Appendix A – Land and Water Resource Inventory

Watershed Management Plan

2025-2035

Prepared for
Bassett Creek Watershed Management Commission

DRAFT – July 2025

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Abbreviations

AIS	Aquatic Invasive Species
AMLAC	Association of Medicine Lake Area Citizens
BCWMC	Bassett Creek Watershed Management Commission
BWSR	Minnesota Board of Water and Soil Resources
CAMP	Community Assisted Monitoring Program
CLP	Curlyleaf Pondweed
CWA	Clean Water Act
DWSMA	Drinking Water Supply Management Area
EWM	Eurasian Watermilfoil
FCP	Flood Control Project
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GLISA	Great Lakes Integrated Sciences and Assessments
H&H	Hydrologic and Hydraulic Model
HBI	Hilsenhoff Biotic Indext
ICI	Invertebrate Community Index
LGU	Local Government Unit
LOMA	Letter of Map Amendment
LVMP	Lake Vegetation Management Plan
MCES	Metropolitan Council Environmental Services
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MIBI	Macroinvertebrate Index of Biological Integrity
MIDS	Minimal Impact Design Standards
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

MSP	Minneapolis/St. Paul International Airport
MUSA	Metropolitan Urban Service Area
NAVD88	North American Vertical Datum (1988)
NCDC	National Climactic Data Center
NFIP	National Flood Insurance Program
NGVD29	National Geodetic Veritcal Datum (1929)
NHIS	Natural Heritage Information System
NOAA	National Oceanographic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OHWL	Ordinary High Water Level
P8	Program for Predicting Polluting Particle Passage through Pits, Puddles and Ponds
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biophenyl
PFAS	Polyfluoroalkyl Substances
RCP	Reinforced Concrete Pipe
SSTS	Subsurface Sewage Treatment Systems
SSURGO	Soil Survey Geographic Database
SWMM	Storm Water Management Model
TMDL	Total Maximum Daily Load
TRPD	Three Rivers Park District
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VIC	Voluntary Investigation and Cleanup
WCA	Wetland Conservation Act
WHPP	Wellhead Protection Plan
WMO	Watershed Management Organization
WOMP	Watershed Outlet Monitoring Program

A Land and Water Resources Inventory

This section summarizes the land and water resources located within the BCWMC. The inventory section contains information on land use and public utilities, climate and precipitation, topography, soils, geology and groundwater resources, surface water resource information, water quality monitoring, water quantity and flood risk, natural communities and rare species, fish and wildlife habitat, and pollutant sources. This information is important because it describes the condition of the watershed and it affects decisions about infrastructure investments, land development/redevelopment, and ecological preservation.

A.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).

A.1.1 Current "Climate Normal"

The mean annual temperature for the Ȟaȟá Wakpádaŋ/Bassett Creek watershed is 46.6°F, as measured at the Minneapolis/St. Paul (MSP) airport station (1991-2020). Mean monthly temperatures vary from 15.9°F in January to 74.1°F in July (1991-2020). For the 1991-2020 climate normal period, the average frost-free period (growing season) is approximately 160 days.

Table A-1 summarizes monthly precipitation data for the approximate center of the BCWMC, based on the Minnesota Climatology Working Group precipitation dataset for the most recent complete climate normal period (1991-2020) and 10-year period (2011-2020). Average total annual precipitation is 33.44 inches (1991-2020). The mean monthly precipitation varies from 4.8 inches in June to 0.9 inches in January and February (1991-2020). From May to September, the growing season months, the average rainfall (1991-2020) is 21.1 inches, or 63% of the average annual precipitation. Snowfall averaged 52 inches annually at the MSP station during the 1991-2020 climate normal period.

Additional information about local and regional climate is available from the Minnesota Department of Natural Resources (MDNR) State Climatology office and NOAA at:

- Minnesota State Climatology Office: https://www.dnr.state.mn.us/climate/index.html
- National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC): https://www.ncdc.noaa.gov/cdo-web/

Table A-1 Monthly Precipitation Summary (Climate Normal and 10-year Average)

Month	1991-2020 Precipitation (inches)	2011-2020 Precipitation (inches)
January	0.88	0.71
February	0.93	1.14
March	1.74	1.48
April	3.10	3.33
May	4.27	4.93
June	4.76	4.90
July	4.39	4.78
August	4.36	4.69
September	3.29	3.08
October	2.80	2.90
November	1.71	1.46
December	1.32	1.64
Total	**33.55**	**35.03**

Source: Minnesota Climatology Working Group gridded precipitation dataset

A.1.2 Precipitation Frequency (Atlas 14)

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. Extremes of precipitation and snowmelt are important for design of flood control systems. The National Oceanic and Atmospheric Administration (NOAA) has data on extreme precipitation events that can be used to aid in the design of flood control systems. Extremes of snowmelt most often affect major rivers, the design of large stormwater storage areas, and landlocked basins, while extremes of precipitation most often affect the design of conveyance facilities.

NOAA published Atlas 14, Volume 8, in 2013. Atlas 14 is the primary source of information regarding rainfall in the region. Atlas 14 supersedes publications TP-40 and TP-49 issued by the National Weather Bureau (now the National Weather Service) in 1961 and 1964. Improvements in Atlas 14 precipitation estimates include denser data networks, longer (and more recent) periods of record, application of regional frequency analysis, and new techniques in spatial interpolation and mapping. Atlas 14 provides estimates of precipitation depth (i.e., total rainfall, in inches) and intensity (i.e., depth of rainfall over a specified period) for durations from 5 minutes up to 60 days.

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. More information about Atlas 15 is available from NOAA.

Runoff from spring snowmelt is also important in this region, but is not provided in Atlas 14. The Soil Conservation Service's (now the Natural Resources Conservation Service) National Engineering Handbook, Hydrology, Section 4, presents maps of regional runoff volume. Table A-2 lists selected precipitation and runoff events used for design purposes.

Table A-2 Selected Rainfall and Snowmelt Runoff Events

Type	Event Frequency	Duration	Depth (inches)
Rainfall	2-year	24 hour	2.87
	5-year	24 hour	3.60
	10-year	24 hour	4.29
	25-year	24 hour	5.39
	50-year	24 hour	6.36
	100-year	24 hour	7.42
	10-year	10 day	6.83
	100-year	10 day	10.2
Snowmelt[1]	10-year	10 day	4.7
	25-year	10 day	5.7
	50-year	10 day	6.4
	100-year	10 day	7.1

Source: NOAA Atlas 14 – Volume 8. Station: Golden Valley (21-3202).
Hydrology Guide for Minnesota (USDA Soil Conservation Service – NRCS)
(1) Snowmelt depth reported as liquid water.

A.1.3 Climate Trends and Future Precipitation

Even with wide variations in climate conditions, climatologists have observed significant recent climate trends in the Upper Midwest (NOAA, 2013; GLISA, 2016):

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

2013 and 2016 reports on climate trends and scenarios for the Midwest indicates, total precipitation amounts in Midwest are trending upward. Precipitation records in the BCWMC show the annual average precipitation has increased. Annual precipitation in the BCWMC averaged 33.5 inches from 1991-2020, a 1.3 inch increase over the 1981-2010 climate normal period (32.2 inches). Annual precipitation exceeded the previous climate normal average (32.2 inches) in 6 of 10 years since 2011. In addition, a comparison of precipitation depths between TP-40 and Atlas 14 indicates increased precipitation depths for more extreme events.

According to the NOAA 2013 and GLICSA 2016 reports, storm rainfall amounts are increasing, as are storm intensities. Higher intensity precipitation events typically produce more runoff than lower intensity events with similar total precipitation amounts; higher rainfall intensities are more likely to overwhelm the capacity of the land surface to infiltrate and attenuate runoff. Increased rainfall and rainfall intensities with less infiltration of native soils are concerning for two primary reasons: soil erosion and flooding.

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. Increased soil erosion results in the release of more

sediment and contaminants that reduce the water quality of downstream water bodies.

The Minnesota Pollution Control Agency's (MPCA) global warming website states that increased flooding could also result from more intense precipitation events: http://www.pca.state.mn.us/index.php/topics/climate-change/index.html.

The BWSR report on climate change trends and action plan also notes that flooding from increased precipitation can damage the built environment such as commercial buildings, residential buildings, roads, and more. In addition, increased precipitation can damage the natural environment by degrading natural wetlands, and destabilizing bluffs and trees.

Dry conditions may also have negative environmental effects. Several historic droughts have occurred in the Twin Cities Metro Area dating back to mid-1800s (including the 1930's Dust Bowl). Cycles of multi-year wet and dry conditions are historically common. However, droughts experienced as part of normal climate variability may result in wider extremes when occurring between periods of increased precipitation totals and/or intensity. Recently, the wettest decade recorded in the Twin Cities Metro Area (2010-2019) was immediately followed by several years with significant drought conditions.

A.2 Population, Demographics, and Land Use

The BCMWC is located within the Twin Cities Metropolitan Area and includes portions of nine cities in Hennepin County. Over time, the land within the watershed has been transformed from a natural landscape (see Section A.9) to urban and suburban land uses. Figure A-1 presents current land use data (Metropolitan Council, 2023). Almost all of the land in the watershed is developed.

Development of the watershed has coincided with population growth among the member cities. 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 (data based on member city 2040 Comprehensive Plans). The population of BCWMC member cities is expected to increase by 5% to 15% by 2040 (see City 2040 Comprehensive Plans for additional information)

In addition to increasing total numbers, the population of within the BCWMC (and greater Hennpin County) has aged and grown more racially and ethnically diverse (Hennepin County, 2019). These trends are expected to continue during the lift of this Plan.

Additional population and demographics data for BCWMC communities is available from the Metropolitan Council at: Community Profile - Research Web Community Profiles (state.mn.us).

A.2.1 Land Use

Figure A-1 shows the current land use in the BCWMC (source: Metropolitan Council, 2023). The watershed is nearly fully developed. Vacant areas that are planned for development include areas in western Plymouth and other scattered infill locations within the BCWMC (note that the "vacant" land use designation includes undevelopable land such as wetlands). Proposed redevelopment areas are scattered throughout the watershed. The comprehensive

plans for the BCWMC member cities contain more information about these future redevelopment areas. 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 and limited amounts of agriculture.

Figure A-2 shows the anticipated future land use based on Metropolitan Council 2040 data. The future land use anticipated in 1990 (and its associated impervious coverage) was the basis for the design of the Bassett Creek Flood Control Project and associated allowable flow rates. Prior to the adoption of the 2004 BCWMC Plan, the BCWMC tracked discrepancies between the projected future land use and actual land use in the watershed. Discrepancies between the planned future land use (and associated impervious coverage) and actual land were mitigated, when necessary. In areas that developed to a higher intensity than was projected, for example, mitigation in the form of additional flood storage was provided. The BCWMC requires no increase in peak discharge from current conditions (see Bassett Creek Watershed Management Commission: Standards & Requirements) and are independent of the proposed future land use. Knowledge of future land use remains useful, however, to identify areas where redevelopment might offer opportunities for additional stormwater treatment or retrofits of existing stormwater infrastructure.

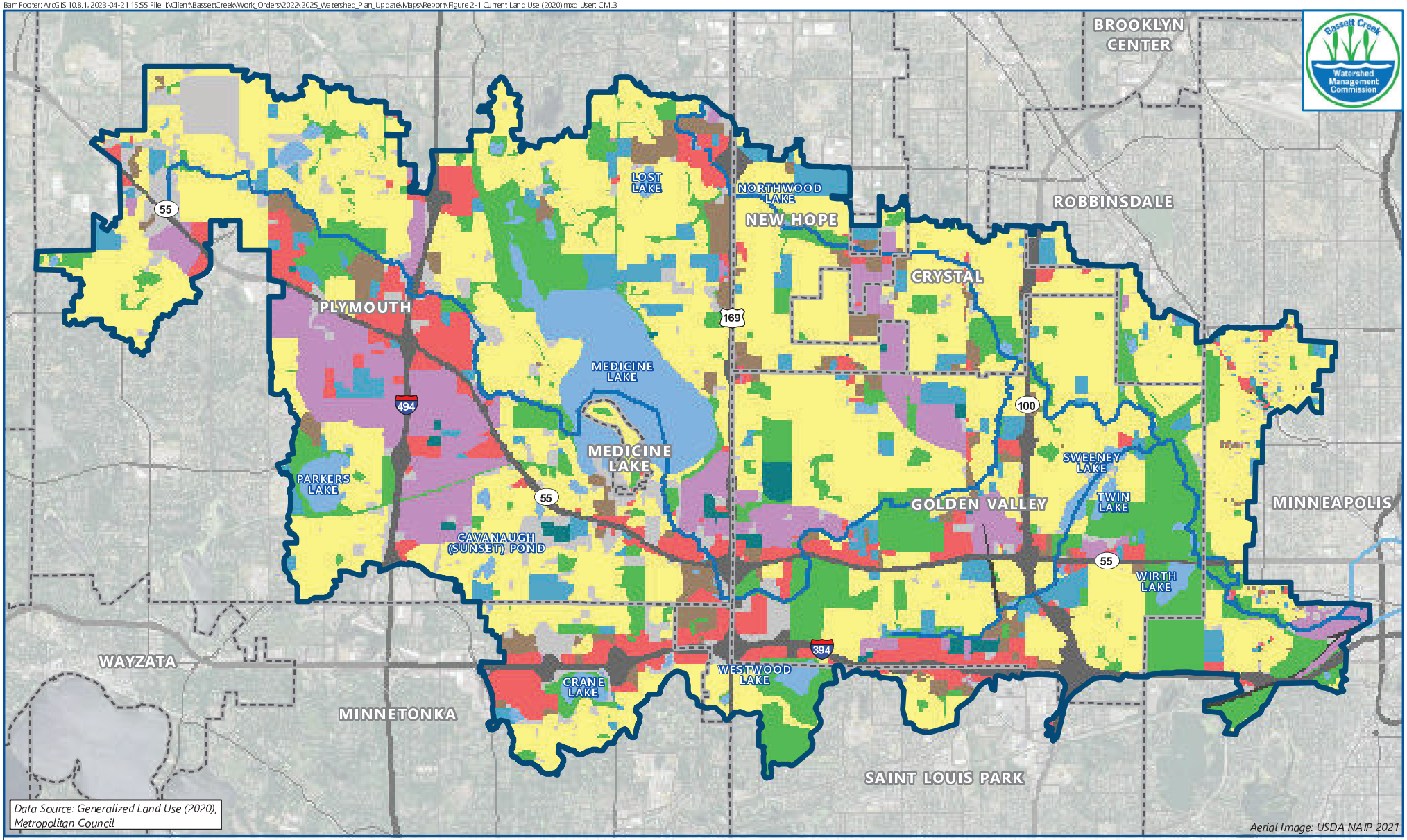
A.2.2 Water and Wastewater Service Areas

Wastewater collection facilities are now available throughout the watershed, the entirety of which is now included within the Metropolitan Urban Services Area (MUSA). The MUSA is the area delineated by the Metropolitan Council where urbanization is expected to occur and where metropolitan service systems (particularly sanitary sewer service and major highways/interchanges) will be provided to accommodate growth.

Stormwater and sanitary sewer waste for much of the City of Minneapolis was formerly discharged to a combined storm sewer and sanitary sewer system. Efforts began in the 1930s to build separate systems and separate the existing flows. The Bassett Creek Flood Control Project design assumed that the entire tributary area from the City of Minneapolis was separated and that the stormwater drains to the creek rather than to wastewater treatment facilities. Therefore, whenever additional projects are completed to separate the remaining combined systems, they are already accounted for in the Project's design capacity.

The City of Minneapolis obtains its water supply from the Mississippi River for municipal purposes. In addition, Minneapolis supplies the cities of Golden Valley, Crystal and New Hope with their municipal water supplies. The cities of Plymouth, Robbinsdale, Minnetonka, St. Louis Park, and Medicine Lake obtain their water supplies from groundwater aquifers (see Section A.5, Geology and Groundwater Resources). In the extreme western portions of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed, some residents still obtain their domestic water supplies from private supply wells.

