoring costs – e.g., wetland monitoring, vegetation monitoring, post-construction inspection	
City staff time and expenses (if requested prior to levy certification)	
Other BCWMC administration and engineering time, including tracking CIP project budget, engineering plan review and reviewing reimbursement requests	
Transfer to BCWMC administrative fund for CIP administrative expenses, as designated by the Commission	
B. Other types of project costs that will be considered for whole or partial reimbursement on a project by project basis*:	
Easement acquisition	City staff time and expenses (if not requested prior to levy certification)
Property acquisition	Wetland mitigation or replacement
Utility relocation	Educational signage
City improvements associated with the project but not directly tied to the goals of the BCWMC (e.g. trails, pedestrian bridges, signage)	Art/aesthetic improvements directly associated with the project
Contaminated soils/groundwater remediation	

*The BCWMC will consider potential project costs on a case-by-case basis. Factors influencing eligibility decisions include the cost effectiveness of the project (e.g., cost per pound of pollutant removal, cost per acre-foot of flood storage, or similar appropriate metrics relative to past BCWMC projects and other available references), along with overall funding availability, partnerships, grant opportunities, opportunities to advance additional Commission goals (such as habitat and education), and others.

4.1.9 Education and Engagement

"Education and engagement" are identified in this plan as both issues with related goals, and as critical tools used to address almost all other issues and goals. With proper awareness and tools, community members, businesses, and institutions can help improve water resources through specific activities and everyday actions. Engaged officials, community leaders, volunteers, lake homeowners, and others can be a critical component of watershed protection and improvement.

The BCWMC will implement an education and engagement program in cooperation with member cities and partners in pursuit of the goals described in this Plan (Policy 29).

The BCWMC will work to build relationships and avenues of communication with diverse and underrepresented communities. (Policy 30)

The BCWMC aims to coordinate education activities with member cities such that they augment but do not duplicate activities. The BCWMC's Education and Engagement Plan (see Appendix C) describes these activities in greater detail. The Education and Engagement Plan incorporates multiple avenues to convey various educational messages and to engage with different audiences including:

- Commissioner training
- Public meetings, open houses, and community conversations
- Digital communications
- Printed materials
- Signage, displays, and promotional items
- Events, presentations, and workshops
- Leveraging education through partnerships
- Small cost share programs
- Program evaluation

Funding for implementation of education and engagement activities comes from the BCWMC annual operating budget (primarily), collaboration with other entities, and possible grant funding. Each year, the Commission's Education Committee will recommend to the Commission a plan and budget for education and engagement activities. The Education and Engagement Plan serves as a "menu" of options for each year's annual education plan.

The Commission's Education Committee, volunteers, and staff will be the primary plan implementers. The BCWMC will also maintain partnerships and seek new opportunities for collaboration to help achieve the goals set out in this Plan. The BCWMC will annually provide a Letter of Understanding to member cities describing the BCWMC's educational activities from the previous year for use in MS4 reporting, as appropriate.

The BCWMC regularly updates its website (www.bassettcreekwmo.org) as a primary means of communicating information to watershed residents and other partners. The BCWMC website includes content as required by Minnesota Statute 8410.0150 as well as additional content consistent with the BCWMC Education and Engagement Plan (see Appendix C).

The BCWMC will evaluate the success of its education and engagement activities as described in the Education and Engagement Plan (see Appendix C).

4.1.10 Evaluation and Assessment

The BCWMC evaluates both its accomplishments and its opportunities to assess organizational performance. The BCWMC annually tracks the execution of its Activities and Program Implementation schedule (see Table 4-5).

The BCWMC will assess progress towards the goals presented in this Plan at least every two years, using quantitative metrics where appropriate (Policy 31).

The BCWMC reports its accomplishments in an annual report submitted to the Board of Water and Soil Resources (BWSR) consistent with MN Rules 8410.0150. The BCWMC also annually submits an audit for the previous fiscal year. MN Rules 8410 specify the required contents of the annual report. Generally, the BCWMC annual report includes:

- An assessment of accomplishments relative to the previous year's annual work plan
- A work plan and budget for the current year specifying which activities will be undertaken
- A summary of significant trends of monitoring data and trends

The annual review process is an opportunity for the BCWMC to assess the effectiveness of its goals, requirements/policies, strategies, and actions. If the BCWMC determines that programmatic changes are necessary, the BCWMC may amend this Plan to reflect the needed changes and/or adopt new polices or strategies that require action by the member cities (see Section X).

The BCWMC regularly reviews member city compliance with this Plan. This review may include:

- Evaluating the status of local water plan adoption and implementation of BCWMC-required activities (see Section X)
- Reviewing updates to member city official controls (e.g., ordinances, local water plans) addressing water and watershed management, including enforcement [policies #40 and #112 from 2015 plan]
- Reviewing member city permits and variances issued or denied and violations under rule or ordinance requirements of the organization or local water plan
- Reviewing of member city annual MS4 reports

If review of member city practices reveals implementation inconsistent with the BCWMC Plan, the BCWMC will take administrative or legal action to ensure that BCWMC rules and policies are being implemented by the member cities.

4.2 Implementation Activities

Table 4-5 and Table 4-6 are comprehensive lists of the projects, activities, and programs that comprise the BCWMC implementation program. The Activities and Program Implementation schedule in Table 4-5 lists implementation activities (aside from capital projects) such as studies, monitoring, flood control programs, administrative activities, education programs, etc. while Table 4-6 is the BCWMC's 10-year capital improvement program (10-year CIP). These tables comprise a schedule of activities across the life of the plan (2026 – 2035) along with estimated budgets (in 2025 dollars). Budgets and schedules of existing activities may shift or change due to funding availability, changes in opportunities, or other reasons. These changes will not constitute an amendment this Plan.

4.3 Funding

Funding sources that are available to the BCWMC include ad valorem taxing through Hennepin County, levies for emergencies, city assessments, and establishment of an improvement fund. Additional funding sources include income from investments, development review fees, and grants. The BCWMC also maintains certain long-term funds for specific purposes. The BCWMC maintains fiscal policies regarding funds and funding sources. The BCWMC joint powers agreement (JPA) also describes some funding sources and associated requirements. Each of these funding sources and long-term funds are further described below.