Barr Footer: ArcGIS 10.8.1, 2023-04-21 15:55 File: I:\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-1 Current Land Use (2020).mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
Creek

Land Use *(Met Council, 2020, Hennepin County Parcels 2022)*

- Agricultural
- Single Family Residential
- Multifamily Residential
- Commercial
- Industrial
- Institutional
- Mixed Use
- Park, Recreational or Preserve
- Rights-of-Way (i.e., Roads)
- Railway (inc. LRT)
- Vacant or Unknown
- Water

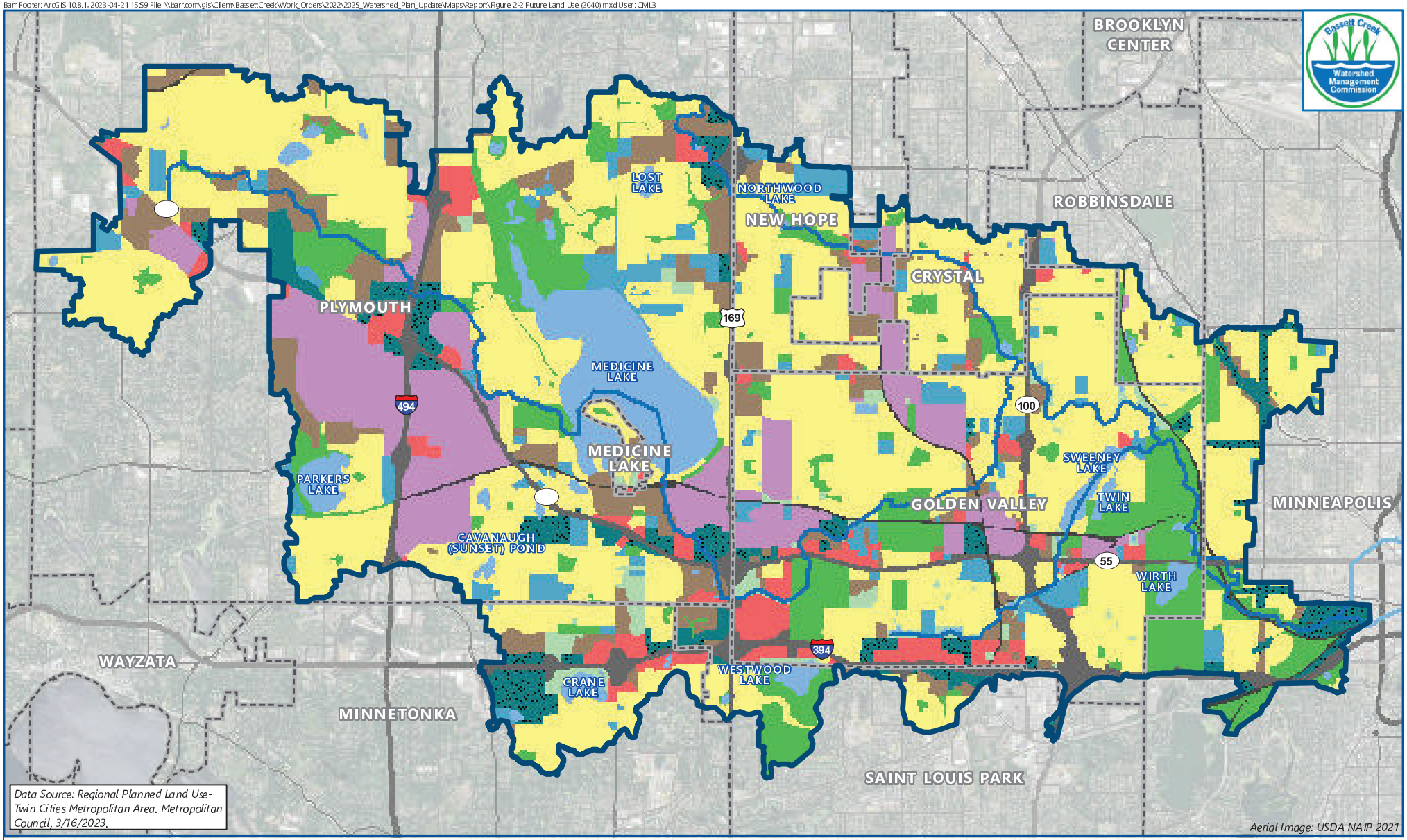
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FIGURE A-1

CURRENT LAND USE (2020)
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

Barr Footer: ArcGIS 10.8.1, 2023-04-21 15:59 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-2 Future Land Use (2040).mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
Creek

Planned Land Use *(Met Council, 2023)*

- Rural or Large-Lot Residential
- Single Family Residential
- Multifamily Residential
- Commercial
- Industrial
- Institutional
- Mixed Use
- Multi-Optional Development
- Park and Recreation
- Open Space or Restrictive Use
- Rights-of-Way (i.e., Roads)
- Railway (inc. LRT)
- Open Water

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Feet

FIGURE A-2

PLANNED LAND USE (2040)
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

A.3 Topography

The topographic relief of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed is not extreme with land sloping generally from higher elevations in the west to lower elevations in the east with only a net drop of 210 feet. The watershed high points include areas west of Parkers Lake and west of Schmidt Lake with elevations ranging from approximately 980 to 1,010 feet, respectively. From this point east, the northern and southern watershed boundaries drop to an elevation of approximately 800 at the point where the creek enters the Mississippi River as can be seen in Figure A-3. The extensive urbanization of the watershed has greatly altered the natural topography of the watershed. With these alterations, drainage patterns have become more defined. Many of the wetland areas that existed prior to urbanization have been eliminated or altered, especially in the older developed areas, concentrated downstream of Medicine Lake. The location of steep slopes within the watershed is of interest as these areas limit options for land development and have a higher potential for erosion.

A.4 Soils

Surface soils throughout much of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed contain varied amounts of clay, loam and sand. Soils in the western part of the watershe generally contain more sand than the easter portion of the watershed which contains more loam. Soils in the watershed are principally of the "Hayden" series and are moderately permeable and have high available moisture capacity depending on the relative amounts of clay and loam..

Areas of poorly-drained "Cordova" soils occur in swales and on flats have a surface layer of black silty clay loam and a subsoil of clay loam. These soils have a high available moisture capacity and a moderately low permeability.

Additionally, areas of "Peaty Muck" occur throughout the watershed. The very poorly-drained Peaty Muck soils in depressions consist of deep organic materials. They have a very high available moisture capacity and a low fertility.

While these soil types are common within the Ȟaȟá Wakpádaŋ/ Bassett Creek watershed, surficial soils are highly varied and can change quickly over short vertical and horizontal distances. Additional information about surficial soils is available from the Geologic Atlas of Hennepin County, Minnesota. Additionally, surficial soils in much of the watershed have been disturbed by development activity.

A.4.1 Hydrologic Soil Groups and Infiltration

Soil composition, slope and land management practices determine the impact of soils on water resource issues. Soil composition and slope are important factors affecting the rate and volume of stormwater runoff. The shape and stability of aggregates of soil particles—expressed as soil structure—influence the permeability, infiltration rate, and erodibility (i.e., potential for erosion) of soils. Slope is important in determining stormwater runoff rates and susceptibility to erosion.

Infiltration capacities of soils affect the amount of direct runoff resulting from rainfall. Higher infiltration rates result in lower potential for runoff from the land, as more precipitation is able to enter the soil. Conversely, soils with low infiltration rates produce high runoff volumes and high peak discharge rates, as most or all of

the rainfall moves as overland flow. For more information on infiltration rates see the Minnesota Stormwater Manual.

The Natural Resources Conservation Service (NRCS – formerly the Soil Conservation Service) has established four general hydrologic soil groups. These groups are:

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

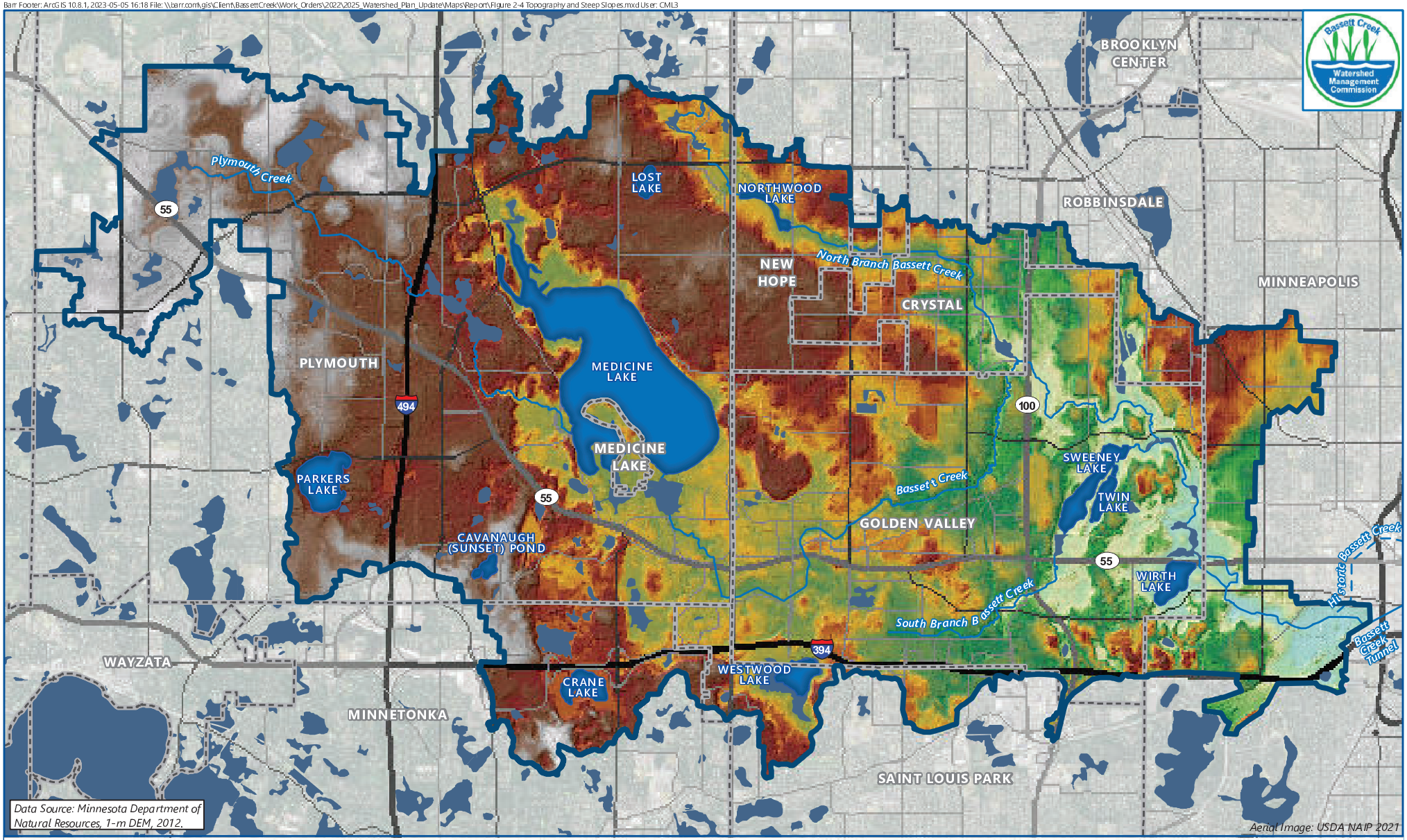
Combined with land use, the hydrologic soil group may be used to estimate the amount of runoff that will occur over a given area for a particular rainfall amount. The most current hydrologic soil group data for the Ȟaȟá Wakpádaŋ/Bassett Creek watershed are based on the Soil Survey Geographic dataset (SSURGO) from the NRCS and are presented in Figure A-4.

Large portions of the eastern half of the watershed fall within the Not Rated/Not Available category (47%). This classification is typically assigned to areas where development has altered the existing soil, or data were unavailable prior to development; hydrologic soil groups or infiltration rates are typically not determined after development. Of the remaining 53% of the watershed that has available soil information, the majority of this portion consists of hydrologic soil group B (30%), group C (26%), and group C/D soils (20%). The majority of the western portion of the watershed has soil with moderate to slow infiltration rates. Hydrologic soil group A soil, which indicates high infiltration rates, are present in approximately 13% of the rated portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. With only a small portion of the watershed consisting of soils with higher infiltration rates, the Ȟaȟá Wakpádaŋ/Bassett Creek watershed has the potential to produce high volumes of runoff.

Development may increase the potential for high runoff volumes. As land is developed, much of the soil is covered with impervious surfaces, and soils in the remaining areas are significantly disturbed and altered. Development often results in compaction of the soil and tends to reduce infiltration capacity of otherwise permeable soils, resulting in less infiltration and greater amounts of runoff. Grading, plantings, and tended lawns tend to dominate the pervious landscape in urbanized areas and may become more important factors in runoff generation than the original soil type.

The hydrologic soil groups map (Figure A-4) provides general guidance about the infiltration capacity of the soils throughout the watershed. Soils should be evaluated on a site-by-site basis for infiltration capacitiy as projects are considered.

Barr Footer: ArcGIS 10.8.1, 2023-05-05 16:18 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-4 Topography and Steep Slopes.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Public Waters Basin
Creek

Elevation (m)
High (320 m)
Low (243 m)

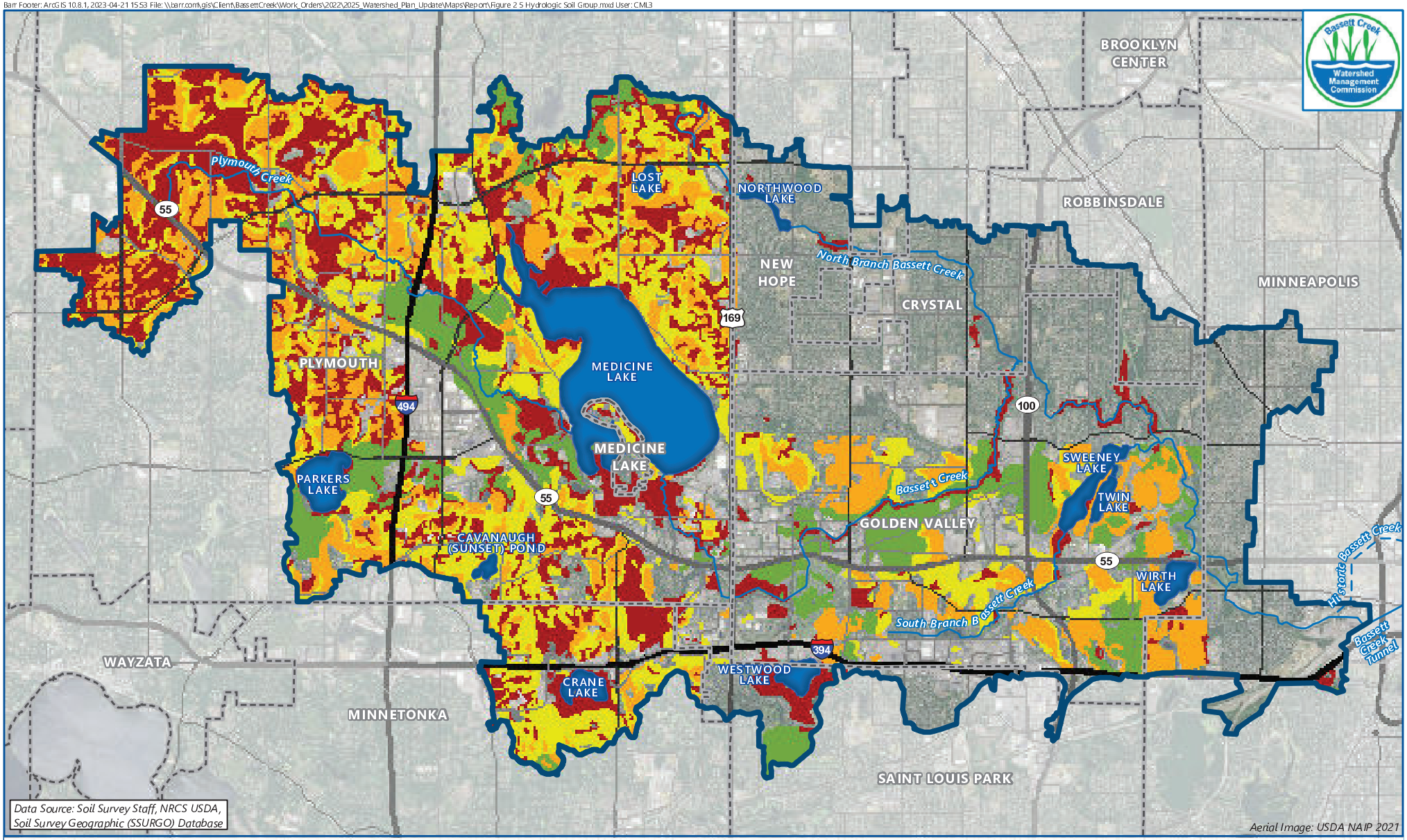
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FIGURE A-3

TOPOGRAPHY
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

Barr Footer: ArcGIS 10.8.1, 2023-04-21 15:53 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2 5 Hydrologic Soil Group.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Creek

Hydrologic Soil Group
- A
- B
- C
- D (A/D, B/D, and C/D)
- NO FILL NA/Not Rated

N

0 6,000 12,000
Feet

FIGURE A-4

HYDROLOGIC SOIL GROUP

Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

A.5 Geology and Groundwater

A.5.1 Geology

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 over 250 feet thick (in the western portion and along the eastern border of the watershed) to less than 50 feet thick (in the southeastern portion of the watershed in Minneapolis).

Generally, the elevation of the bedrock surface is independent of surface topography. The watershed is underlain by up to 40 feet of Platteville and Glenwood Formation limestone and shale in the southern and eastern portions of the watershed. The northern portion of the watershed is underlain by up to 160 feet of St. Peter Sandstone, except in the northwest portions and in the extreme eastern portions, where pre-glacial Mississippi River valleys of glacial drift cut through the sandstone and into the Prairie du Chien Dolomite.

Additional information about bedrock geology is available from the Geologic Atlas of Hennepin County, Minnesota.

A.5.2 Groundwater Resources

The cities of Plymouth, Robbinsdale, Minnetonka, St. Louis Park, and Medicine Lake obtain their water supplies from groundwater aquifers. Some residents still obtain their domestic water supplies from private supply wells in the far western portions of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed.

A.5.2.1 Bedrock Aquifers

The watershed is underlain by four major bedrock aquifers: (1) St. Peter Sandstone, (2) Prairie du Chien-Jordan, (3) Wonewoc Sandstone (formerly Ironton-Galesville Sandstone), and (4) Mt. Simon-Hinckley Sandstone.

The following cities within the BCWMC obtain their water supplies from the associated groundwater sources:

- Plymouth – 17 wells drawing from the Prairie du Chien-Jordan and Jordan aquifers
- Minnetonka – 18 wells drawing from the Prairie du Chien-Jordan, Jordan, and Prairie du Chien-St. Lawrence aquifer
- Robbinsdale – 4 wells drawing from the Prairie du Chien-Jordan, Jordan, and Jordan-St. Lawrence aquifers
- St. Louis Park – 15 wells drawing from the Prairie Du Chien-Jordan, Mt. Simon, Jordan-St. Lawrence, and St. Peter aquifers

The Joint Water Commission (Crystal, Golden Valley, and New Hope) also maintains emergency supply that draw from the Prairie Du Chien-Jordan, Mt. Simon, Jordan-St. Lawrence, and St. Peter aquifers.

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.

The Mt. Simon-Hinckley aquifer is a regional aquaifer with excellent water quality, but it is more expensive to use than the Prairie du Chien-Jordan because of its greater depth. Yields from the Mt. Simon-Hinckley aquifer range from 1,000 to 1,500 gallons per minute in the western portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed to over 1,500 gallons per minute in the eastern portion of the watershed. Minnesota statutes limit appropriations from the Mt. Simon-Hinckley aquifer to potable water uses where there are no feasible or practical alternatives and where a water conservation plan is incorporated with the appropriations permit.

Additional information about bedrock aquifers is available from the Groundwater Atlas of Hennepin County, Minnesota.

A.5.2.2 Surficial (Quaternary) Aquifers

Surficial aquifers are water-bearing layers of sediment, usually sand and gravel, which lie close to the ground surface. Many private domestic wells in the watershed draw water from these aquifers. Because surficial aquifers are more susceptible to pollution, they are generally not used for municipal or public supply wells. The depth of the water table varies across the watershed, but is on the order of tens of feet.

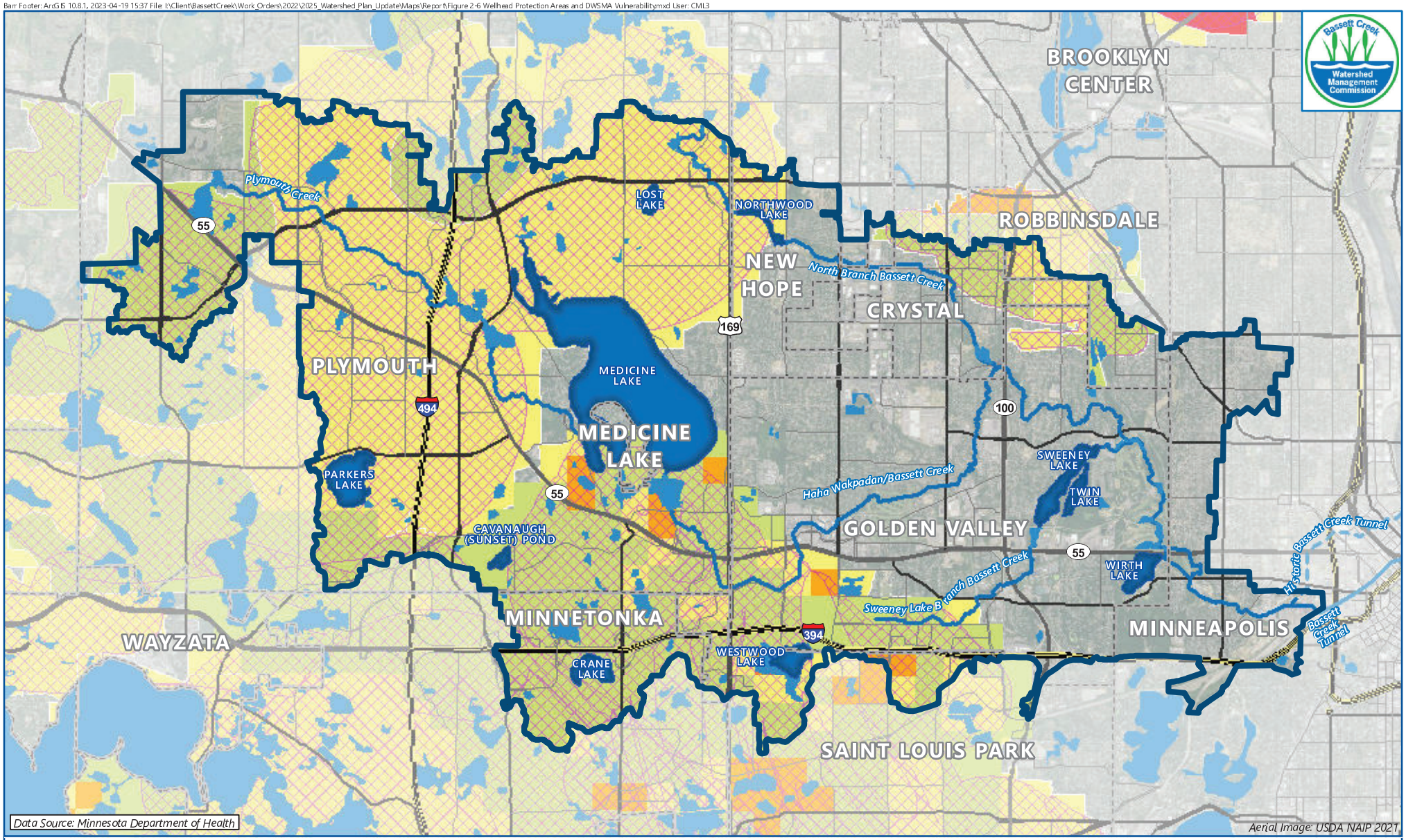
Recharge to the surficial aquifers is primarily through the infiltration of precipitation and standing water. The ponds, lakes, and wetlands scattered throughout the watershed recharge the groundwater. Some of these waterbodies are landlocked and their only outlet is to the groundwater; some landlocked lakes may be perched above the regional level of the shallow groundwater in the watershed. Some surficial aquifers may also be recharged during periods of high stream stage. Surficial aquifers may discharge to local lakes, streams or to the underlying bedrock.

Additional information about surficial aquifers is available from the Groundwater Atlas of Hennepin County, Minnesota.

A.5.3 Wellhead and Drinking Water Protection

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 qualityand seeks to minimize contamination of water supply wells through its wellhead protection program. The MDH provides guidance to limit the potential for groundwater contamination and requires public water suppliers to develop wellhead protection plans (WHPPs) and delineate drinking water supply management areas (DWSMAs). The MPCA's Construction Stormwater General Permit also prohibits the use of infiltration as a stormwater management BMP where site characteristics increase the risk of groundwater contamination. Figure A-5 shows the location of the municipal wellhead protection areas and DWSMAs within and around the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. Each of the communities within the BCWMC that obtains its municipal water supply from groundwater has an MDH-approved WHPP.

Barr Footer: ArcGIS 10.8.1, 2023-04-19 15:37 File: I:\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-6 Wellhead Protection Areas and DWSMA Vulnerability.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Public Waters Basin
Creek
Wellhead Protection Area

DWSMA by Vulnerability
Very High
High
Moderate
Low
Very Low

0 6,000 12,000
Feet

FIGURE A-5

WELLHEAD PROTECTION AREAS AND DWSMA VULNERABILITY
Bassett Creek Watershed Management Commission
2025 Management Plan

A.6 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 water resources (see Figure A-6). Table A-3 summarizes the physical characteristics of major BCWMC lakes and ponds. Other governmental units have identified or inventoried surface water resources within the BCWMC specifically related to their management jurisdictions; these include:

- 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)

A.6.1 Public Waters

The MDNR designates certain water resources as public waters to indicate those lakes, wetlands, and watercourses over which the MDNR has regulatory jurisdiction. By statute, the definition of public waters includes both "public waters" and "public waters wetlands." The collection of public waters, public waters watercourses, and public waters wetlands designated by the MDNR is generally referred to as the public waters inventory, or PWI.

Public waters are all basins and watercourses that meet the criteria set forth in Minnesota Statutes, Section 103G.005, Subd. 15 that are identified on public water inventory maps and lists authorized by Minnesota Statutes, Section 103G.201.

The regulatory boundary of public waters and public waters wetlands is called the ordinary high water level (OHWL). A MDNR permit is required for work within designated public waters. The MDNR maintains a web-based mapping tool for viewing PWI maps. The PWI maps and lists are available on the MDNR's website: http://www.MDNR.state.mn.us/waters/watermgmt_section/pwi/maps.html.

Public waters (e.g., lakes) are identified with a number and the letter "P". Public waters wetlands are identified with a number and the letter "W". Public waters wetlands include, and are limited to, types 3, 4, and 5 wetlands (as defined in U.S. Fish and Wildlife Service Circular No. 39, 1971 edition) that have not been designated public waters.

Figure A-7 shows the MDNR public waters located in the Ȟaȟá Wakpádaŋ/Bassett Creek watershed.

A.6.2 Public Ditches

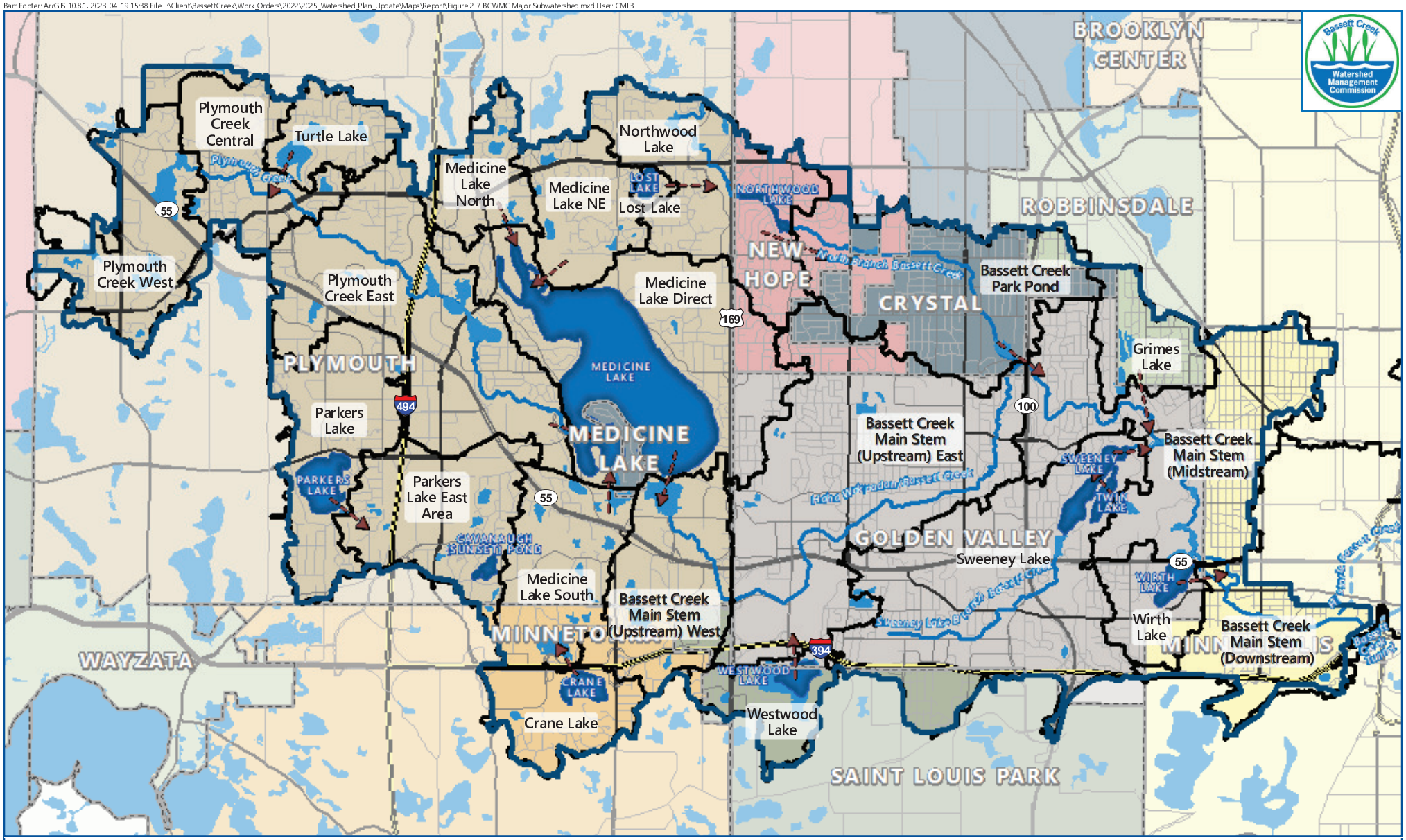
Judicial ditches and county ditches are public drainage systems. They are established under Chapter 103E of Minnesota Statutes and are under the jurisdiction of the county. Per Minnesota Statute 363B.61, cities or watershed management organizations (WMOs) within Hennepin County may petition the county to transfer authority over public ditches to the city or WMO (see Section 3.8.2).

Table A-3 Characterstics of Major BCWMC Waterbody Basins

Name	Minnesota DNR identification number	Location	Public Beach	Public Access	Subwatershed drains multiple cities	Discharges to:	Has history of BCWMC monitoring (latest year)	Water Surface Area (acres)	Size of watershed (acres)	Has history of CAMP monitoring with a volunteer	Listed as impaired
Cavanaugh (Sunset Hill)	27011000-P	PL	No	No	No	NA	Yes (2019)	13	126	No	No
Cortlawn	NA	GV	No	Parkland	Yes (GV,SP)	Sweeney Branch	No	5.6	457	No	No
Crane	27073400-P	MK	No	No	No	Medicine Lake	Yes (2021)	30	591	No	No
East Ring	NA	GV	No	Parkland	No	Cortlawn Pond	No	2.5	364	No	No
Grimes	27064400-W	RB	No	Parkland	No	North Rice Pond	No	6.1	114	No	No
Hidden	27069300-W	PL	No	Road access	No	Medicine Lake	No	9	142	Yes (2011)	No
Lost	27010300-P	PL	No	No	No	NA	Yes (2022)	22	61	Yes	No
Medicine	27010400-P	PL, ML	Yes	Parkland/ Launch	Yes (ML,PL, NH,GV,MK)	Bassett Creek	Yes (2024)	902	11015	Yes	Yes
North Rice	27064400-W	RB	No	Parkland	Yes (CR,GV,MP,RB)	South Rice Pond	Yes (2013)	3.7	233	Yes (2009)	No
Northwood	27062700-P	NH	No	Parkland	Yes (PL,NH)	Bassett Creek	Yes (2022)	15	1294	Yes	Yes
Parkers	27010700-P	PL	Yes	Parkland/ Launch	No	Medicine Lake	Yes (2021)	97	1065	Yes	Yes
Schaper	27064900-W	GV	No	Parkland	Yes (GV,SP)	Sweeney Lake	No	3.4	2070	No	No
South Rice	27064500-W	RB, GV	No	Parkland	Yes (CR,GV,MP,RB)	Bassett Creek	Yes (2013)	3.2	514	Yes (2009)	No
Spring	27065400-P	MP	No	Parkland/ Launch	No	NA	No*	4.3	43	No	Yes
Sweeney	27003501-P	GV	No	Launch	Yes (GV,SP)	Bassett Creek	Yes (2020)	67	2397	Yes	Yes
Turtle	27010100-P	PL	No	Parkland	No	Plymouth Creek	No	28	420	No	No
Twin	27003502-P	GV	Yes	Parkland	No	Sweeney Lake	Yes (2020)	21	131	Yes	No
West Ring	NA	GV	No	Parkland	No	East Ring Pond	No	4.8	319	No	No
Westwood	27071100-P	SP	No	Parkland	Yes (GV,SP,MK)	NA	Yes (2021)	38	463	Yes	No
Wirth	27003700-P	GV	Yes	Parkland	Yes (GV,MP)	Bassett Creek	No* (2019)	38	405	No	Yes

* Wirth Lake and Spring Lake are monitored by the Minneapolis Park and Recreation Board; Parkers Lake is monitored by the City of Plymouth

Barr Footer: ArcGIS 10.8.1, 2023-04-19 15:38 File: I:\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-7 BCWMC Major Subwatershed.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Public Waters Basin
Creek
Major Subwatershed
General Flow Direction

0 6,000 12,000
Feet

FIGURE A-6

BCWMC MAJOR SUBWATERSHEDS
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

Barr Footer: ArcGIS 10.8.1, 2023-04-19 15:38 File: I:\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-8 Public Waters and BCWMC Priority Waterbodies.mxd User: CML3

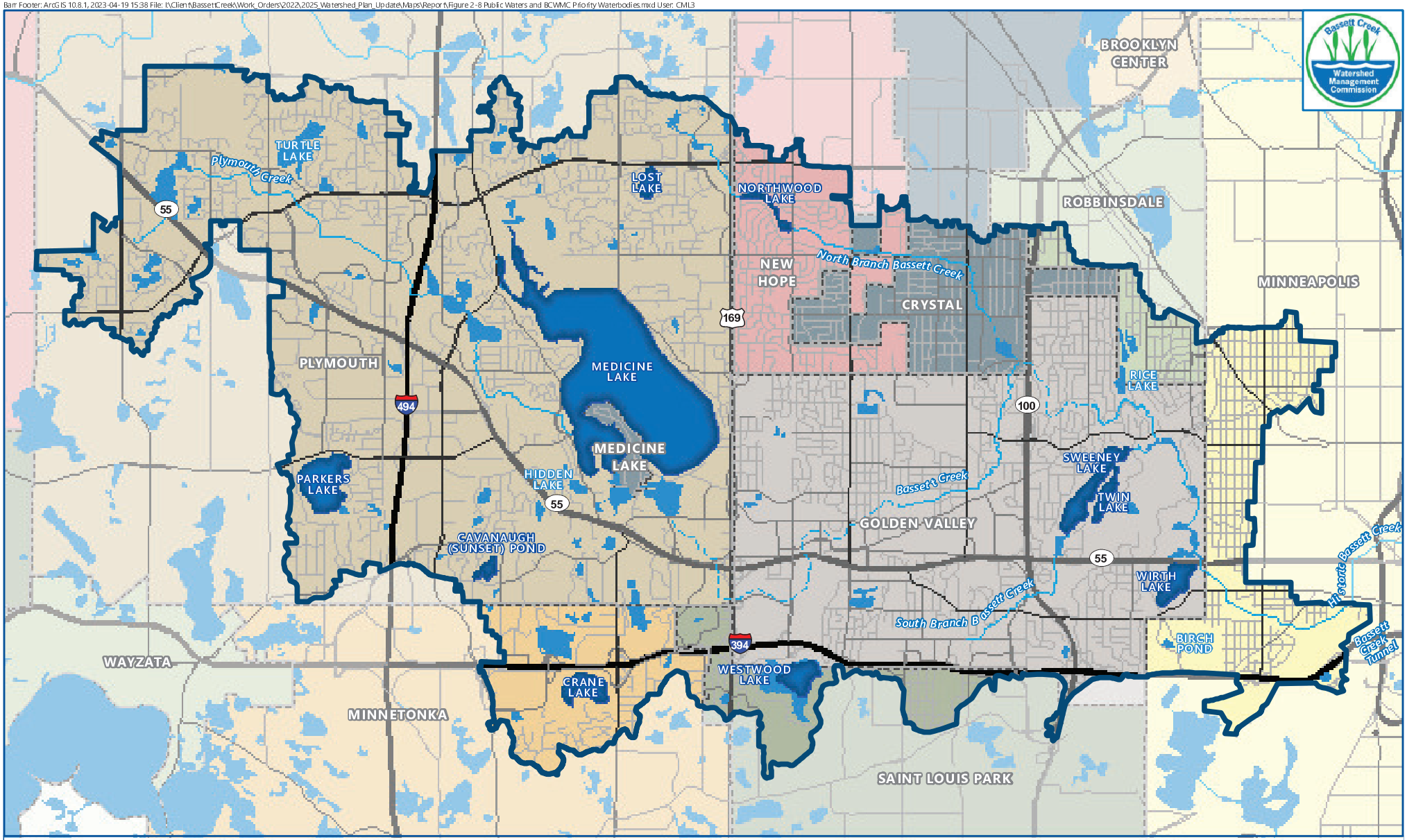


FIGURE A-7

PUBLIC WATERS AND BCWMC PRIORITY WATERBODIES

Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

Figure A-7 also identifies the public ditches within the BCWMC, which includes a large portion of the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek between Medicine Lake and Brookview Golf Course, and downstream of Highway 100. The original function of public ditches was to provide drainage for agricultural lands. Some of the systems shown as public ditches are no longer in existence, but the public ditch designation has not been removed.