4.3.1 Funding Sources

Ad Valorem Tax Funding

Although joint power WMOs (such as BCWMC) do not have ad valorem taxing authority, Minnesota Statute 103B.251 allows WMOs to certify capital improvements to the county for payment, if those improvements are included in the WMO's watershed management plan. The county then issues bonds and levies an ad valorem tax on all taxable property in the WMO (or subwatershed unit of the WMO) to pay for the projects. This process requires sufficient lead time and coordination with the County. The County must formally approve any amendments to a WMO's plan and the associated levy amounts. A WMO may also raise funds through direct ad valorem taxation (Minnesota Statutes 103B.241), but only if the WMO is specifically listed as a special taxing district in Minnesota Statutes 275.066. If a WMO is given taxing authority, the WMO may also accumulate funds to finance improvements as an alternative to issuing bonds (Minnesota Statutes 103B.241). The BCWMC has not pursued this authority.

In addition to levies for the actual capital improvements, the Commission may also use Minnesota Statute 103B.251(Subd. 9) to levy funds through the County for normal and routine maintenance of capital improvements. The proceeds of the levy shall be deposited in a separate maintenance and repair account to be used only for the purpose for which the levy was made. To date, the BCWMC has not utilized this authority but may consider it in the future.

Minnesota law allows local units of government or WMOs to declare an emergency and order work to be done without a contract, and without levy limits (Minnesota Statutes 103B.252).

City Assessments

Through the BCWMC JPA, each member city contributes annually to the BCWMC general fund. The general fund is to be used to implement the day-to-day operations of the BCWMC. Each city's annual contribution is based 50 percent on the assessed valuation of property in the watershed and 50 percent on the ratio of area of each member city within the watershed to the total BCWMC area. The general fund is used to pay for most activities outside of capital improvements. The general fund is used for administrative expenses, monitoring programs, watershed management plan development, special studies, education activities, etc. The general fund may also be used to pay for routine repair and maintenance of facilities. The general fund could also be used to pay for the administrative expenses related to a capital project, such as preparing feasibility reports, conducting hearings, educating the public about the capital projects, etc.

CIP Project Funding – BCWMC Improvement Fund

The BCWMC Joint Powers Agreement (JPA) calls for the establishment of an improvement fund for each improvement project (CIP project) ordered by the BCWMC. In accordance with the current JPA, the BCWMC may use one of the following three methods to apportion project costs to the member cities:

1. Negotiated settlement among the member cities.
2. Use the same basis as the BCWMC general fund (50 percent property value/50 percent watershed area), which can be varied (by a two-thirds vote of the BCWMC) under certain circumstances, and with credits given for land acquisition. Any member city unhappy with the cost allocation may appeal the decision and submit it for arbitration.
3. If the project is certified to the county for payment using Minnesota Statutes 103B.251, the costs will be apportioned according to a levy on all taxable property in the watershed.

Investment Income

In recent years, dividend income earned by funds invested by the BCWMC has been substantial. In 2023, the BCWMC adopted a new fiscal policy to set aside investment income in a long-term fund earmarked for special projects. Use of the Special Projects Fund is prioritized toward studies or planning to help target capital improvement projects or BCWMC programs, but may be used for operational or administrative purposes if approved by the Commission. Any use of the Special Projects Fund requires approval by the Commission prior to the expenditure.

Development Review Fees

The BCWMC collects fees associated with the BCWMC Engineers' review of applications for developments, redevelopments, and other proposed projects that trigger BCWMC reviews. Fees vary depending on the complexity of the project. The fee schedule may be updated from time to time to ensure that fees cover most or all BCWMC expenses resulting from reviews. The BCWMC does not hold fees in

an escrow account and fees are not structured to generate income, only to cover costs.

Grants

There are a variety of local, regional, state, and federal grant programs applicable to the work of the BCWMC. The BCWMC is often successful at receiving grant funding, particularly for the implementation of capital projects. Since 2015, the BCWMC has been awarded over $3.6 million in grant funding for projects and programs.

Hennepin County administers grant programs such as Opportunity Grants, Good Steward Grants, and Aquatic Invasive Species Prevention Grants. The county also has funding for environmental (contaminant) assessments and response and brownfield clean up projects.

State agencies including the Board of Water and Soil Resources (BWSR), the Pollution Control Agency (MPCA), Department of Health (MDH), and the Department of Natural Resources (MDNR) each have a variety of grant programs that are applicable to the BCWMC's work. The Minnesota Clean Water, Land, and Legacy Amendment funding has been a particularly important source of grant funding for water resources improvements through its Clean Water Fund. The BWSR administers multiple Clean Water Fund grant programs including competitive programs such as the Projects and Practices grant and Accelerated Implementation grants, and the Watershed Based Implementation Funding block grant for watershed geographies. The MPCA administers multiple grant programs with state funds and also administers some federal grant programs such as the Section 319 Grant Program. The MDNR administers various habitat-related grant programs along with the Flood Hazard Mitigation Grant Program.

Federal grant programs through the Environmental Protection Agency, U.S. Army Corps of Engineers, Federal Emergency Management Administration, National Oceanic and Atmospheric Administration and other federal agencies may also be applicable to BCWMC's work.

Various grant programs are also administered by the Metropolitan Council, the Minnesota Public Facilities Authority, MN Local Road Research Board, the McKnight Foundation, and other public entities and private/civic organizations. Barr Engineering maintains an updated grant tracking spreadsheet with a comprehensive list of grant programs, guidelines, and application processes. The BCWMC utilizes this spreadsheet to learn about and consider various grant opportunities.

CLEAN WATER LAND & LEGACY AMENDMENT

4.3.2 Long-term Funds

The BCWMC maintains several long-term (savings) accounts to accumulate and/or hold funds for specific purposes. The BCWMC's current long-term funds are described below. Additional long-term funds may also be established during the life of this plan.

Channel Maintenance Fund

The BCWMC maintains a channel maintenance fund. Most years $25,000 is transferred from the General Fund to this long-term fund. This fund can be accessed by member cities with a portion of the

Trunk System in their city to off-set the cost of minor stream maintenance, pond maintenance, repair, stabilization, and restoration projects, and portions of larger stream restoration projects.

Flood Control Project Long-term Maintenance Fund

The BCWMC maintains a long-term maintenance fund for inspections (including coordination and reporting) and minor maintenance of its Flood Control Project (FCP). The FCP Long-term Maintenance Fund was originally started with a portion of the funds remaining from the construction of the FCP. As outlined in Section 4.1.7.2, major repair, rehabilitation, and replacement activities that are more than $100,000 will be included in the BCWMC CIP. Other projects, such as updates to the BCWMC hydrologic and hydraulic model, may also be funded with this long-term fund at the direction of the Commission. In 2021, the average annual cost of FCP inspections was estimated at $32,500 but fluctuates significantly year to year depending on the inspection schedule. The BCWMC may transfer funds from its General Fund to this long-term fund to maintain an adequate level of funding over the course of 10 to 20 years.