A.6.3 Wetlands

Prior to development, much of the land within the BCWMC was wetland. Many wetland areas were drained or filled as the BCWMC member cities developed (prior to the establishment of regulations protecting wetlands). Wetlands represent approximately 6% of the watershed (based on Minnesota Land Cover Classification System, MLCCS, data).

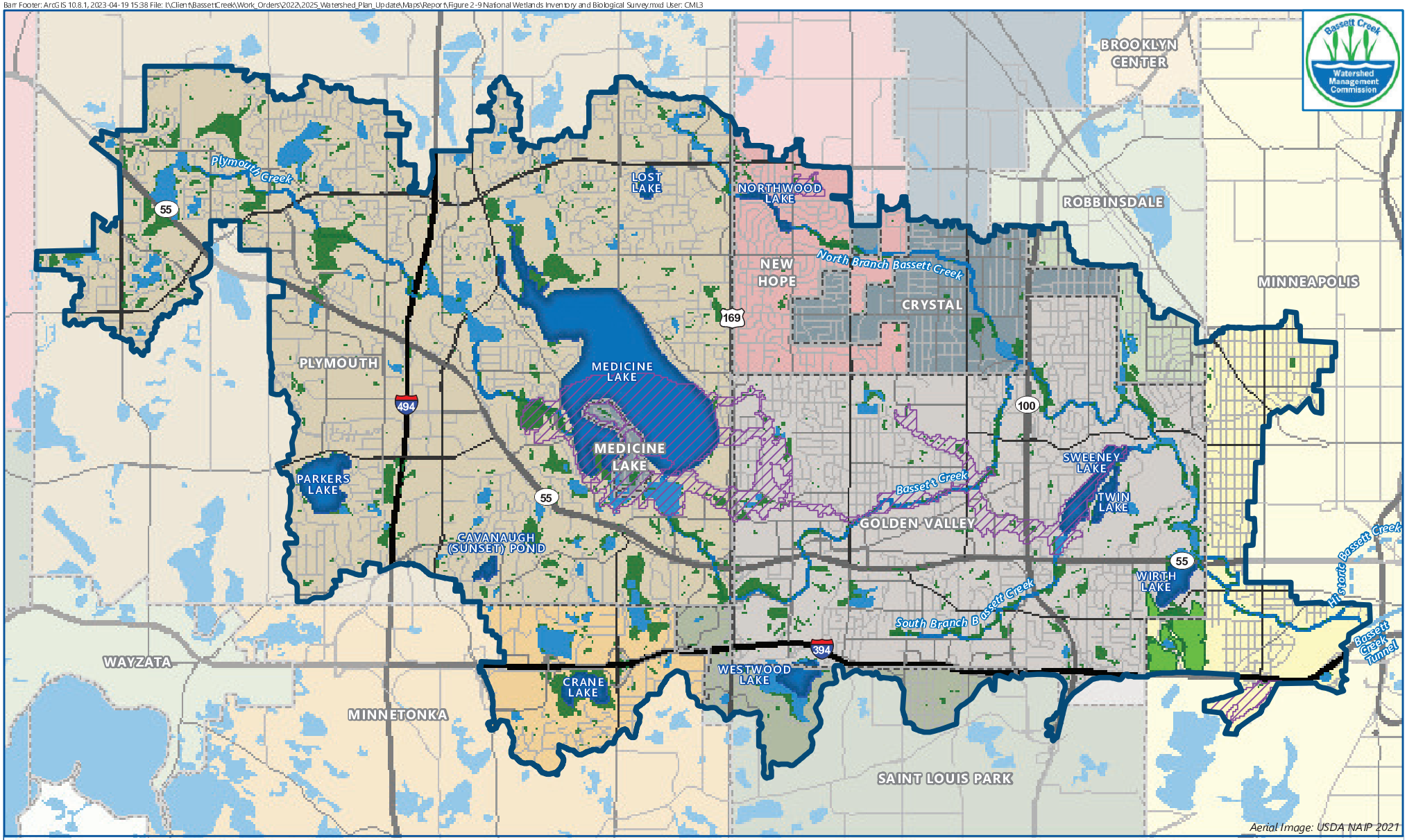
Presently, wetlands are protected by the Minnesota Wetland Conservation Act (WCA, see Section 4). The BCWMC currently acts as the local governmental unit (LGU) responsible for administering WCA in the Cities of St. Louis Park, Robbinsdale, and Medicine Lake. The remaining BCMWC member cities serve as the LGUs for their own communities.

The extent of wetlands inventoried within the BCWMC varies by member city. Nationally, the U.S. Fish and Wildlife Service (USFWS) has mapped wetlands across the country using a combination of aerial photography and limited field verification. The USFWS maintains a wetlands database called the National Wetland Inventory (NWI). The NWI is periodically updated based on available imagery.

Figure A-8 shows the location of all NWI wetlands within the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. There may be additional wetlands (especially those smaller than 0.5 acre) in the BCWMC that are not included in the NWI.

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 based on the Minnesota Rapid Assessment Method (MnRAM).

Barr Footer: ArcGIS 10.8.1, 2023-04-19 15:38 File: I:\Client\Bassett Creek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-9 National Wetlands Inventory and Biological Survey.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Public Waters Basin
Creek

Minnesota Biological Survey Sites of Biodiversity Significance
Moderate
Ecological Corridor *(Minnesota Dept. of Natural Resources)*
Wetland *(National Wetlands Inventory)*

0 6,000 12,000
Feet

FIGURE A-8

NATIONAL WETLANDS INVENTORY AND BIOLOGICAL SURVEY
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

A.6.4 Lakes and Ponds

The following sections summarize significant lakes and ponds in the Bassett Ȟaȟá Wakpádaŋ/Creek watershed, including all priority lakes (see Section A.7.2.2). Waterbodies are listed alphabetically. Additional information about those waterbodies classified as priority lakes is available from the BCWMC website.

A.6.4.1 Bassett Creek Park Pond



Table A-4 Bassett Creek Park Pond Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Ordinary High Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
9.7	7.4	2.6	840.6	850.9

Bassett Creek Park Pond is located in the City of Crystal in the northeast portion of the BCWMC. Bassett Creek Park Pond has a contributing watershed area of approximately 2,564 acres, which includes the Bassett Creek Park Pond direct watershed and the Northwood Lake and the North Branch Bassett Creek watersheds. The North Branch of Bassett Creek discharges to the pond at its northwest corner. Portions of the cities of Crystal and Golden Valley drain directly into Bassett Creek Park Pond; additionally, portions of New Hope and Plymouth are tributary to Bassett Creek Park Pond via the North Branch of Bassett Creek. The pond receives outflows from Northwood Lake and drains southeast through two 36 by 58.5 inch arch culverts into the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek.

The Bassett Creek Park Pond watershed (including the Northwood Lake and North Branch Bassett Creek watersheds) is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (67%), followed by parks and recreational use (10%) andindustrial (8%). Other land uses include medium density residential, natural space, commercial, and institutional.

Bassett Creek Park Pond is not classified by the BCWMC as a priority waterbody. The pond is also not listed as impaired by the MPCA.

Bassett Creek Park Pond is part of the BCWMC Flood Control Project (see Section A.8.1), and part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11).

A.6.4.2 Crane Lake



Table A-5 Crane Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Ordinary High Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
30	5	3.3	920.5	920.2

Crane Lake is located in the City of Minnetonka in the southern portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. Crane Lake does not have any parkland, boat access, or public beach areas. Due to the lake's shallow nature, submerged macrophytes can be found on the entire lake bottom. Emergent vegetation can be found around its circumference. Crane Lake has a contributing drainage area of approximately 591 acres, draining portions of Minnetonka. Crane Lake drains northerly into Medicine Lake at the north side through a 21-inch reinforced concrete pipe (RCP) at an elevation of 917.1 feet NAVD88.

The Crane Lake watershed is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (43%), followed by retail and commercial (20%) and parks and recreational use (10%). Other land uses include open water, institutional, office space, major highway, and industrial.

The BCWMC classified Crane Lake as a BCWMC Priority 2 Shallow Lake. The "shallow" classification is based on the MPCA's shallow/deep classification (shallow lakes have a maximum depth of less than 15 feet or a littoral area greater than 80% of the total lake surface area). The lake is not listed as impaired by the MPCA. Crane Lake is also part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11)).

A.6.4.3 Grimes Pond

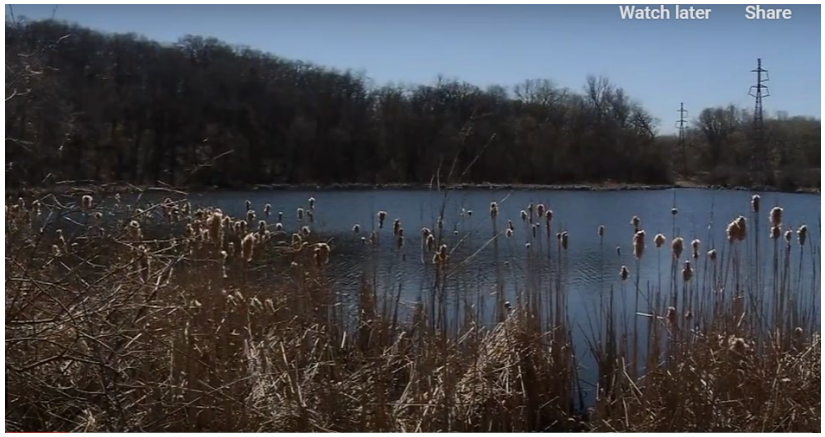


Table A-6 Grimes Pond Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Normal Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
6.1		2.6	832.5	836.7

Grimes Pond is located in the City of Robbinsdale just east of North Rice Pond in the northeast portion of the BCWMC. The city's South Halifax park surrounds the north half of the pond. Including a trail, which provides opportunities for aesthetic viewing and fishing.

Grimes Pond has a contributing drainage area of approximately 114 acres that drains a portion of the City of Robbinsdale. Runoff enters Grimes Pond through two open channels and one storm sewer outlet. The Grimes Pond outlet to North Rice Pond consists of two submerged 24-inch corrugated metal culverts through the railroad embankment located on the west side of the pond.

The Grimes Pond watershed is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (82%), followed by parks and recreational use (5.6%) and open water (4.4%). Other land uses include: industrial, institutional, and retail/commercial.

Grimes Pond is not classified by the BCWMC as a priority waterbody. The pond is also not listed as impaired by the MPCA. Grimes Pond is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11)).

A.6.4.4 Lost Lake



Table A-7 Lost Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Normal Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
22	6.5	3.5	940.2	941.2

Lost Lake is located in the City of Plymouth in the northern portion of the BCWMC. Lost Lake has no public access, as it is surrounded completely by residential homes.

Lost Lake's littoral area consists of the entire area of the lake (22 acres). Being such a shallow lake, Lost Lake has submerged vegetation throughout most of its lake bottom. Lost Lake has a contributing drainage area of approximately 55 acres. A small portion of the City of Plymouth drains to Lost Lake. Lost Lake is landlocked and therefore does not discharge to any major resource in the Ȟaȟá Wakpádaŋ/Bassett Creek watershed.

The Lost Lake watershed is fully-developed, with no parcels available for new development. Low density residential and open water are the only two land use categories for the Lost Lake watershed.

The BCWMC classified Lost Lake as a Priority 2 Shallow Lake. The "shallow" classification is based on the MPCA's shallow/deep classification (shallow lakes have a maximum depth of less than 15 feet or a littoral area greater than 80% of the total lake surface area). The lake is not listed as impaired by the MPCA.

A.6.4.5 Medicine Lake



Table A-8 Medicine Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Ordinary High Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
902	49	17.5	889.3	890.4

Medicine Lake located in the cities of and Plymouth and Medicine Lake in approximately the center of the BCWMC. The lake is a major recreational resource for the area. French Regional Park, public beaches and a public boat landing provide opportunities for swimming, fishing, boating, birding, and biking or walking adjacent trails. Medicine Lake is also an important resource for wildlife.

Medicine Lake has a shoreline of approximately 8.9 miles and a littoral area of 397.0 acres. Shallow areas near the shoreline of the lake allow for both emergent and submerged vegetation growth.

The Medicine Lake tributary watershed is approximately 11,015 acres (including the drainage area of upstream lakes ultimately tributary to Medicine Lake). Portions of the cities of Plymouth, Medicine Lake, New Hope, Golden Valley, and Minnetonka all drain to Medicine Lake.

Medicine Lake receives outflows from Plymouth Creek, Crane Lake, Turtle Lake, and Hidden Lake. Plymouth Creek discharges directly into Medicine Lake near its southwest corner and an unnamed creek from the Crane Lake watershed discharges to Medicine Lake at the south end of the southwest bay. Additionally, over 30 storm sewers have been identified that discharge into the lake. The Medicine Lake outlet is located at the south end of the main basin. A composite overflow weir structure, fourteen feet wide at the normal water level of 887.9 feet (NAVD88 datum), discharges water directly into the main stem of Ȟaȟá Wakpádaŋ/Bassett Creek; the weir is owned by Hennepin County and regulated by the MDNR. The overflow structure is approximately three feet above the level of the creek channel to deter fish migration into the lake.

The Medicine Lake watershed (including the watersheds of upstream waterbodies ultimately tributary to Medicine Lake) is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (46%), followed by open water (21%) and parks and recreation (13%). Other land uses include: medium density residential, natural space, industrial, commercial, institutional, agricultural, and office.

The BCWMC classified Medicine Lake as a Priority 1 Deep Lake. The "deep" classification is based on the MPCA's shallow/deep classification. Medicine Lake is also part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11).

The lake is currently listed on the 303(d) impaired waters list for mercury and excess nutrients. The lake's mercury impairment is addressed by the statewide mercury Total Maximum Daily Load (TMDL) approved by the US Environmental Protection Agency (USEPA) in 2007 (MPCA, 2007). A TMDL study (see Section 5.1.1.8) was prepared for Medicine Lake to address the nutrient impairment (LimnoTech, 2010). The presence of excess nutrients in the lake periodically makes the water unsuitable for swimming and wading due to low clarity and excessive algae growth. As part of the MPCA's 2014 Metro Chloride Asseessment, Medicine Lake was classified as a "high risk water" for chloride impairment, but was not listed as impaired for chloride.

Curlyleaf pondweed (CLP), an aquatic invasive plant (see Section A.9.4), is present in Medicine Lake. The Medicine Lake TMDL identified growth and die-off of curlyleaf pondweed as a source of internal nutrient loading in Medicine Lake, and recommended management of the plant (Limnotech, 2010). The City of Plymouth, Three Rivers Park District (TRPD), BCWMC, Association of Medicine Lake Area Citizens (AMLAC), and MDNR developed a Lake Vegetation Management Plan (LVMP). As of 2025, the LVMP allows for treatment of 25% to 30% of the littoral area, which is the maximum that MDNR presently allows. TRPD is likely to continue to perform CLP treatments with an adaptive management approach in combination with other management actions intednde to improve Medicine Lake water quality.

Additionally, the Minnesota Department of Health provides guidance on consuming fish caught in Medicine Lake, as the concentrations of mercury in fish tissue exceed the water quality standard: Fish Consumption Guidelines: Medicine (27010400) | LakeFinder | Minnesota DNR

A.6.4.6 North Rice Pond



Table A-9 Norrth Rice Pond Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Normal Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
3.7	5	2.6	832.5	836.6

North Rice Pond is located in the City of Robbinsdale in the northeast portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. Sochacki Park, a Three Rivers Park District park operated in partnership with Golden Valley and Robbinsdale, surrounds the pond; The park trails provide opportunities for aesthetic viewing.

North Rice Pond has a contributing watershed area of approximately 233 acres which includes the North Rice Pond direct watershed and the Grimes Pond watershed. Portions of the cities of Crystal, Golden Valley, Minneapolis, and Robbinsdale drain to North Rice Pond. North Rice Pond receives outflows from Grimes Pond through overflows from three wetland basins. A 30-inch corrugated metal culvert with a submerged manhole skimming structure connects North Rice to South Rice Pond, which discharges into the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek.

The North Rice Pond watershed (including the Grimes watershed) is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (73%), park and recreational use (15%) and undeveloped (5.8%). Other land uses include: retail and commercial, institutional, open water, and industrial.

The BCWMC has not classified North Rice Pond as a priority waterbody. North Rice Pond is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11). The pond is also not listed as impaired by the MPCA.

A.6.4.7 Northwood Lake



Table A-10 Northwood Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Ordinary High Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
15	5	2.7	885.7	891.2

Northwood Lake is located in the City of New Hope in the northern portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. Parkland is located around the lake providing opportunities for fishing, picnicking, and aesthetic viewing making Northwood Lake an important recreation resource. The lake is also used for non-motorized boating.

Its 1,294 acre tributary watershed includes both the Northwood Lake direct watershed and a portion of the North Branch Bassett Creek watersheds. The North Branch of Bassett Creek discharges into Northwood Lake through a 66-inch culvert. Portions of the cities of Plymouth and New Hope drain to Northwood Lake through four storm sewers. Northwood Lake has an outlet structure located at the east side of the lake at Boone Ave. A 10-foot wide weir set at an elevation of 884.6 discharges to a culvert that crosses Boone Ave. This culvert then discharges into the North Branch of Bassett Creek, which flows towards Bassett Creek Park Pond, ultimately discharging into the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek.

The Northwood Lake watershed (including a portion of the North Branch Bassett Creek watershed) is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (67%), followed by institutional (10%) and parks and recreational use (7.1%). Other land uses include: natural space, commercial, retail, major highways, open water, and industrial.

The BCWMC classified Northwood Lake as a Priority 1 Shallow Lake. The "shallow" Classification is based on the MPCA's shallow/deep classification (shallow lakes have a maximum depth of less than 15 feet or a littoral area greater than 80% of the total lake surface area). Northwood Lake is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11).

The lake is currently listed on the MPCA's 303(d) impaired waters list for excessive nutrients (phosphorus). A TMDL study has not been conducted for Northwood Lake.

A.6.4.8 Parkers Lake



Table A-11 Parkers Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Ordinary High Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
97	37	12	936.1	TBD

Parkers Lake is located in the City of Plymouth at the western edge of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. The lake is a major recreational resource for the area. A public beach and public boat landing provide opportunities for swimming, fishing, boating and aesthetic viewing.

Parkers Lake has a maximum a littoral area of approximately 68 acres. Shallow areas near the shoreline of the lake allow for both emergent and submerged vegetation growth. Parkers Lake has a contributing watershed of approximately 1,065 acres. A portion of the City of Plymouth drains to the lake and discharges into it through five storm sewers. Parkers Lake discharges through a 24-inch concrete outlet at the southeast corner of the lake and is ultimately tributary to Medicine Lake.

The Parkers Lake watershed is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (37%), followed by industry (32%) and open water (9%). Other land uses include: medium density residential, natural, parks and open space, commercial, developed parks, golf course, institutional, highways, and industrial/office.

The BCWMC classified Parkers Lake as a Priority 1 Deep Lake. The "deep" classification is based on the MPCA's shallow/deep classification. The lake is currently listed on the 303(d) impaired waters list for mercury. Parkers Lake is not covered by the statewide mercury TMDL due to measured concentrations of mercury in fish tissue exceeding a threshold value specified in the TMDL (see Table A-22). Parkers Lake is also listed in on the 303(d) impaired waters list for chloride.

The lake is suitable for swimming and wading with good clarity and low algae levels throughout the open water season. The Minnesota Department of Health website contains advice on consuming fish caught in Parkers Lake, as the concentrations of mercury in fish tissue exceed the water quality standard: Fish Consumption Guidelines: Parkers (27010700) | LakeFinder | Minnesota DNR.

A.6.4.9 South Rice Pond



Table A-12 South Rice Pond Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Ordinary High Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
3.2	3	1.7	N/A	834.2

South Rice Pond is located in the cities of Robbinsdale and Golden Valley in the northeast portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed, just south of North Rice Pond. Sochacki Park, a Three Rivers Park District park operated in partnership with Golden Valley and Robbinsdale, surrounds the pond; The park trails and dock at the south end of the pond provide opportunities for aesthetic viewing.

South Rice Pond's 514-acre tributary watershed includes both the South Rice Pond direct watershed and the North Rice Pond and Grimes Pond watersheds. Portions of the cities of Crystal, Golden Valley, Minneapolis, and Robbinsdale drain to South Rice Pond. South Rice Pond receives outflows from North Rice Pond as well as Grimes Pond. South Rice Pond discharges to the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek via a small channel located at the south end of the pond.

The South Rice Pond watershed (including the North Rice Pond and Grimes Pond watersheds) is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (75%), followed by park and recreational use (16%). Other land uses include: institutional, industrial, open water, and retail/commercial.

The BCWMC has not classified South Rice Pond as a BCWMC priority waterbody. South Rice Pond is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11). The pond is also not listed as impaired by the MPCA.

A.6.4.10 Sweeney Lake

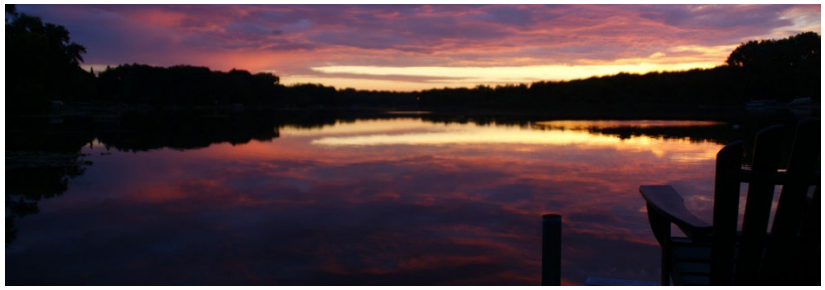


Table A-13 Sweeney Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Normal Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
67	25	12	827.2	831.8

Sweeney Lake is located in the City of Golden Valley in the eastern portion of the BCWMC. Sweeney Lake is a recreation waterbody frequently used by residents for swimming, fishing, boating and aesthetic viewing. A public access at the southern end of the lake offers carry-in boat access.

Sweeney Lake has a littoral area of approximately 34 acres. Shallow areas near the shoreline of the lake allow for both emergent and submerged vegetation growth. Sweeney Lake has a contributing drainage area of approximately 2,396 acres including both the Sweeney Lake direct watershed and the Ring Ponds, Cortlawn Pond, and Schaper Pond watersheds. Portions of St. Louis Park and Golden Valley drain into Sweeney Lake. Sweeney Lake receives outflows from the Ring Ponds, Cortlawn Pond, Schaper Pond and Twin Lake and drains northeast into the Sweeney Lake Branch of Bassett Creek, which connects to the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek shortly downstream. A precast concrete dam serves as the outlet structure for Sweeney Lake at an elevation of 827.5 feet.

The Sweeney Lake watershed (including the contributing ponds' watersheds) is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (46%), followed by highway (13%) and office (6.6%). Other land uses include: medium density residential, natural space, park, and open space, commercial, developed parks, golf course, institutional, open water, and industry.

Following severe summer algal blooms in the early 1970s, lakeshore residents for the Sweeney Lakeshore Owners Association organized efforts to protect and improve Sweeney Lake water quality. Residents installed and operated an aeration system intended to keep oxygen levels high near the lake bottom, preventing the anoxic release of phosphorus bound in lake sediments (SEH and Barr, 2011). The lake was listed on the 303(d) impaired waters list for excess nutrients (phosphorus) and a TMDL study was completed.

In 2018 the Sweeney Lake Association agreed to turn off the year-round aerators that had been running since the 1970s. This change improved the water quality. The BCWMC 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 these actions, water quality in Sweeney Lake improved and the MPCA removed Sweeney Lake from the impaired waters list for excess

nutrients. Sweeney Lake is currently listed in on the 303(d) impaired waters list for chloride.

The BCWMC classified Sweeney Lake as a Priority 1 Deep Lake. The "deep" classification is based on the MPCA's shallow/deep classification. Sweeney Lake is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11).

A.6.4.11 Turtle Lake



Table A-14 Turtle Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Normal Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
28	0.5	0.3	962.9	967.0

Turtle Lake is a 28-acre waterbody located in the City of Plymouth in the northwest portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. Turtle Lake is classified as a wetland by the MPCA, owing to its shallow depth, and as a public waters wetland by the MDNR (see Section A.6.1). Parkland is available for use by residents for aesthetic viewing and fishing. No boat launch is available.

Turtle Lake has a tributary watershed area of 420 acres. A portion of the City of Plymouth drains into Turtle Lake. A small open channel between the north wetland and Turtle Lake acts as an inlet to the lake. Two wetland basins also overflow into the southeast portion of the lake and one storm sewer discharges at the east side. The Turtle Lake outlet is located at the southwest corner of the lake. A small channel conveys water to an 18-inch corrugated metal pipe at County Road 9, which discharges to Plymouth Creek.

The Turtle Lake watershed is almost fully-developed, with only a few small parcels available for new development. Low density residential is the major land use (72%), followed by open water (9.4%) and undeveloped areas (8.0%). Other land uses include: parks and recreational uses, institutional, retail, commercial, and agricultural.

The BCWMC has not classified Turtle Lake as a BCWMC priority waterbody owing to its classification as a wetland by the MDNR and MPCA. Turtle Lake is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11). Turtle Lake is not listed as impaired by the MPCA.

A.6.4.12Twin Lake



Table A-15 Twin Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Normal Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
21	56	25.7	827.2	831.8

Twin Lake is a 21-acre lake located in the City of Golden Valley in the eastern portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed and is connected to Sweeney Lake through a navigable channel. The southern half of the lake is located within Theodore Wirth Regional Park. The lake is used for swimming, non-motorized boating, fishing, and aesthetic viewing.

Twin Lake has a littoral area of approximately 8 acres. Shallow areas near the shoreline of the lake allow for both emergent and submerged vegetation growth. Floating leaf vegetation is primarily seen in the northern portion of the lake. Twin Lake's watershed area is 131 acres. A portion of the City of Golden Valley drains to Twin Lake through one open channel at the south side of the lake. An outlet channel discharges beneath a bridge at the north side of the lake into a wetland that is hydraulically connected to Sweeney Lake.

The Twin Lake watershed is fully developed. The watershed area surrounding Twin Lake has three major land uses: park, recreational, or preserve (60%), institutional (20%) and low density residential (20%).

The BCWMC classified Twin Lake as a Priority 1 Deep Lake. The "deep" classification is based on the MPCA's shallow/deep classification. Twin Lake is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11).

The lake is not listed as impaired by the MPCA. The relatively high ratio of lake surface to drainage area and lack of high-imperviousness land use around the lake have prevented Twin Lake from experiencing many of negative effects of urbanization (i.e., increased stormwater runoff and pollutant loading).

In 2008 and 2009, elevated concentrations of phosphorus in Twin Lake led the BCWMC to perform a water quality study study (*Twin Lake Phosphorus Internal Loading Investigation*, March 2011). The BCWMC identified the primary source of increased phosphorus as increased release from lake sediments (internal phosphorus loading). The BCWMC performed a feasibility study to evaluate management options and ultimately performed an in-lake alum treatment in 2015. Water quality data collected since the treatment indicate continued improvement.

A.6.4.13 Westwood Lake



Table A-16 Westwood Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Normal Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
38	5		887.6	889.9

Westwood Lake is located in the City of St. Louis Park in the southern portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. Although the lake does not have a public beach, the adjacent parkland and Westwood Hills Nature Center trails surrounding the lake provides residents opportunities for canoeing or kayaking, aesthetic viewing, birding, and hiking.

The majority of the lake bottom is covered with submerged vegetation due to the shallow nature of the lake and emergent vegetation can be found around the lake's entire circumference. Westwood Lake has a watershed area of approximately 463 acres. Portions of the cities of St. Louis Park, Golden Valley, and Minnetonka drain towards Westwood Lake. Runoff draining to Westwood Lake enters through five storm sewers located around its edge. A 400-foot-long open channel at the north side of the lake discharges to a 27-inch RCP storm sewer at an elevation of 886.0.

The Westwood Lake watershed is almost fully-developed, with only a few small parcels available for new development. Single family residential is the major land use (34%), followed by park and recreational land use (27%) and golf course (25%). Other land uses include: major highway, office space, and open water.

The BCWMC classified Westwood Lake as a Priority 1 Shallow Lake. The "shallow" classification is based on the MPCA's shallow/deep classification. Westwood Lake is part of the BCWMC's trunk system ("trunk system storage" – see Figure A-11).

The lake is not listed as impaired by the MPCA.

A.6.4.14 Wirth Lake



Table A-17 Wirth Lake Size and Depth

Lake Size (Acres)	Max Depth (ft)	Mean Depth (ft)	Ordinary High Water Level (ft NAVD88)	100-year Water Level (ft NAVD88)
38	26	14	819.1	826.5

Wirth Lake is located in the City of Golden Valley in the southeast portion of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. The lake is located in Theodore Wirth Regional Park, which is owned and maintained by the Minneapolis Park and Recreation Board. The lake is an important recreational resource to the residents of north Minneapolis and surrounding inner-ring suburbs. A public beach and parkland surrounding the lake provide opportunities for swimming, fishing, picnicking, and aesthetic viewing, and non-motorized boating.

Wirth Lake has a littoral area of approximately 23.3 acres. Shallow areas near the shoreline of the lake allow for both emergent and submerged vegetation growth. Floating leaf vegetation is primarily seen in the northern portion of the lake. Wirth Lake has a 405-acre tributary watershed including portions of the cities of Golden Valley and Minneapolis. The lake has four main inlets, three storm sewers and one open channel in the northern portion of the lake. The Wirth Lake outlet was modified in 2012 to prevent backflow from Ȟaȟá Wakpádaŋ/Bassett Creek to Wirth Lake. The new outlet includes a fabricated steel lift gate which closes during period of high water in Ȟaȟá Wakpádaŋ/Bassett Creek.

The Wirth Lake watershed is almost fully-developed, with only a few small parcels available for new development. Parks and recreation is the major land use (46%), followed by low density residential (36%) and open water (9%). Other land uses include: medium density residential, commercial, golf course, institutional, highways and industrial/office.

The BCWMC classified Wirth Lake as a Priority 1 Deep Lake waterbody. The "deep" classification is based on the MPCA's shallow/deep classification.

The lake is currently listed on the 303(d) impaired waters list for mercury and chloride. The lake's mercury impairment is addressed through the statewide mercury TMDL. The lake was previously listed as impaired for excessive nutrients and a TMDL study was performed (Barr Engineering Company, 2010). Wirth Lake was removed from the impaired waters 303(d) list because of water quality improvement projects by the BCWMC, its member cities and the MPRB. The Minnesota Department of Health website has advice on consuming fish caught in Wirth Lake, as the concentrations of mercury in fish tissue exceed the water quality standard.

A.6.5 Streams and Open Channels

The BCWMC is characterized by Ȟaȟá Wakpádaŋ/Bassett Creek and its tributary streams. The BCWMC has classified the following as priority streams:

- Ȟaȟá Wakpádaŋ/Bassett Creek (Main Stem)
- North Branch Bassett Creek
- Plymouth Creek
- Sweeney Branch Bassett Creek

Priority streams are presented in Figure A-7. The priority streams are also part of the BCWMC's trunk system (see Figure A-11). In addition to BCWMC priority streams, there are several smaller tributaries that drain to BCWMC priority waterbodies, including several draining to Medicine Lake and others waterbodies.

A.6.5.1 Plymouth Creek

Ȟaȟá Wakpádaŋ/Bassett Creek originates upstream of Medicine Lake in western Plymouth as a branch called Plymouth Creek. This branch flows generally east and south, relatively parallel to Highway 55, until it reaches the southwest bay of Medicine Lake. This branch drains large portions of south and central Plymouth. The area tributary to the creek prior to its discharge into Medicine Lake is approximately eight square miles. Plymouth Creek flows through a large public water wetland complex near Medicine Lake Park prior to entering Medicine Lake.

The BCWMC classified Plymouth Creek as a Priority Stream. Plymouth Creek is included on the MPCA's Impaired Waters 303(d) list in 2014 as impaired for aquatic life (due to chloride) and aquatic recreation (due to *Escherichia coli*) (see Table A-22). Plymouth Creek was included in the Upper Mississippi River Bacteria TMDL and Protection Plan (MPCA, 2014), which was approved by the US EPA in 2014 and addresses the Plymouth Creek impairment due to *Escherichia coli*.

A.6.5.2 Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek

The Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek begins downstream of 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 to the Mississippi River, the last portion of which is through a 1.7-mile long tunnel. The drainage area upstream of the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek (i.e., the area tributary to Medicine Lake) is about 18 square miles. Two tributaries, the North Branch of Bassett Creek and the Sweeney Lake Branch of Bassett Creek, join the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek between Medicine Lake and the tunnel, and prior to its confluence with the Mississippi River. The additional drainage area to the Main Stem of Ȟaȟá Wakpádaŋ/ Bassett Creek between Medicine Lake and the confluence with the North Branch of Bassett Creek is approximately six square miles and includes areas of Plymouth, Golden Valley, St. Louis Park, Minnetonka, New Hope, and Crystal. An additional 2.5 square miles of drainage area from Golden Valley, Crystal, Robbinsdale and Minneapolis is tributary to the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek between the confluence with the North Branch of Bassett Creek and the confluence with the Sweeney Lake Branch. Ultimately, the entire 39 square mile drainage area of the BCWMC is tributary to the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek upstream of the tunnel. The creek enters the Mississippi River downstream of the Upper St. Anthony Falls Lock and Dam.