Flood Control Project Emergency Fund

The BCWMC maintains this fund to address emergency repairs to the Flood Control Project. This fund was created using a portion of the remaining funds from the original construction of the Flood Control Project. The BCWMC does not add to this fund on an annual basis.

Special Project Fund

This long-term fund was created in 2023 to set aside income from BCWMC investments for special projects. As noted in Section 4.3.2, a fiscal policy was approved that outlines intended uses for these funds.

Plan Development Long-Term Fund

Development of a 10-year watershed management plan is a significant endeavor. The BCWMC may set aside funds from the General Fund each year to save for the potentially high cost of developing the next 10-year plan.

4.4 Local Water Management and Member City Responsibilities

The BCWMC anticipates that some member cities will need to revise their local plans and official controls to bring them into conformance with this Plan, Minnesota law (Minnesota Statutes 103B), and Minnesota Rules (Minnesota Rules 8410). Minnesota Statutes 103B.235 Subd. 2 include specific requirements for local water management plan contents. BCWMC member cities must revise and adopt local water management plans not more than two years before the local comprehensive plan is due consistent with the schedule required by Minnesota Rules 8410.0105 Subp. 9B. Extensions of the comprehensive local plan due dates do not alter this schedule.

A city's updated local water plan should be submitted to the Metropolitan Council for its review concurrent with the review by the BCWMC. The Met Council requires that updated local water plans are approved by the watershed management organization(s) in order to the city's comprehensive plan to be complete and ready for review by the Met Council.

A member city can assume as much management control as it wishes through its approved local water management plan. The BCWMC assumes that the member cities will continue to be the permitting authority for all land alteration activities in addition and complementary to the BCWMC's project review process (see Section 4.1.3.1). To continue as the permitting authority, the local government must outline its permitting process in its local water management plan, including the preliminary and final platting process.

The policies and goals established in each city's local water management plan must be consistent with the BCWMC Plan. The section of the local plan covering assessment of problems must include those problems identified in the BCWMC Plan that affect the city. Corrective actions proposed must consider the individual and collaborative roles of the BCWMC and its member cities and must be consistent with the BCWMC Plan. A city may use all or part of the BCWMC Plan when updating its local plan. The local water management plan must identify official controls and programs (e.g., ordinances, management plans) which are used to enforce the policies and requirements of the BCWMC.

Local units of government must maintain stormwater systems (storm sewers, ponding areas, ditches, water level control structures, etc.) under their jurisdiction in good working order to minimize flooding and water quality problems. The BCWMC requires that local plans assess the need for periodic maintenance of public works, facilities, and natural conveyance systems, including the condition of public ditches constructed under Minnesota Statutes 103D or 103E, if they are under the cities' jurisdiction.

Review of Local Plans

Before a member city adopts its local water management plan, the new or revised plan must be submitted to all affected watershed management organizations, the Metropolitan Council, and Hennepin County (if the County adopts a groundwater plan) for concurrent review. Within 60 days of receipt of the local plan, the BCWMC will review the local plan for conformance with the BCWMC Plan. As part of its review, the BCWMC will take into consideration any comments received from the Metropolitan Council and the County. The BCWMC will approve all or part of the local plan or provide comments detailing why the BCWMC did not approve the local plan within the 60-day time frame, unless the city agrees to an extension. If the BCWMC does not complete its review, or fails to approve/disapprove the plan within the allotted time, and the city has not given an extension, the local plan will be considered approved (per Minnesota Rules 8410 and Minnesota Statutes 103B.235, Subd. 3 and 3a).

Once the BCWMC approves the local plan, the local government must adopt and implement its plan within 120 days and amend its official controls within 180 days of plan approval. Each member city must notify the BCWMC (and the other affected WMOs) within 30 days of plan adoption and implementation, and adoption of necessary official controls.

Any amendments to the local plan must be submitted to the BCWMC for review and approval prior to their adoption by the member city. The BCWMC review process for amendments is the same as for the original or revised local plan.

The BCWMC reserves the right to recommend that a City does not issue permits for a project the BCWMC believes to be in conflict with the BCWMC Plan or local water plan (see also Section 4.1.3.1).

Member City Responsibilities

This plan includes various recommendations and requirements for member cities. Table 4-4 lists these recommendations and requirements that impact member cities, references policy numbers found in Section 4.1, and includes a general subject area to help orient member cities .

Table 4-4 Member City Responsibilities and Requirements

Plan Policy (Section 4.1)	Recommendations and Requirements (Red)	Subject Area
3	Recommendation to submit data regarding occurrences of rare and endangered species and native plant communities to the State's Natural Heritage Information System	Rare species and land conservation
4	Recommendation to cooperate with partners and organizations that identify and work to preserve connected greenway corridors and other natural areas	Rare species and land conservation
5	Member cities must update their local water management plans to incorporate consistency with BCWMC goals, policies, and requirements. The BCWMC will review city local water management plans for consistency with BCWMC goals	Local Plans/Controls
6	Member cities must inform the BCWMC regarding updates to city ordinances or comprehensive plans that will affect stormwater management.	Local Plans/Controls
9	Member cities must incorporate standards and requirements included in the Requirements document into their official controls (e.g., ordinances). Member cities must inform developers and other project applicants regarding BCWMC requirements	Development Requirements
12	Member cities shall not issue construction permits, or other approvals relevant to controls intended to protect water resources, until the BCWMC has approved the project	Development Requirements
13	For projects subject to BCWMC review and erosion and sediment control standards, the BCWMC requires that member cities perform regular erosion and sediment control inspections	Development Requirements
16	Recommendation for cities to complete comprehensive wetland management plans as part of their local water management plans and encouragement to pursue wetland restoration projects, as opportunities allow	Wetlands
17	Cooperate with BCWMC, the MPCA and other partners to develop water quality studies (e.g., total maximum daily load (TMDL) studies)) and/or perform subwatershed assessments for degraded priority waterbodies and those listed on the MPCA's impaired waters 303(d) list.	Studies
19	Upon request (typically annually), member cities shall provide the BCWMC with information on development, redevelopment, and BMPs constructed within their city such that the BCWMC can appropriately update the models	Data submission
20	The BCWMC requires that member cities annually inspect wetlands classified as Preserve (or equivalent) for terrestrial and emergent aquatic invasive vegetation, such as buckthorn and purple loosestrife, and attempt to control or treat invasive species, where feasible	Invasive Species
25	Member cities must formally notify the Commission Engineer regarding their completed maintenance and repair actions on any of the FCP project features	Flood Control Project
25	Member cities are responsible for routine maintenance and repair of FCP features as outlined in Table 4-2.	Flood Control Project

4.5 Plan Updates and Amendments

This Plan remains in effect for ten (10) years from the date it was approved and adopted, unless it is superseded by adoption and approval of a succeeding Plan. In the event a succeeding Plan has not been adopted within ten years, the existing plan, authorities, and official controls of the WMO remain in full force and effect until a revision is approved, consistent with Minnesota Statutes 103B.231, Subd. 3a. Minnesota Statutes 103B.231 provides more detail about the schedule for WMO plan revisions.