The BCWMC classified the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek as a Priority 1 stream. The Main Stem of Ȟaȟá Wakpádaŋ/ Bassett Creek is included on the MPCA's Impaired Waters 303(d) list as impaired for aquatic life (due to chloride and fish bioassessments) and aquatic recreation (due to fecal coliform) (see Table A-22). The Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek was included in the Upper Mississippi River Bacteria TMDL and Protection Plan (MPCA, 2014), which was approved by the US EPA in 2014 and addresses the Plymouth Creek impairment due to fecal coliform.

A.6.5.3 North Branch of Bassett Creek

The North Branch drains portions of eastern Plymouth and southern portions of New Hope and Crystal (and a very small portion of Golden Valley). It begins near Rockford Road (County Road 9) west of Highway 169, and flows east through New Hope and Crystal. The North Branch of Bassett Creek 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 drainage area tributary to the North Branch upstream of its confluence with the Main Stem is approximately four square miles.

The BCWMC classified the North Branch of Bassett Creek as a Priority Stream. The North Branch of Bassett Creek is included on the MPCA's Impaired Waters 303(d) list in 2014 as impaired for aquatic recreation (due to Escherichia coli) (see Table A-22). The North Branch of Bassett Creek was included in the Upper Mississippi River Bacteria TMDL and Protection Plan (MPCA, 2014), which was approved by the US EPA in 2014 and addresses the Plymouth Creek impairment due to *Escherichia coli*.

A.6.5.4 Sweeney Lake Branch of Bassett Creek

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 near Golden Valley Road just downstream of Sweeney Lake. The drainage area of the Sweeney Lake Branch prior to its confluence with the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek is approximately four square miles.

The BCWMC classified the Sweeney Lake Branch of Bassett Creek as a Priority Stream.

A.7 Surface Water Quality

The lakes, ponds, streams, and wetlands of the Ȟaȟá Wakpádaŋ/ Bassett Creek watershed are important community assets providing ecological and recreational benefits. The BCWMC prioritizes achieving and maintaining good water quality in the waterbodies in its jurisdiction and has taken action to protect and improve these resources (see Plan Section 3). These actions generally include:

- adopting water quality management goals and policies,
- classifying specific waterbodies as priority waterbodies,
- collecting water quality data
- performing studies to identify and evaluate improvements
- performing capital projects to improve water quality

Stormwater runoff carries with it a number of contaminants affecting water quality. The principal pollutants found in runoff include phosphorus and other nutrients, sediments, organic materials, pathogens, hydrocarbons, metals, pesticides, chlorides, trash and

debris. Table A-18 summarizes the source of these pollutants and their impacts. Phosphorus and suspended sediment are particularly detrimental to the ecological health and recreational use of lakes and streams.

The BCWMC has established water quality treatment performance standards addressing these pollutants based on MPCA's Mnimal Impact Design Standards (MIDS) (see BCWMC's Requirements for Improvements and Development Proposals (as amended)).

Table A-18 Pollutants Commonly Found in Stormwater Runoff

Stormwater Pollutant	Examples of Sources	Related Impacts
Nutrients: Nitrogen, Phosphorus	Decomposing grass clippings, leaves and other organics, animal waste, fertilizers, failing septic systems, atmospheric deposition	Algal growth, reduced clarity, other problems associated with eutrophication (oxygen deficit, release of nutrients and metals from sediments)
Sediments: Suspended and Deposited	Construction sites, other disturbed and/or non-vegetated lands, eroding streambanks and shorelines, road sanding	Increased turbidity, reduced clarity, lower dissolved oxygen, deposition of sediments, smothering of aquatic habitat including spawning sites, sediment and benthic toxicity
Organic Materials	Leaves, grass clippings	Oxygen deficit in receiving waterbody, fish kill, release of nutirents.
Pathogens: Bacteria, Viruses	Domestic and wild animal waste, failing septic systems	Human health risks via drinking water supplies, contaminated swimming beaches
Hydrocarbons: Oil and Grease, PAHs (Naphthalenes, Pyrenes)	Tar-based pavement sealant, industrial processes; automobile wear, emissions & fluid leaks; waste oil.	Toxicity of water column and sediment, bioaccumulation in aquatic species and through food chain
Metals: Lead, Copper, Cadmium, Zinc, Mercury, Chromium, Aluminum, others	Industrial processes, normal wear of auto brake linings and tires, automobile emissions & fluid leaks, metal roofs	Toxicity of water column and sediment, bioaccumulation in aquatic species and through the food chain, fish kill
Pesticides: PCBs, Synthetic Chemicals	Pesticides (herbicides, insecticides, fungicides, rodenticides, etc.), industrial processes	Toxicity of water column and sediment, bioaccumulation in aquatic species and through the food chain, fish kill
Chlorides	Road salting and uncovered salt storage	Toxicity of water column and sediment
Polycyclic Aromatic Hydrocarbons (PAH's)	Tar based pavement sealant	Carcinogenic to humans
Per- and polyfluoroalkyl substances (PFAS)	Commercial products (waterproof products, cookware, upholstery, etc.), industrial processes, fire-fighting foam	Toxic to humans, toxicity of water column, bioaccumulation in aquatic species and through the food chain
Trash and Debris	Litter washed through storm drain networks	Degradation of the beauty of surface waters, threat to wildlife

Based on *Minnesota Urban Small Sites BMP Manual* (Barr Engineering Company, 2001).

A.7.1 Water Quality Monitoring Programs

The BCWMC and other entities have collected water quality data for many of the lakes and larger ponds in the watershed. Other organizations collecting water quality data include:

- Metropolitan Council,
- Three Rivers Park District (TRPD)
- Minnesota Pollution Control Agency
- Minnesota Department of Natural Resources
- Minneapolis Park and Recreation Board (MPRB)
- Cities

The following sections summarize the various monitoring programs performed within the BCWMC including select monitoring performed by other entities. The BCWMC monitoring program is described in detail in Appendix B.

Figure 0-9 shows the locations of water quality and stream biotic monitoring locations within the BCWMC. The most current water quality data for BCWMC priority lakes and streams are available from the BCWMC website.

A.7.1.1 BCWMC Lake Monitoring

The BCWMC monitors the following priority waterbodies::

- Cavanaugh Lake (Sunset Hill Pond)
- Crane Lake
- Lost Lake
- Northwood Lake
- Medicine Lake
- Parkers Lake
- Sweeney Lake
- Twin Lake
- Westwood Lake
- Historcially, the BCWMC has also monitored water quality in North Rice Pond and South Rice Pond.

Parameters monitored by the BCWMC include:

- Water chemistry
- Water clarity
- Macrophytest (aquatic plants)
- Phytoplankton (algae)
- Zooplankton

Appendix B provides additional detail regarding monitoring parameters, methods, and frequency.

The BCWMC analyzes water quality monitoring data to identify improving or degrading trends within BCWMC priority waterbodies and to assess whether BCWMC priority waterbodies are meeting the applicable water quality goals (see Section 3 of the Plan). Table A-19 presents trends observed over the 10-year period from 2014-2023 for priority lakes.

Table A-19 Eutrophication Water Quality Trends of Priority Lakes

Priority Lake	2015-2024 Statistically Significant Trends[1]		
	Total Phosphorus	Chlorophyll a	Secchi Depth
Cavanaugh Lake (Sunset Hill Pond)	NA[2]	NA[2]	NA[2]
Crane Lake	NA[2]	NA[2]	NA[2]
Lost Lake	No Trend	No Trend	No Trend
Northwood Lake	Declining	No Trend	No Trend
Medicine Lake	No Trend	Improving	Improving
Parkers Lake	No Trend	Improving	No Trend
Sweeney Lake	Improving	Improving	Improving
Twin Lake	No Trend	No Trend	Declining
Westwood Lake	No Trend	No Trend	No Trend
Wirth Lake	No Trend	No Trend	Improving

(1) At a 95% confidence level using linear least squares regression applied to data collected from 2015-2024.

(2) Insufficient data for trend analysis from 2015-2024

A.7.1.2 BCWMC Stream Biotic Monitoring

The BCWMC conducts biotic (invertebrate) monitoring of priority streams ito assess water quality and ecological health. Monitoring for the presence of benthic macroinvertebrates (bottom-dwelling aquatic organisms, mainly insects) in a stream provides a long-term assessment of its water quality. The benthic invertebrates are exposed to all of the temporal variations in stream water quality and 'integrate' the quality of passing water.

Stressors such as low dissolved oxygen caused by nutrient and organic loaiding, high suspended solids concentration, or high metals concentrations can negatively affect the macroinvertebrate community. The presence or absence of pollutant tolerant organisms demonstrates the water quality impacts of urban runoff better than grab samples of water flowing in the creek. The inventory of benthic organisms also indicates whether there is a suitable food supply for fish.

The BCWMC has collected and inventoried benthic organisms from several stream locations since 1980 (see Figure A-9). Since 2000, biotic monitoring has been performed by the BCWMC or MPCA at three year intervals. BCWMC biotic monitoring locations are presented in Figure A-9 and include:

- Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek at Rhode Island Avenue in Golden Valley.
- Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek south of Zane Avenue North in Golden Valley.
- Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek at Irving Avenue, upstream of the double box culvert, in Minneapolis.
- North Branch of Bassett Creek at 32nd Street and Adair in Crystal (note: monitoring was performed just north of Zane Avenue prior to 1995, at which point the location silted in).
- Sweeney Lake Branch of Bassett Creek at Turner's Crossroad (Xenia Avenue) in Golden Valley.

- Plymouth Creek at Industrial Park Boulevard in Plymouth.

At each monitoring location, samples are collected from riffle areas where the flow is fairly rapid and the substrate was composed of gravel and small stones. Samples are collected by disturbing the creek bottom and allowing dislodged invertebrates to drift into a net downstream. Rocks and other substrate materials are also examined for invertebrates.

The BCWMC uses biological indices to assess relative water quality from biotic monitoring results. A biological index is calculated based on the tolerance of each collected species to various pollutants. Historically, the BCWMC has used the Hilsenhoff Biotic Index (HBI) and the Invertebrate Community Index (ICI). More recently, the BCWMC has also calculated the Minnesota Macroinvertebrate Index of Biological Integrity (MIBI) for consistency with MPCA methods and water quality standards.

The most recent biotic monitoring data for BCWMC priority streams are available from the BCWMC website. MIBI data collected since 2000 show no statistically significant trends from 2000 through 2024 due in part to significant variability between monitoring years (see Table A-20). The BCWMC Monitoring Plan (see Appendix B) describes the BCWMC stream biotic monitoring program in greater detail.

Table A-20 Biotic Monitoring Trends of Priority Streams

Biotic Monitoring Location	Macroinvertebrate Index of Biological Integrity (MIBI) Trend [1]
Ȟaȟá Wakpádaŋ/Bassett Creek Main Stem – Rhode Island Avenue	No Trend
Ȟaȟá Wakpádaŋ/Bassett Creek Main Stem – Brookridge	No Trend
Ȟaȟá Wakpádaŋ/Bassett Creek Main Stem – Irving Avenue	No Trend
North Branch Bassett Creek – 32nd Street and Adair	No Trend
Plymouth Creek – Industrial Park Boulevard	No Trend
Sweeney Branch Bassett Creek – Xenia Avenue	--[2]

(1) At a 95% confidence level using linear least squares regression applied to data collected from 2000-2023.
(2) Insufficient MIBI data to assess trend.

A.7.1.3 Watershed Outlet Monitoring Program (WOMP) and BCWMC Stream Water Quality Monitoring

In 2000, the BCWMC and Metropolitan Council Environmental Services (MCES) began monitoring the Main Stem of Ȟaȟá Wakpádaŋ/Bassett Creek as part of the MCES' Watershed Outlet Monitoring Program (WOMP).

The Bassett Creek WOMP site is currently located at Van White Memorial Boulevard, just upstream of the tunnel that carries Ȟaȟá Wakpádaŋ/Bassett Creek beneath downtown Minneapolis to the

Mississippi River (see Figure A-9). Data collection consists of continuous measurements of stream flow, temperature and conductivity, as well as base flow grab samples and storm event composite samples. The samples are analyzed in the MCES laboratory for many water quality parameters including nutrients and sediment. MCES publishes reports documenting the results of this monitoring.

Following adoption of the 2015 Watershed Management Plan, BCWMC began monitoring North Branch Bassett Creek, Plymouth Creek, and Sweeney Creek for approximately two year periods on a rotating basis (see Appendix B).

Table A-21 presents the trends observed in stream water quality over the 10-year period from 2015-2024 for priority streams; there is a statistically significant trend in average annual chloride concentrations over this period. The most current water quality data for BCWMC priority streams are available from the BCWMC website.

Table A-21 Water Quality Trends of Priority Streams

Priority Stream	Statistically Significant Trends[1]		
	Total Phosphorus	Chloride	Total Suspended Solids
Ȟaȟá Wakpádaŋ/Bassett Creek Main Stem	No Trend	Increasing	No Trend
North Branch Bassett Creek	--[2]	--[2]	--[2]
Plymouth Creek	--[2]	--[2]	--[2]
Sweeney Branch Bassett Creek	--[2]	--[2]	--[2]

(1) At a 95% confidence level using linear least squares regression applied to average annual data collected from 2015-2024.
(2) Insufficient data collected from 2015-2024 to assess trend.

A.7.1.4 Three Rivers Park District/City of Plymouth

Three Rivers Park District (TRPD) and the City of Plymouth monitor Parkers Lake, Medicine Lake, two locations on Plymouth Creek, a location on a tributary to Plymouth Creek, and two stormwater inflows to Parkers Lake. The BCWMC and the City of Plymouth used the data collected to develop the Medicine Lake TMDL.

When requested by the BCWMC, TRPD has conducted additional monitoring of the southwest basin (where Plymouth Creek discharges to Medicine Lake) on behalf of the BCWMC. On these occasions, TRPD also collects samples for phytoplankton and zooplankton analysis funded by the BCWMC (see Section A.7.1.1). The most recent water quality data for Medicine Lake and the

southwest basin, specifically, are available from the BCWMC website. More information is available from the TRPD water resources website.

A.7.1.5 Minneapolis Park and Recreation Board

The Minneapolis Park and Recreation Board (MPRB) monitors Birch Pond, Wirth Lake, and Spring Lake within the BCWMC. The BCWMC incorporates MPRB data for Wirth Lake into its water quality analyses. Additional information is available from the MPRB Lake Resources website.

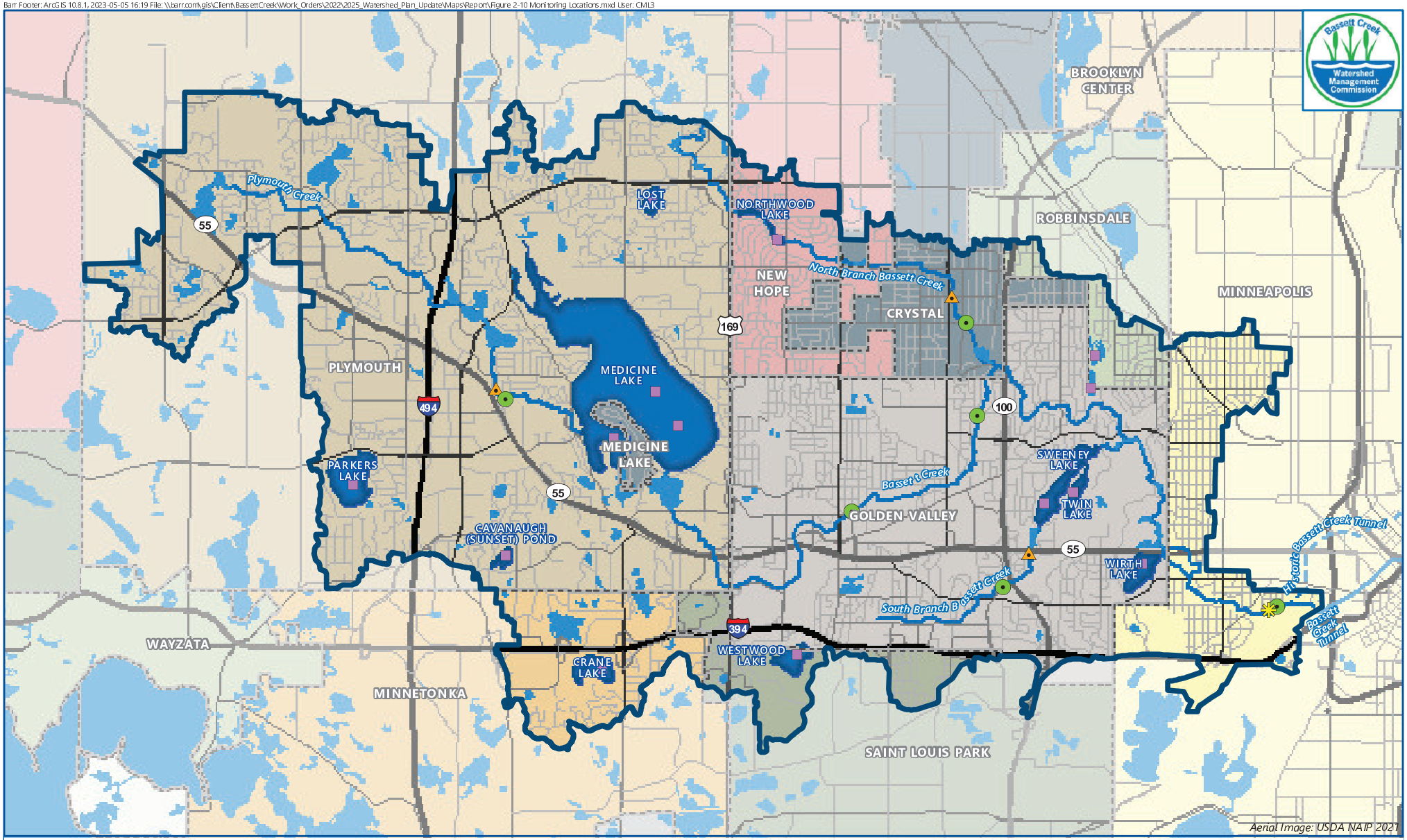
The Metropolitan Council implements the Citizen Assisted Monitoring Program (CAMP). Through CAMP, volunteers have collected water quality data on several Twin Cities metropolitan area lakes since 1980. Several waterbodies within the BCWMC have been periodically monitored as part of the CAMP program including Medicine Lake, Parkers Lake, Sweeney Lake, Twin Lake, Westwood Lake, Northwood Lake, and South Rice Pond. In recent years, funding for the CAMP monitoring of waterbodies has been provided by the BCWMC and member cities.

More information about CAMP is available from the Metropolitan Council's lake monitoring website.

A.7.1.6 Member City Monitoring

The BCWMC's nine member cities are responsible for managing lakes and ponds not identified as BCWMC priority waterbodies (see Section A.7.2). City management of these waterbodies may include classifying, monitoring, tracking trends, conducting studies, and implementing other lake water quality management actions.

Barr Footer: ArcGIS 10.8.1, 2023-05-05 16:19 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-10 Monitoring Locations.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Public Waters Basin
Creek

Watershed Outlet Monitoring Program (WOMP) Station
Biotic Monitoring Locations (BCWMC)
Creek Water Quality Locations (BCWMC)
Lake Monitoring Locations (BCWMC/Partner)

N

0 6,000 12,000
Feet

FIGURE A-9

MONITORING LOCATIONS
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

A.7.2 Management and Classification

A.7.2.1 MPCA Impaired Waters

The federal Clean Water Act (CWA) requires states to adopt water quality standards to protect the nation's waters. To that end, the MPCA developed criteria for Minnesota lakes and streams to establish water quality goals and determine appropriate uses of the lakes and streams, as outlined in the guidance document *Guidance for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List* (MPCA, 2023, as amended).

Standards for lakes and streams vary by MPCA ecoregion and MPCA classification. The MPCA classifies lakes as "shallow" or "deep"; "shallow" lakes have a maximum depth of 15 feet or less or support aquatic plant growth over 80% or more of the lake area.

Table A-24 presents water quality standards for parameters of primary concern to the BCMWC. The MPCA also established water quality standards for parameters in addition to those presented in Table A-24; these standards are published in Minnesota Rules 7050 and may be applicable to BCWMC lakes, ponds, and streams.

In compliance with Section 303(d) of the CWA, the MPCA identifies and establishes priority rankings for waters that do not meet the water quality standards. The list of impaired waters, sometimes called the 303(d) list, is updated by the MPCA every 2 years.

Several waterbodies within the BCWMC have been listed on the MPCA 2022 impaired waters (303(d)) list for a variety of impairments. Table A-22 and Figure A-10 present the impaired waters in the BCWMC. Waterbodies on the impaired waters list are required to have an assessment completed that addresses the causes and sources of the impairment. This process is known as a total maximum daily load (TMDL) analysis.

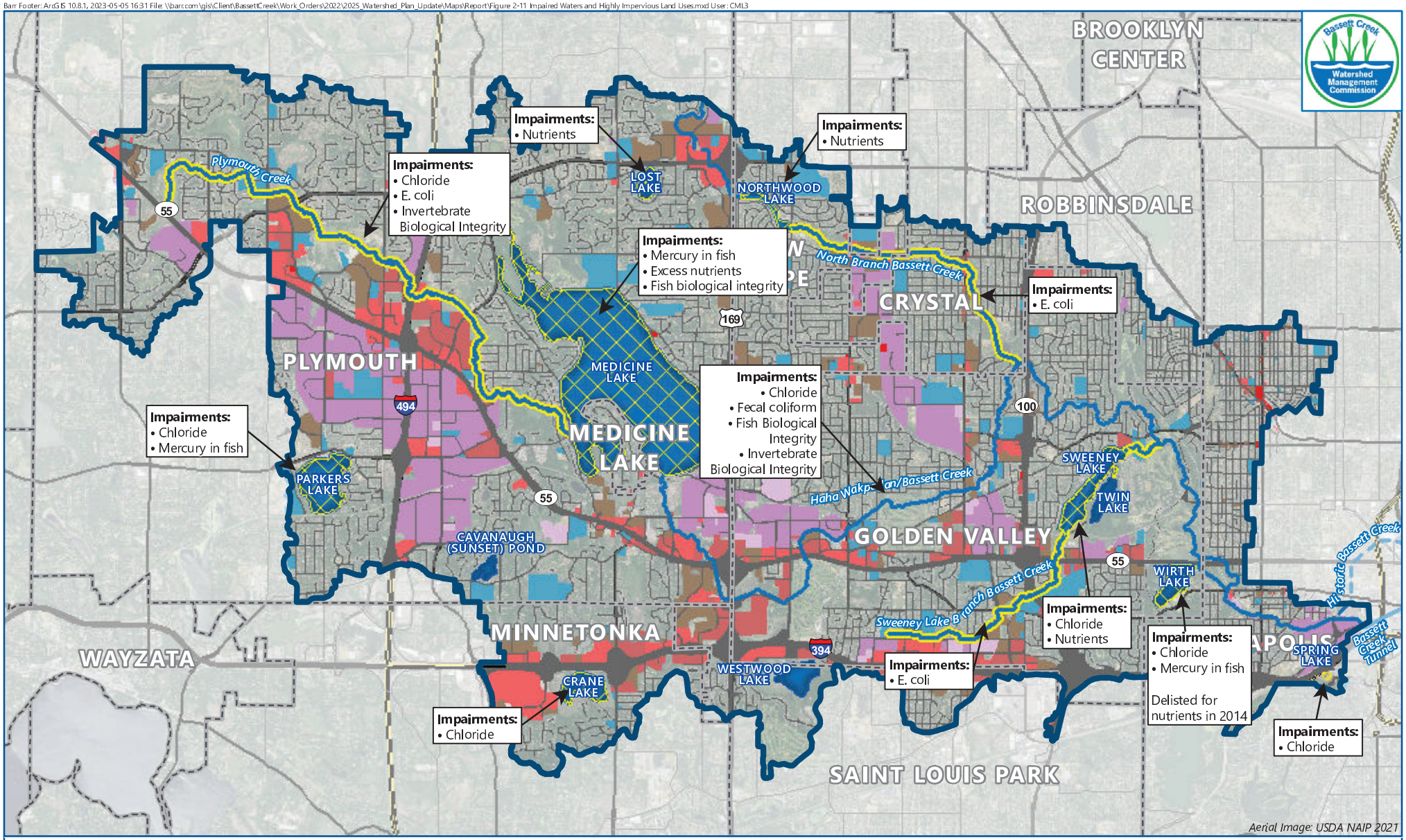
Current impaired waters listings are available from the MPCA website: www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/impaired-waters-list.html

Table A-22 Summary of Impaired Waters within the BCWMC (2024)

Waterbody	Impaired Use	Pollutant or Stressor	Year Listed	TMDL Study Target Start	TMDL Study Target Completion	TMDL Study Approved
Crane Lake	Aquatic Life	Chloride	2024	2009	2015	2016[6]
Parkers Lake[2]	Aquatic Consumption	Mercury in Fish Tissue	1998	1998	2025	--
	Aquatic Life	Chloride	2014	2009	2015	--
Medicine Lake[3]	Aquatic Consumption	Mercury in Fish Tissue	2004	--	--	2008[4]
	Aquatic Recreation	Nutrients/Eutrophication	2004	--	--	2010
	Aquatic Life	Fish Bioassessments	2024	--	--	--
Sweeney Lake[1]	Aquatic Life	Chloride	2014	2009	2015	2016[6]
Wirth Lake[1]	Aquatic Consumption	Mercury in Fish Tissue;	1998	--	--	2008[4]
	Aquatic Life	Chloride	2014	2009	2015	--
Lost Lake	Aquatic Recreation	Nutrients/Eutrophication	2024	--	--	--
Northwood Lake	Aquatic Recreation	Nutrients/Eutrophication	2004	2020	2024	--
Ȟaȟá Wakpádaŋ/Bassett Creek (Main Stem)	Aquatic Life	Chloride	2010	2009	2015	2016[6]
	Aquatic Life	Macroinvert. Bioassess.	2022	--	--	--
	Aquatic Life	Fish Bioassessments	2004	2012	2016	--
	Aquatic Recreation	Fecal Coliform	2008	2008	2015	2014[5]
Plymouth Creek	Aquatic Life	Macroinvert. Bioassess.	2024	--	--	--
	Aquatic Life	Chloride	2014	2009	2015	2016[6]
	Aquatic Recreation	Escherichia coli	2014	2008	2015	2014[5]
North Branch Bassett Creek	Aquatic Recreation	Escherichia coli	2014	2008	2015	2014[5]
Sweeney Branch Bassett Creek	Aquatic Recreation	Escherichia coli	2024	--	--	--
Spring Lake	Aquatic Life	Chloride	2014	2009	2015	2016[6]

(1) Wirth Lake and Sweeney Lake were delisted for aquatic recreation due to nutrients/eutrophication based on improved water quality in 2014 and 2024, respectively.
(2) Mercury impairment for Parkers Lake is not covered by the statewide mercury TMDL due to mercury in fish tissue exceeding a threshold value of 0.57 mg/kg.
(3) Medicine Lake is a "high risk water" for chloride impairment per the MPCA's 2014 Metro Chloride Assessment, but is not listed as impaired for chloride.
(4) Covered under the statewide mercury TMDL, approved in 2007.
(5) Covered under the Upper Mississippi River Bacteria TMDL Study and Protection Plan, approved in 2014
(6) Covered under the Twin Cities Metro Area Chloride TMDL, approved in 2016.

Barr Footer: ArcGIS 10.8.1, 2023-05-05 16:31 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-11 Impaired Waters and Highly Impervious Land Uses.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Creek
Impaired Lake *(Draft 2024)*
Impaired Stream *(Draft 2024)*

High Impervious Land Use
(Met Council, 2020, Hennepin County Parcels 2022)

- Multifamily
- Mixed Use Commercial and Other
- Mixed Use Industrial
- Office
- Retail and Other Commercial
- Industrial or Utility
- Institutional
- Transportation Right-of-Way

N

0 3,000 6,000
Feet

FIGURE A-10

IMPAIRED WATERS AND HIGHLY IMPERVIOUS LAND USES

Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

A.7.2.2 BCWMC Classification Systems

The BCWMC identified specific waterbodies as priority waterbodies to focus management activies and improvement projects. The BCWMC classified four streams and 10 lakes as priority waterbodies (see Table A-23).

Priority streams include include MDNR public waters watercourses within the BCWMC. Priority lakes include those lakes at least 10 acres in size and with a "P" public waters designation. Priority lakes are further subdivided into lakes with public access (Priority 1 lakes) and without public access (Priority 2 lakes) and according to their MPCA classification as "deep" or "shallow" (all Priority 2 lakes are shallow lakes).

The BCWMC adopts water quality standards for priority lakes and streams consistent with MPCA water quality standards published in Minnesota Rules 7050 (note that Minnesota Rules 7050 applies to waterbodies regardless of BCWMC classification). Table A-24 presents BCWMC water quality standards for priority waterbodies. The BCWMC established goals for watershed and waterbody quality (see Section 3) with consideration for applicable water quality standards and existing water quality.

Table A-23 BCWMC Management Classifications for Priority Waterbodies

BCWMC Classification	Waterbodies
Priority Streams	• Main Stem Ȟaȟá Wakpádaŋ/ Bassett Creek • North Branch Bassett Creek[1] • Plymouth Creek • Sweeney Branch Bassett Creek
Priority 1 Deep Lakes	• Medicine Lake • Parkers Lake • Sweeney Lake • Twin Lake • Wirth Lake
Priority 1 Shallow Lakes	• Northwood Lake • Westwood Lake
Priority 2 Shallow Lakes	• Cavanaugh (Sunset Hill) Pond • Crane Lake • Lost Lake

(1) Includes Bassett Creek Park Pond

Table A-24. BCWMC Water Quality Standards for Priority Waterbodies

Priority Waterbody Name	BCWMC Classification[1]	BCWMC Water Quality Standards[2]							
		Total Phosphorus, summer average (ug/L)	Chlorphyll *a, summer average* (ug/L)	Secchi Disc Transparency, summer average(m)	Total Suspended Solids (mg/L)	Daily Dissolved Oxygen Flux (mg/L)	Biological Oxygen Demand (5-day) (mg/L)	*Escherichia coli* (# per 100 mL)	Chloride (mg/L)
Plymouth Creek	Priority Stream	100	18	NA	30	3.5	2	126 [3]	230
North Branch Bassett Creek									
Sweeney Branch Bassett Creek									
Main Stem Bassett Creek									
Medicine Lake	Priority 1 Deep Lake	40	14	1.4	NA	NA	NA	126 [3]	230
Twin Lake									
Sweeney Lake									
Wirth Lake									
Parkers Lake									
Westwood Lake	Priority 1 Shallow Lake	60	20	1	NA	NA	NA	126 [3]	230
Northwood Lake									
Crane Lake	Priority 2 Shallow Lake	60	20	1	NA	NA	NA	126 [3]	230
Lost Lake									
Cavanaugh (Sunset Hill) Pond									

(1) Deep/shallow classification is based on MPCA classification; shallow lakes have a maximum depth of less than 15 feet or littoral area greater than 80% of the total lake surface area.

(2) BCWMC standards are based on existing MPCA standards included in MN Rules 7050. Revisions to MN Rule 7050 will supersede BCWMC standards. Note that MN Rule 7050.0220 includes water quality standards for additional parameters that are enforced by the MPCA.

(3) 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. The standard applies from April 1 through October 31.

A.7.3 Water Quality Modeling

The BCWMC performs water quality modeling to estimate existing pollutant loads, estimate future changes in pollutant loading from development or redevelopment, and evaluate the potential benefits of proposed improvement projects

A.7.3.1 Watershed-wide P8 Model

As part of developing lake and stream watershed management plans, the BCWMC developed models to estimate total flow and phosphorus loadings to lakes and streams using the water quality model P8. P8 (Program for Predicting Polluting Particle Passage through Pits, Puddles and Ponds) is a model for estimating the generation and transport of stormwater runoff pollutants in urban watersheds.

The BCWMC performed a comprehensive update to watershed P8 models in 2012-2013.

Data required to update the P8 models included watershed information (e.g., area, curve number, imperviousness, etc.) and BMP information (e.g., permanent pool area, permanent pool volume, flood pool area, and flood pool volume). Sources of information for the 2012 model construction included data collected from municipalities and other government agencies, information from previously constructed P8 models, field surveys, estimation from GIS, and calculations from XPSWMM hydrologic and hydraulic models (i.e., outlet rating curve calculations). P8 modeling results were then compiled and compared to the available monitoring data from the Bassett Creek WOMP station during the water year monitoring periods between 2001 and 2011 to determine whether changes to the modeling were warranted for calibration. More detailed information regarding data sources, model updates, and model calibration is included in a report entitled *Bassett Creek Water Quality Modeling* (BCWMC, 2013).

The updated P8 water quality modeling provides a tool for the BCWMC and member cities to track pollutant reduction progress and to evaluate the expect impact of potential water quality improvements..

The BCWMC updates the P8 model periodically for to reflect land use changes and constructed BMPs based on plans provided annually by member cities.

A.8 Water Quantity and Flood Risk

The BCWMC was originally formed to address flooding issues in the watershed and flood risk reduction remains a primary focus of the BCWMC (see Plan Section 3). To minimize flood risk along the Bassett Creek trunk system, the BCWMC:

- Manages the BCWMC Flood Control Project
- Monitors water levels on the lakes and streams in the watershed
- Establishes flood levels and reviews proposed activities in the floodplains
- Reviews development and redevelopment projects to make sure there are no detrimental flooding impacts to the trunk system

The BCWMC defines the trunk system as those reaches, structures, and designated storage facilities shown in Figure A-11.

Beginning in the 1960s, aging stormwater facilities and rapid urbanization resulted in flooding problems in the Ȟaȟá Wakpádaŋ/Bassett Creek watershed. For decades, flooding caused damages to homes, businesses, and recreational areas along Ȟaȟá

Wakpádaŋ/Bassett Creek averaging in excess of $2 million annually. 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), MnDOT, MDNR, and member cities to address these issues with the Bassett Creek Flood Control Project (BCWMC Flood Control Project).

A.8.1 BCWMC Flood Control Project

Between 1987 – 1996, the USACE constructed the $40 million (19XX dollars) Flood Control Project in cooperation with MnDOT, MDNR, the BCWMC, and the BCWMC member cities. 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. BCWMC Flood Control project elements are listed in Table A-25 and shown in Figure A-11. the BCWMC Flood Control Project differs from the system referred to as the BCWMC "Trunk System" (also shown in Figure A-11).