All amendments to this Plan must follow the procedures set forth in this section, or as required by revised laws and rules. Plan amendments may be proposed by any person to the BCWMC, but only the BCWMC may initiate the amendment process. The BCWMC may amend its Plan in the interim if changes are required or if problems arise that are not addressed in the Plan, or if new projects need to be added to the CIP.

Minnesota Rules 8410 provide additional information regarding plan amendments. Minnesota Rules 8410 requires WMOs to evaluate the implementation actions periodically. The BCWMC will review its implementation program annually. A plan amendment is required to add a project to the CIP (Table 4-6). A plan amendment is not required if projects listed in the CIP are implemented on a different schedule or with a different cost estimate than shown in the table.

Amendment Procedure

The BCWMC will follow the plan amendment process described in Minnesota Statutes 103B.231, Subd. 11 unless the proposed amendment is considered a minor amendment according to the following criteria described in Minnesota Rules 8410.0140:

1. BWSR has either agreed that the amendments are minor or failed to act within five working days of the end of the required 30-day comment period (unless an extension is mutually agreed to);
2. the BCWMC has sent copies of the amendments to the plan review authorities for review and comment allowing at least 30 days for receipt of comments, has identified the minor amendment procedure is being followed, and directed that comments be sent to the BCWMC and BWSR;
3. Hennepin County has not filed an objection to the amendments within the 30-day comment period (or mutually agreed to extension);
4. the BCWMC has held a public meeting to explain the amendments and published a legal notice of the meeting twice, at least seven days and 14 days before the date of the meeting; and
5. the amendments are not necessary to make the plan consistent with an approved and adopted county groundwater plan.

If the above criteria are not met, the amendment shall follow the process defined in Minnesota Statutes 103B.231, Subd. 11. This process is the same as the Plan review process, and is as follows:

1. The BCWMC must submit the amendment to the member cities, Hennepin County, the state review agencies (Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, Minnesota Department of

Agriculture, and the Minnesota Department of Health), the Metropolitan Council, and the Minnesota Board of Water and Soil Resources, for a 60-day review.

2. The BCWMC must respond in writing to any concerns raised by the reviewers.
3. The BCWMC must hold a public hearing on the proposed amendment.
4. The BCWMC must submit the final revised amendment and response to comments to the BWSR for a 90-day review and approval.

The BCWMC will consider sending drafts of proposed amendments to all plan review authorities to receive input before establishing a hearing date or beginning the formal review process.

The BCWMC may update its Monitoring Plan (Appendix B) and Education and Engagement Plan (see Appendix C) without performing a plan amendment.

Table 4-5. Program Implementation Table (red activity = new; red goals = high priority; orange goals = med priority; green goals = low priority)

Tool	Activity ID	Activity Name (red = new)	Activity Description	Most Relevant Goals	Estimated Costs (presented in 2025 dollars)									
					2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Operations: Administration & Technical Services	OP-1	Administrator	Contracted administrator: half time 2026 and 2027; full time starting 2028	All	$ 85,200	$ 85,200	$ 166,400	$ 166,400	$ 166,400	$ 166,400	$ 166,400	$ 166,400	$ 166,400	$ 166,400
	OP-2	Administration	Administrative services including administrative assistance, legal, audit, insurance, MW annual dues, etc.	All	$ 94,000	$ 94,000	$ 94,000	$ 94,000	$ 94,000	$ 94,000	$ 94,000	$ 94,000	$ 94,000	$ 94,000
	OP-3	General Technical Services	Engineering and other technical services provided, as needed, to support Commission and member city actions. Incluldes attendance at Commission and TAC meetings	All	$ 166,000	$ 166,000	$ 166,000	$ 166,000	$ 166,000	$ 166,000	$ 166,000	$ 166,000	$ 166,000	$ 166,000
	Operations Subtotal				**$ 345,200**	**$ 345,200**	**$ 426,400**	**$ 426,400**	**$ 426,400**	**$ 426,400**	**$ 426,400**	**$ 426,400**	**$ 426,400**	**$ 426,400**
Planning and Collaboration	PL-1	Municipal Plan and Ordinance Review	BCWMC review of local water plans (as updated) for consistency with BCWMC goals, policies, and implementation. BCWMC also reviews updates to ordinances and other official controls.	PA1	$ 2,000	$ 10,000	$ 10,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
	PL-2	Watershed Mgmt. Plan Update	Savings for development of 2036 Watershed Management Plan	FUND3	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
	PL-3	Upland and Natural Area Planning	Cooperate, when appropriate and as resources allow, with partners and organizations that identify and work to preserve connected greenway corridors and other natural areas	UP1	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
	PL-4	Public-Private Parthership Cost Share Program Development	Develop a framework for private-public funding partnerships and/or CIP-funded cost share program. (Look to MWMO and/or SCWMO as examples)	FUND2	$ -	$ -	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	PL-5	Bassett Creek Valley Collaboration	Assist multi-jurisdictional partners with evaluating, prioritizing, and coordinating multi-benefit project opportunities within the Bassett Creek Valley.	BCV1	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
	PL-6	Social Vulnerability Index Integration	Develop and/or leverage existing social vulnerability indices to inform the targeting, design, and implementation of BCWMC projects and programs.	DEIA1	$ 10,000		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	PL-7	Channel Maintenance along Trunk System	Continue contributions to Channel Maintenance Fund for minor repairs of channel or ponds by member cities	WQ5, STRM1, STRM2	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
	Planning and Collaboration Subtotal				**$ 70,000**	**$ 68,000**	**$ 73,000**	**$ 60,000**	**$ 60,000**	**$ 60,000**	**$ 60,000**	**$ 60,000**	**$ 60,000**	**$ 60,000**
Development and Project Review	Dev-1	Development/ Project Review (offset by fees) -	Services to review proposals for development, redevelopment, and other improvements for compliance with BCWMC performance standards .	WQ1-6, CHL1-2, FLD2, GWQT1-2, RIP1, WTL1, GWQL1	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000
	Dev-2	Development/ Project Review (non-fee)	Services to review proposals for development, redevelopment, and other improvements (that are exempted from development review fees) for compliance with BCWMC performance standards.		$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
	Dev-3	Groundwater Permit Review	Review all MDNR groundwater appropriation permit applications in the BCWMC excluding applications for temporary appropriations permits	GWQT1	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
	Development and Project Review Subtotal				**$ 121,000**	**$ 121,000**	**$ 121,000**	**$ 121,000**	**$ 121,000**	**$ 121,000**	**$ 121,000**	**$ 121,000**	**$ 121,000**	**$ 121,000**
Studies	S-1	Lost Lake Subwatershed Assessment	Evaluate the Lost Lake subwatershed for water quality improvement opportunities.	WQ2	$ 75,000									
	S-2	Northwood Lake Subwatershed Assessment	Evaluate the Northwood Lake subwatershed for water quality improvement opportunities.	WQ2		$ 75,000								
	S-3	Bassett Creek Main Stem Subwatershed Assessment	Evaluate the Bassett Creek main stem subwatershed for water quality improvement opportunities.	WQ2				$ 75,000						

Table 4-5. Program Implementation Table (red activity = new; red goals = high priority; orange goals = med priority; green goals = low priority)

Tool	Activity ID	Activity Name (red = new)	Activity Description	Most Relevant Goals	Estimated Costs (presented in 2025 dollars)									
					2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Studies	S-4	Subwatershed Assessments (TBD)	Perform additional Subwatershed Assessments (TBD) for additional priority waterbodies/watersheds.	WQ3-9						$ 75,000		$ 75,000		
	S-5	Flood and Climate Vulnerability Risk Assessment	Ongoing: Encourage/assist cities or partners with development of flood emergency response plans + one large scale watershed wide flood risk assessment and prioritization considering vulnerable populations, critical infrastructure, and priority resources Acknowledge projected future climate trends in flood risk analyses.	FLD1, FLD2, FLD4, FLD5	$ 2,000	$ 2,000	$ 80,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
	S-6	Climate Resilience Strategy Framework	Develop climate resilience study/plan that evaluates climate adaptation strategies (e.g., tree planting to increase canopy, incorporating native plantings, etc.) and potential impacts to priority waterbodies.	FLD1, FLD4, FLD5				$ 50,000						
	S-7	Baseline Bacteria Monitoring and Source Assessment	Monitor priority streams to establish baseline bacteria conditions and identify pollution sources.	WQ4								$ 30,000		
	S-8	Stream MIBI Stressor Mapping	Review watershed data and stressor ID study to identify areas/zones where specific stressors are most significant.	WQ7		$ 20,000								
	S-9	Chloride Study and Management Plans	Identify waterbodies most at risk of chloride impairment and develop subwatershed analyses/management plans for chloride-impaired waters to identify pollution hotspots and to target implementation.	CHL1, CHL2			$ 25,000	$ 10,000		$ 10,000		$ 10,000		
	S-10	Lake Shoreline Inventory	Inventory shoreline conditions of priority lakes for erosion issues and presence of buffers.	LK1				$ 20,000						
	S-11	Groundwater-Surface Water Interaction Study	Work with Met Council or other agencies to map groundwatersheds and evaluate groundwater-surface water interactions and groundwater dependency of BCWMC priority waterbodies.	GWSW1					$ 25,000					
	S-12	Watershed-wide Wetland Inventory	Work with cities to develop a watershed-wide wetland inventory and identify priority wetlands or restoration.	WTL1							$ 50,000			
	S-13	Indeigneous practices guidebook	Develop guidance manual on Indigenous land and water care	EDIV3			$ 12,000							
				Studies Subtotal	**$ 77,000**	**$ 97,000**	**$ 117,000**	**$ 157,000**	**$ 27,000**	**$ 87,000**	**$ 52,000**	**$ 117,000**	**$ 2,000**	**$ 2,000**
Monitoring and Modeling	MM-1	Water Quality Monitoring	Perform annual water quality monitoring activities as described and planned in the BCWMC Monitoring Plan (see link - TBD). Monitoring includes: - Lake water quality and biological monitoring, including vegetation surveys - Stream water quality and flow monitoring - Stream biotic index monitoring	PA1-2, WQ1-9, AIS1, CHL1-2	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000	$ 160,000
	MM-2	Water Quantity Monitoring	Perform annual water level and quantity monitoring activities as described and planned in the BCWMC Monitoring Plan (see link - TBD).	PA1-2, FLD1, FLD4	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000	$ 9,000
	MM-3	Watershed Outlet Monitoring Program	Support the watershed outlet monitoring on Bassett Creek performed in cooperation with the Metropolitan Council.	PA1-2, WQ1-9, CHL1-2	$ 34,500	$ 34,500	$ 34,500	$ 34,500	$ 34,500	$ 34,500	$ 34,500	$ 34,500	$ 34,500	$ 34,500
	MM-4	Water Quality Model Updates	Update the P8 water quality model.	PA1-2, WQ1-9, CHL1-2	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
	MM-5	Hydrologc and Hydraulic Model Updates	Update the hydrologic and hydraulic model and map areas of higher risk and identify potential flood risk reduction project locations.	PA1-2, FLD1, FLD4	$ 4,000	$ 150,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
	MM-7	Streambank Monitoring	Biennially assess the condition of streambanks along BCWMC priority streams, evaluate downstream impacts, and prioritize areas for action.	STRM1, STRM2	$ -	$ 5,000	$ -	$ 5,000	$ -	$ 5,000	$ -	$ 5,000	$ -	$ 5,000
				Monitoring and Modeling Subtotal	**$ 211,500**	**$ 362,500**	**$ 211,500**	**$ 216,500**	**$ 211,500**	**$ 216,500**	**$ 211,500**	**$ 216,500**	**$ 211,500**	**$ 216,500**
AIS Management	AIS-1	AIS Management Actions	Perform actions, as needed, consistent with the BCWMC's AIS rapid response Plan (see link) and policies described in Section 4.1.6 of this Plan, including CLP management in Medicine Lake	AIS1, AIS2	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000

Table 4-5. Program Implementation Table (red activity = new; red goals = high priority; orange goals = med priority; green goals = low priority)

Tool	Activity ID	Activity Name (red = new)	Activity Description	Most Relevant Goals	Estimated Costs (presented in 2025 dollars)									
					2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	AIS Management Subtotal				**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**
Flood Control Project	FCP-1	Flood Control Project Inspections	Inspect the Flood Control Project features consistent with the scope and schedule described in Section 4.1.7 of this Plan.	FLD2	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000
	FCP-2	FCP Long Term Maintenance Fund	Annual Allocation to Flood Control Project Long-term Maintenance Fund - See Section 4.1.7 of this Plan.	FLD2	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
	Flood Control Project Subtotal				**$ 80,000**	**$ 80,000**	**$ 80,000**	**$ 80,000**	**$ 80,000**	**$ 80,000**	**$ 80,000**	**$ 80,000**	**$ 80,000**	**$ 80,000**
Education and Engagement (see Appendix C for details)	EE-1	Commissioner Training	Provide opportunities for BCWMC commissioner training and conference attendance; host watershed tours (App C: 2.0)	PAA1 - 3, EDIV1 - 3, REC1 - 2, GWQT3, AIS1, WQ1 - 9, CHL1-2, LK2	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000
	EE-2	Education and Engagment Events	Engage with residents and communities through public meetings, open houses, community conversations, events, presentations, and workshops (App C: 3.0, 7.0)		$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
	EE-3	Educational Partnership Support	Participate in and/or support partnerships focused on education, engagement, and volunteers, including WMWA, Metro Blooms, Metro Watershed Partners, CAMP, etc. (App C: 8.0)		$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
	EE-4	Engagement with Diverse Communities	Build and maintain communications and relationships with diverse and underserved communities, including members of Indigenous communities; utilize Dakota placenames (App C: 3.0 - 8.0)		$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
	EE-5	Educational Communications	Develop and share educational material with watershed residents, property owners, and communities including digital media, printed materials, maps, signs, displays, etc. (App C: 4.0, 5.0, 6.0)		$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000
	EE-6	Website Maintenance	Maintain the BCWMC website, make one signficant update, maintain ADA compliance (App C: 4.0)		$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 20,000	$ 2,000	$ 2,000
	EE-7	Cost-Share Programs	Develop/implement cost-share programs for residents and partners focusing on: - Shoreline protection and restoration - Infiltration/rain gardens - Chloride reduction -Habitat improvements	PAA1, EDIV1-3 GWQT3, WQ1 - 9, CHL1-2, LK2, RIP2, UP1			$ 75,000	$ 75,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
	Education and Engagement Subtotal				**$ 60,000**	**$ 60,000**	**$ 135,000**	**$ 135,000**	**$ 110,000**	**$ 110,000**	**$ 110,000**	**$ 128,000**	**$ 110,000**	**$ 110,000**
Evaluation and Assessment	EA-1	Annual Report	Create and publish annual report on activities	PA1	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
	EA-2	Biennial Progress Assessment	Track implementation metrics and outputs and evaluate progress towards goals at least every two years.	PA1, PA2		$ 2,000		$ 2,000		$ 2,000		$ 2,000		$ 2,000
	EA-3	Implementation Compliance	Ensure appropriate member city implementation of BCWMC policies	PA1	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
	EA-4	Organizational Structure Assessment	Complete a comprehensive assessment of BCWMC organization structure and staffing options, benefits, and challenges.	ORG1-2	$ 30,000									
	EA-5	Funding Assessment	Complete a comprehensive assessment of funding mechanisms available to BCWMC.	FUND1-3	$ 30,000									
	Evaluation and Assessment Subtotal				**$ 63,000**	**$ 5,000**	**$ 3,000**	**$ 5,000**	**$ 3,000**	**$ 5,000**	**$ 3,000**	**$ 5,000**	**$ 3,000**	**$ 5,000**
			TOTAL ANNUAL EXPENSES (2025 dollars)		**$ 1,067,700**	**$ 1,178,700**	**$ 1,206,900**	**$ 1,240,900**	**$ 1,078,900**	**$ 1,145,900**	**$ 1,103,900**	**$ 1,193,900**	**$ 1,053,900**	**$ 1,060,900**

Table 4.6 Capital Improvement Program

ID	Resource or Area	Project Title (status, if applicable)	Plan issue/goal addresses	Project description/need	Potential Partners	Planning Level Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1	Medicine Lake	Projects resulting from Medicine Lake TMDL Assessment	Impaired Waters: Medicine Lake delisting for nutrients	Projects and BMPs will vary depending on assessment results	Plymouth, Medicine Lake, TRPD	$ 2,000,000			$ 1,000,000	$ 1,000,000						
2	Medicine Lake	Medicine Lake Shoreland Restoration (ML-14) (*included in 2015 watershed plan but not implemented)*	Lakeshore Erosion: Increase percentage of properties with native buffers on nutrient impaired lakes.	(This project may be redundant to #21 below and/or may be captured in Medicine Lake TMDL assessment recommendations from #1 above.)	Plymouth, Medicine Lake, TRPD	$ 150,000							$ 50,000	$ 50,000	$ 50,000	
3	Northwood Lake	Projects resulting from Northwood Lake TMDL and Subwatershed Analysis (SWA)	Impaired Waters: Northwood Lake WQ improvements	Projects and BMPs will vary depending on assessment results	New Hope	$ 1,000,000				$ 500,000	$ 500,000					
4	Lost Lake	Projects resulting from Lost Lake TMDL and Subwatershed Analysis (SWA)	Impaired Waters: Lost Lake WQ improvements	Projects and BMPs will vary depending on assessment results	Plymouth	$ 750,000			$ 500,000	$ 250,000						
5	Crane Lake	Crane Lake Chloride Reduction Demonstration Project	Impaired Waters: Maintain or improve water quality in priority lakes and streams	Monitoring indicates that high chloride levels are likely impacting aquatic life. This project will study and implement practices to reduce chlorides reaching the lake, and could be a demonstration for implementation in other areas.	Minnetonka	$ 300,000		$ 300,000								
6	Crane Lake	Retention of impervious area drainage at Ridgedale area (CL-3) (*included in 2015 watershed plan but not implemented)*	Impaired Waters: Maintain or improve water quality in priority lakes and streams	Crane Lake outlets to Medicine Lake; Examples of projects include bioswales, tree trenches, rain gardens	Minnetonka	$ 300,000								$ 300,000		
7	Main Stem Bassett Creek	Projects resulting from Main Stem Bassett Creek Subwatershed Analysis (SWA)	Impaired Waters: Maintain or improve water quality in priority lakes and streams	Projects and BMPs will vary depending on assessment results	Golden Valley							$ 500,000	$ 500,000			
8	Main Stem Bassett Creek	Bassett Creek Main Stem Restoration - Regent Ave to Golden Valley Rd	Impaired Waters: Achieve stable streambanks along all priority streams; Maintain or improve macroinvertebrate indices of biological integrity (MIBI) in priority streams; Maintain or improve water quality in priority streams	Will reduce phosphorus and sediment loading to downstream resources including Bassett Creek and Mississippi River. May possibly improve riparian and in-stream habitats.	City of Golden Valley	$ 2,241,000	$ 653,500									
9	Main Stem Bassett Creek	Medicine Lake Road and Winnetka Avenue Long Term Flood Mitigation Plan Implementation - DeCola Pond F Flood Storage & Diversion Project	Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Based on projects identified in the Medicine Lake Rd. and Winnetka Ave. Long Term Flood Mitigation Plan. Two projects already constructed (DeCola Ponds B&C and SEA School & Wildwood Park Projects).	Golden Valley, New Hope, Crystal	$ 4,000,000		$ 1,000,000	$ 1,000,000		$ 1,000,000	$ 1,000,000				
10	Main Stem Bassett Creek	Bassett Creek Valley floodplain reduction and stormwater management projects	Bassett Creek Valley: Collaborate on evaluation, sequencing, and implementation of multi-beneficial projects within the Bassett Creek Valley to create regional flood storage, reduce floodplain by at least 8 acres, improve regional stormwater management, and improve creek access.	Projects that result in regional flood storage, reduce floodplain by at least 8 acres, improve regional stormwater management, and improve creek access.	Minneapolis, MPRB, Hennepin County	$ 5,000,000						$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
11	Main Stem Bassett Creek	Restoration and stabilization of historic Bassett Cr channel north of Hwy 55, Minneapolis (*included in 2015 watershed plan but not implemented)*	Impaired Waters: Maintain or improve water quality in priority streams	Will reduce phosphorus and sediment loading to downstream resources including Bassett Creek and Mississippi River. Removed from CIP list due to low priority	Minneapolis	$ 1,200,000								$ 600,000	$ 600,000	
12	Main Stem Bassett Creek	Bassett Creek Park water quality improvements or wetland restoration, Minneapolis (*included in 2018 version of CIP list but later removed due to low priority*)	Wetland Health & Restoration: Restore or enhance priority wetlands as opportunities arise or adjacent CIP projects are planned	Construction of BMPs benefitting Bassett Creek, potentially in conjunction with MPRB park renovations. May be an opportunity for a wetland restoration on the south side of Bassett Creek. Provides a better neighborhood connection to the creek.	Minneapolis, MPRB	$ 700,000			$ 350,000	$ 350,000						
13	Main Stem Bassett Creek	Double Box Culvert Repair (FCP-1) (*slated for 2026/2027)*	Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Maintenance of Flood Control Project; project would address needed repairs along the 5,600-foot-long tunnel	Minneapolis	$ 1,200,000	$ 850,000	$ 350,000								
14	Main Stem Bassett Creek	Toledo Ave/Minnaqua Pond Stormwater Improvements & Flood Reduction (BC-13) – (*slated for 2028/2029)*	Impaired Waters: Maintain or improve water quality in priority lakes and streams; Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Relocating infrastructure, creating flood storage, and redesigning the pond/stream interface will lower flood risk and damage, improve water quality of Bassett Creek and downstream waters, improve maintenance, and enhance vegetation and wildlife habitat.	Golden Valley	$ 1,000,000			$ 500,000	$ 500,000						
15	Main Stem Bassett Creek	Bassett Creek Lagoon Dredging in Theodore Wirth Park (BC-7)	Impaired Waters: Maintain or improve water quality in priority streams; improve habitats for macroinvertebrates and fish	Original project was not completed to specifications. This project will finish the project and/or complete a project with similar outcomes in upstream areas.	~~Golden Valley,~~ MPRB	$ 800,000		$ 400,000	$ 400,000							

ID	Resource or Area	Project Title (status, if applicable)	Plan issue/goal addresses	Project description/need	Potential Partners	Planning Level Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
16	Main Stem Bassett Creek	Deep Tunnel Sediment Removal	Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Maintenance of Flood Control Project; sediment removal near the outfall to the Mississippi River in conjunction with 2030 scheduled deep tunnel inspection.	Minneapolis, USACE	$ 2,000,000					$1,000,000	$ 1,000,000				
17	Main Stem Bassett Creek	Deep Tunnel repairs	Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Maintenance of Flood Control Project; perform repairs identified in tunnel inspection reports, including void filling, infiltration repairs, concrete debris removal, and shaft modifications, plus any additional repairs identified in the 2030 inspection.	Minneapolis, USACE	$ 5,000,000										$ 5,000,000
18	Main Stem Bassett Creek	Haha Wakpadan / Bassett Creek restoration within Brookview Golf Course	Impaired Waters: Achieve stable streambanks along all priority streams; Maintain or improve macroinvertebrate indices of biological integrity (MIBI) in priority streams; Maintain or improve water quality in priority streams	Will reduce phosphorus and sediment loading to downstream resources including Bassett Creek and Mississippi River. May possibly improve riparian and in-stream habitats.	Golden Valley	$ 2,500,000							$ 1,250,000	$ 1,250,000		
19	Main Stem Bassett Creek	City Hall Campus Redevelopment: Stormwater Improvements & Interpretive Area	Impaired Waters: Maintain or improve water quality in priority streams; potentially address chloride water quality goals and engagement goals	From Golden Valley staff; could be an opportunity to do something like MWMO plus Indigenous installation/reflection/vegetation, community gathering space, etc. Seek to include green infrastructure with 'beyond minimum standards' and multiple benefits.	Golden Valley	$ 750,000					$ 750,000					
20	Main Stem Bassett Creek	Stormwater & Habitat Improvements in Hampshire Park (includes flood mitigation)	Impaired Waters: Maintain or improve water quality in priority streams; Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Will reduce phosphorus and sediment loading to downstream resources including HW / Bassett Creek and Mississippi River. Will reduce flood risk to structures and infrastructures	Golden Valley	$ 2,500,000									$ 1,250,000	$ 1,250,000
21	Main Stem Bassett Creek	Stormwater & Habitat Improvements in Orkla & Wesley Park (includes flood mitigation)	Impaired Waters: Maintain or improve water quality in priority streams; Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Will reduce phosphorus and sediment loading to downstream resources including HW / Bassett Creek and Mississippi River. Will reduce flood risk to structures and infrastructures	Golden Valley	$ 2,000,000							$ 1,000,000	$ 1,000,000		
22	North Branch Bassett Creek	Bassett Creek Park Pond Dredging and Upstream Channel Improvements, Crystal	Impaired Waters: Maintain or improve water quality in priority streams	This project was originally studied in 2017 in conjunction with a study of Winnetka Pond dredging. The final project resulted only in dredging of Winnetka Pond with an understanding the Bassett Creek Park Pond dredging would be completed in the future.	Crystal	$ 1,200,000							$ 600,000	$ 600,000		
23	Plymouth Creek	Plymouth Creek Restoration Project Dunkirk Lane to Plymouth Ice Center	Impaired Waters: Achieve stable streambanks along all priority streams; Maintain or improve macroinvertebrate indices of biological integrity (MIBI) in priority streams; Maintain or improve water quality in priority streams	Will reduce phosphorus and sediment loading to downstream resources including Medicine Lake. May possibly improve riparian and in-stream habitats.	Plymouth	$ 2,600,000	$ 1,300,000									
24	Plymouth Creek	Fernbrook Regional Stormwater Improvements	Impaired Waters: Maintain or improve water quality in priority streams; Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	This project in the city of Plymouth will construct a regional stormwater treatment system to reduce flooding and improve water quality in downstream Plymouth Creek and Medicine Lake in the area north of Highway 55 on Fernbrook Lane.	Plymouth	$ 3,000,000		$ 500,000	$ 500,000	$ 2,000,000						
25	Sweeney Branch Bassett Creek	Culvert Repair/Replacement: Sweeney Lake to Sweeney Branch Bassett Creek, Golden Valley	Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	This project in Golden Valley will repair or replace aging infrastructure that facilitates the flow of the Sweeney Lake Branch of Bassett Creek, helps to protect critical regional watermain infrastructure, and prevents flooding of nearby buildings and property.	Golden Valley	$ 1,000,000					$ 500,000	$ 500,000				
26	Watershed-wide	Projects resulting from subwatershed assessments in prioritized areas	Multiple issues and goals in Watershed and Waterbody Quality category and Climate Resiliency and Flooding category	In addition to the planned subwatershed assessments (SWAs) for Nothwood Lake (#3) and Lost Lake (#4), and the Medicine Lake TMDL Assessment (#1), additional SWAs are planned in other areas of the watershed. SWAs will identify, target, and prioritize activities to improve conditions, including CIP projects.							$ 100,000		$ 100,000		$ 100,000	
27	Watershed-wide	Shoreline improvement projects on priority lakes	Lakeshore Erosion: Increase percentage of properties with native buffers on nutrient impaired lakes.	As identified by assessments or as be cost share program	Cities	$ 500,000		$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
28	Watershed-wide	Streambank restoration and channel/habitat improvements on priority streams; various segments	Impaired Waters: Achieve stable streambanks along all priority streams; Maintain or improve macroinvertebrate indices of biological integrity (MIBI) in priority streams; Maintain or improve water quality in priority streams	Based on surveys of streambanks and riparian areas; projects to restore streams, introduce in-channel habitat, overhanging vegetation, and woody debris	Cities	$ 2,400,000						$ 600,000	$ 600,000		$ 600,000	$ 600,000
29	Watershed-wide	Curly-leaf pondweed control for WQ improvement	Impaired Waters: Improve lake water quality AIS: Mitigate the impact of existing AIS infestations	Per AIS management policies.	Cities, Hennepin County, TRPD, MDNR	$ 200,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000

ID	Resource or Area	Project Title (status, if applicable)	Plan issue/goal addresses	Project description/need	Potential Partners	Planning Level Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
30	Watershed-wide	Implementation of recommendations from Street Sweeping Prioritization Project	Impaired Waters: Improve lake and stream water quality; reduce chloride loading to lakes and streams; reduce chloride concentrations in Bassett Creek by 10%	Potentially includes equipment purchase cost share or augmented street sweeping programs.	Cities	$ 400,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000
31	Watershed-wide	Private Developer Cost-share for Project Performance Beyond Minimum Standards (water quality and/or flood control)	Multiple goals including water quality improvements and flood reduction	Requested on multiple occasions by TAC. Fewer and fewer opportunities for projects on public land. Cooperation with private property owners is needed.	Cities	$ 900,000		$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
32	Watershed-wide	Chloride Reduction Projects or cost-share program	Impaired Waters: Reduce chloride loading to lakes and streams	Prioritization given to areas tributary to chloride-impaired waters. Cost share program could be developed for city and private entities. Examples include equipment upgrades, brining equipment, porous pavement, heated surfaces, reconfiguring sites for less ice build-up	Cities	$ 450,000		$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
33	Watershed-wide	Flood risk reduction cost share program (for habitable structures)	Flooding/Climate Change Impacts: Reduce flood risk to structures and infrastructures	Floodproofing or flood risk reduction projects for homes	Cities	$ 400,000			$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
34	Watershed-wide	Implementation of water quality improvement projects resulting from the Upper Mississippi River Bacteria TMDL (WS-1) (*included in 2015 watershed plan but not implemented)*	Impaired Waters: Reduce sources of bacteria to priority streams	Goose management, pet waste management projects, reduction of bacteria loading from ponds and pipes	Cities, MPCA	$ 100,000					$ 50,000	$ 50,000				
35	Watershed-wide	CIP Project Maintenance	Multiple goals across all areas	Maintenance of past CIP projects	Cities	$ 450,000		$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
36	Wirth Lake	Wirth Lake Aeration	Impaired Waters: Maintain or improve water quality in priority lakes and streams; and Maintain or improve fish index of biologic integrity for applicable priority lakes	Implement results of Wirth Lake Aeration Study	MPRB	$ 150,000		$ 150,000								
						$ 49,141,000	$ 2,863,500	$ 3,010,000	$ 4,610,000	$ 4,960,000	$ 4,260,000	$ 5,010,000	$ 5,460,000	$ 5,160,000	$ 3,960,000	$ 8,210,000

5 References (TBD)

Appendices

Appendix A – Land and Water Resources Inventory

Appendix B – Monitoring Plan

Appendix C – Education and Engagement Plan

Appendix D – BWSR Level II Performance Review (PRAP)

Appendix E – Plan Gaps Analysis

Appendix F – Summary of Plan Engagement

Appendix G – Joint Powers Agreement (JPA)