The principal feature of the BCWMC Flood Control Project is the new 1.7-mile tunnel through downtown Minneapolis constructed in three phases between 1979 and 1992. The tunnel diverts Ȟaȟá Wakpádaŋ/ Bassett Creek, where it plunges underground at Glenwood and Colfax Avenues in Minneapolis, into the Mississippi River.The new tunnel provides cooperative storm drainage for Ȟaȟá Wakpádaŋ/Bassett Creek, Interstate Highways 94 and 394, and portions of the City of Minneapolis. The tunnel empties into the Mississippi River just south (downstream) of St. Anthony Falls.

The BCWMC, the City of Minneapolis, and the Mississippi WMO entered into a joint and cooperative agreement in 2000 to reflect the changed drainage conditions resulting from the new tunnel (see Appendix G). The boundary change transferred 1,002 acres from the BCWMC to the Mississippi WMO. The City of Minneapolis is currently responsible for maintenance of the old tunnel. The joint and cooperative agreement includes obligations related to the old and new tunnels, and requires BCWMC approval for any modifications affecting peak flows or hydraulic capacity in the new tunnel (see Appendix G).

Other Flood Control Project control structures consist of low flow orifices with overflow weirs to restrict flows.

Each control structure leaves the creek virtually unaffected during normal flow conditions. For large storm events, the storage upstream of control structures generally results in higher water levels than under pre-project conditions. Each control structure reduces peak discharges immediately downstream of the structure. Implementation of all the control structures and the storage they provide resulted in a smaller tunnel and fewer measures needed to increase stream capacity. Maintenance may be required in storage areas after significant rainfall events.

The BCWMC established and maintains specific funds for emergency repairs to the Flood Control Project system and long-term maintenance and repair of the BCWMC Flood Control Project system.The BCWMC's Flood Control Project policies (see Section 4) also allow significant repairs to be funded via the BCWMC capital improvement program (see Section 4).

More detailed history of the BCWMC Flood Control System and individual system components is included in the 2015 BCWMC Watershed Management Plan.

A.8.2 Other Watershed Flood Control Projects

The BCWMC and member cities have implemented other structural flood risk reduction projects in addition to the BCWMC Flood Control Project. Improvements include:

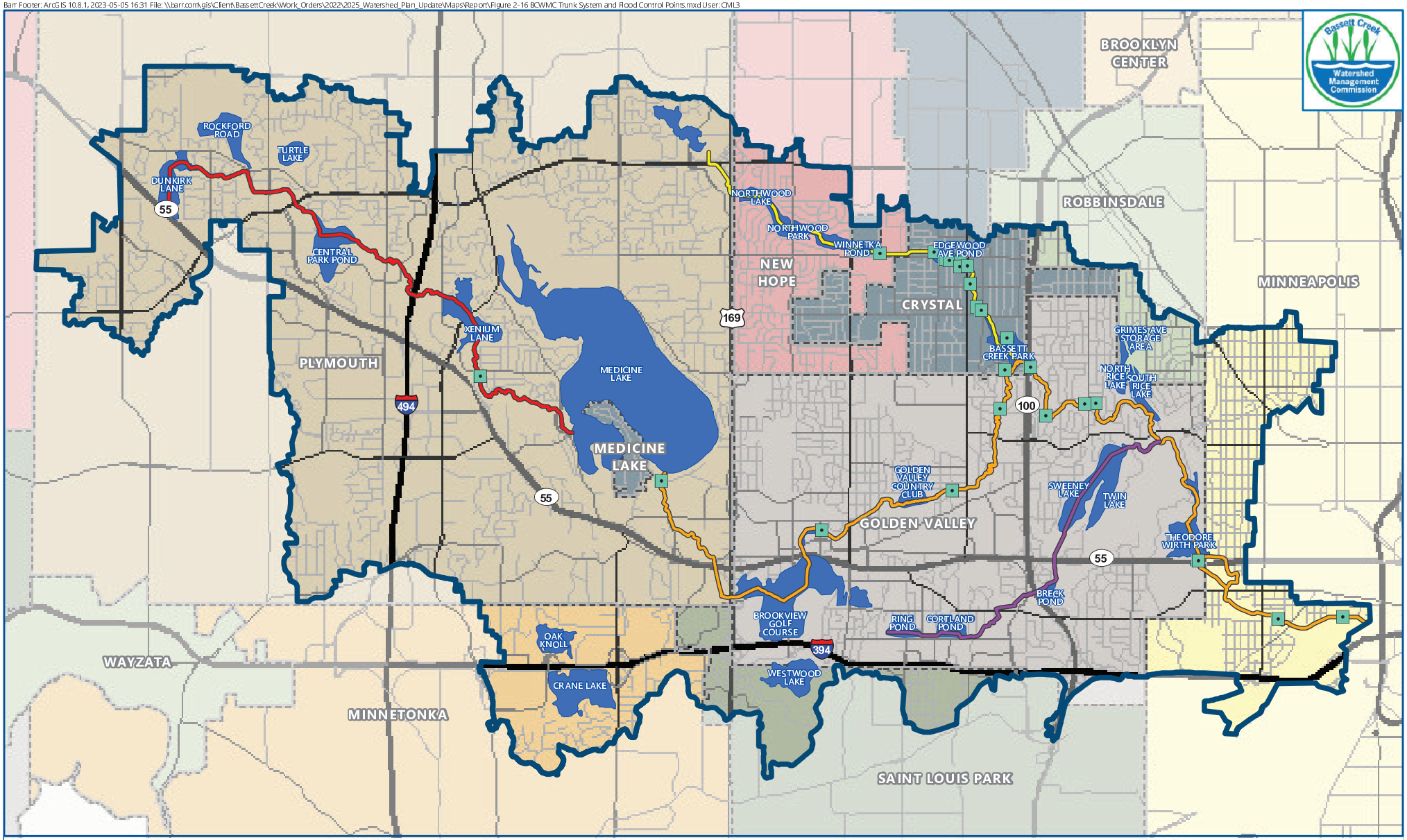
- Breck Stormwater Storage Area – The City of Golden Valley and MnDOT cooperatively constructed a storage area on the Sweeney Lake Branch of Bassett Creek upstream of Sweeney Lake.
- Cortlawn and Ring Ponds – The City of Golden Valley constructed ponds in the headwaters of the Sweeney Lake Branch of Bassett Creek to provide flood risk reduction and and water quality benefits.
- North and South Rice Pond Floodplain Acquisition – The cities of Golden Valley and Robbinsdale acquired area around the ponds to preserve wetland and natural inundation area for stormwater storage.
- Dresden Lane Crossing – The crossing of the creek at Dresden Lane restricts downstream discharge and increases upstream storage in North and South Rice Ponds.
- Flood Storage Easements – Several BCWMC member cities have acquired easements for the purposes of temporary flood storage and flowage
- Plymouth Creek Storage Sites – The City of Plymouth constructed five major stormwater storage sites on or tributary to Plymouth Creek.
- DeCola Ponds B & C Improvement Project – The City of Golden Valley constructed this project, with funding from the BCWMC.
- SEA School – Wildwood Park Flood Storage Project– The City of Golden Valley constructed this project, with funding from the BCWMC.
- Medley Park Stormwater Treatment Facility– The City of Golden Valley constructed this project, with funding from the BCWMC.

Sites recognized as flood storage areas within the BCWMC are identified in Figure A-11. Not all flood storage areas shown in Figure A-11 are part of the BCWMC Flood Control Project described in Section A.8.1).

The BCWMC also performs nonstructural flood risk reduction activitiesto minimize flood damages along the BCWMC trunk system. Examples include:

- Monitoring lake and stream water levels
- Using models (e.g., XPSWMM) to assess flood risk
- Reviewing proposed projects with potential floodplain impacts
- Establishing policies and/or requirements to:
    - Set minimum building elevations
    - Preserve floodplain storage
    - Limit alteration to existing structures

Barr Footer: ArcGIS 10.8.1, 2023-05-05 16:31 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-16 BCWMC Trunk System and Flood Control Points.mxd User: CML3



BCWMC Jurisdictional Boundary

Municipal Boundary

Flood Control Project

BCWMC Trunk System Components

Main Stem Bassett Creek

North Branch Bassett

Plymouth Creek

Sweeney Branch Bassett Creek

Trunk System Storage

N

0 6,000 12,000

Feet

FIGURE A-11

BCWMC TRUNK SYSTEM AND FLOOD CONTROL PROJECTS

Bassett Creek Watershed Management Commission

2025 Watershed Management Plan

A.8.3 FEMA Floodplain and Flood Insurance Studies

The Federal Emergency Management Agency (FEMA) performs flood insurance studies (FIS) and develops maps to show areas prone to flooding during the 100-year (and sometimes 500-year) storm events. Each of the BCWMC member cities has a FIS. The FIS, together with a city's floodplain ordinance, allow the city to take part in the national flood insurance program (NFIP). Homeowners within FEMA-designated floodplains are required to purchase flood insurance. FEMA flood insurance rate maps (FIRMs) are available from the FEMA website.

In some cases, homes shown within FEMA-designated floodplains on FIRMs may not actually be in the floodplain. To waive the mandatory flood insurance requirements, homeowners may remove their homes from the FEMA-designated floodplain by obtaining a Letter of Map Amendment (LOMA).

A.8.4 BCWMC Floodplain

Independent of the FEMA-delineated floodplain, the BCWMC delineated its own 100-year floodplain based on hydrologic and hydraulic modeling of the watershed (see Section A.8.7). The BCWMC establishes policy and performance standards relative to the BCWMC floodplain and associated flood elevations. Figure A-12 shows the BCWMC mapping of the 100-year floodplain in the BCWMC.

A.8.5 Regulatory Water Levels and Flow Rates

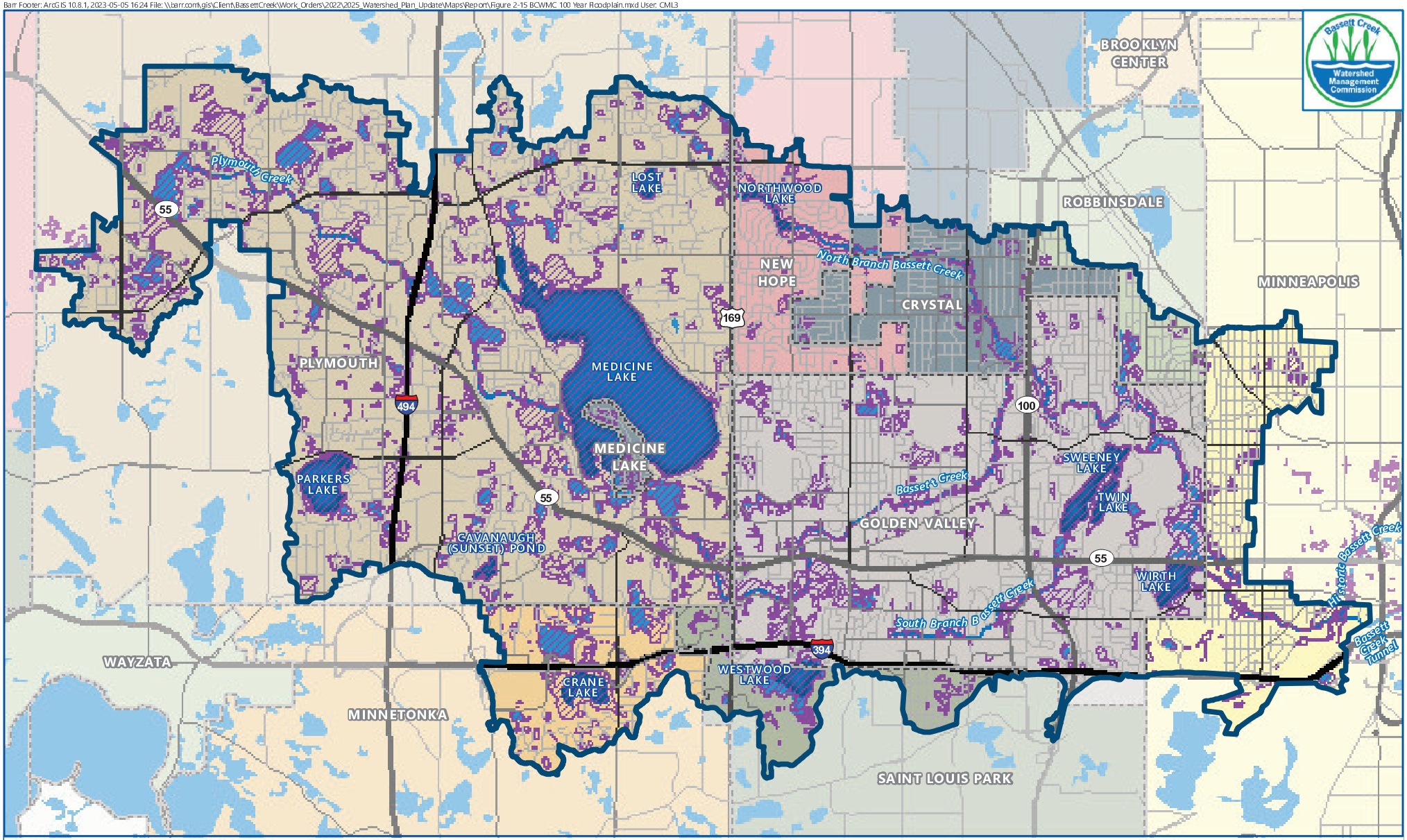
The BCWMC uses flood profiles based on its watershed-wide hydrologic and hydraulic model (see Section A.8.7) in its review of improvements and development proposals. The BCWMC uses the most recent precipitation data published by the National Oceanic and Atmospheric Administratin (NOAA) when updating flood profiles and flow rates (e.g., Atlas 14, see Section A.1).

Table A-25 Summary of BCWMC Flood Control Project Features

Feature	Location	Year Built	Partners	Cost[1]
Phase I Tunnel: 2nd Street Tunnel	Minneapolis	1979	BCWMC, USACE, MnDOT	$12,000,000 ($50,140,000)
Golden Valley Flood Control Project Regent Avenue Crossing Noble Avenue Crossing Minnaqua Drive Bridge Removal Highway 100 Control Structure 32nd Avenue Crossing Brunswick Avenue Crossing 34th Avenue Crossing Edgewood Ave Control Structure & Embankment Edgewood Avenue Storage Basin Georgia Avenue Crossing 36th Avenue Crossing Hampshire Avenue Crossing Markwood Channel Improvements Floodproofing Five Homes	Golden Valley Golden Valley Golden Valley GV/Crystal Crystal Crystal Crystal Crystal Crystal Crystal Crystal Crystal Crystal Crystal Crystal Crystal	1981-1984	BCWMC USACE Golden Valley Crystal	$1,600,000 ($5,300,000)
Douglas Drive Crossing	Crystal	1987	BCWMC, Crystal Hennepin County	$100,000 ($270,000)
Wisconsin Avenue Control Structure	Golden Valley	1987	BCWMC Golden Valley	$100,000 ($270,000)
Highway 55 Control Structure	Golden Valley	1987	BCWMC, USACE, MDNR, Minneapolis	$85,000 ($230,000)
Plymouth Creek Fish Barrier	Plymouth	1987	BCWMC, MDNR, Plymouth Hennepin County	$60,000 ($160,000)
Phase 2 Tunnel: Third Ave. Tunnel	Minneapolis	1990	BCWMC, USACE, Minneapolis, MDNR MnDOT	$2,800,000 ($6,500,000)
Phase 3 Tunnel: Box Culvert Double Box Culvert Channel Improvements	Minneapolis	1992	BCWMC, USACE, Minneapolis MDNR, MnDOT	$13,400,000 ($30,000,000)
Markwood/Edgewood Area Modifications Control Structure Edgewood Avenue Basin Markwood Channel Improvements	Crystal	1992	BCWMC, USACE Crystal, MDNR	500,000 ($1,1020,000)
Westbrook Road Crossing	Golden Valley	1993	BCWMC, USACE Golden Valley, MDNR	200,000 ($420,000)
Golden Valley Country Club Control Structure	Golden Valley	1994	BCWMC, USACE Golden Valley, MDNR	450,000 ($920,000)
Bassett Creek Park Pond	Crystal	1995	BCWMC, USACE, Crystal, MnDOT, MDNR	1,300,000 ($2,600,000)
Medicine Lake Outlet Structure	Plymouth	1996	BCWMC, Plymouth Hennepin County, MDNR	100,000 ($194,000)

(1) 2023 dollars are included in parentheses

Barr Footer: ArcGIS 10.8.1, 2023-05-05 16:24 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-15 BCWMC 100 Year Floodplain.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Public Waters Basin
Creek
100-Year Inundation

Notes:
Map is based on 2022 BCWMC-approved XP-SWMM model results incorporating storage and conveyance of projects implemented through 2021 and compared to MDNR 2011 LiDAR data to show inundation.

N

0 6,000 12,000
Feet

FIGURE A-12

BCWMC 100 YEAR FLOODPLAIN
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

A.8.6 Water Quantity Monitoring

A.8.6.1 Lake Levels

The BCWMC has collected water level data on several waterbodies since the 1970s. Ordinary high water levels (OHWLs), if known, are presented in Table A-26. The BCWMC typically measures water levels once per month . More detailed information is available from the MDNR lakefinder website (http://www.dnr.state.mn.us/lakefind/index.html) and from the BCWMC, upon request.

Watershed residents have periodically raised concerns regarding Medicine Lake water levels Water level data for Medicine Lake is available dating back to 1926, although water level data was not measured regularly until 1972. From 1972 to 2023, water levels have fluctuated from an observed low of 885.7 feet in 1972 to an observed high of 889.8 feet in 1991 (NAVD88 datum). The average measured water level from 1972 through 2023 is 888.0 feet (NAVD88 datum). The normal water level for Medicine Lake is 887.8 feet (NAVD88 datum), which is the elevation of the outlet.

Table A-26 BCWMC Priority Waterbody Lake Levels

Priority Waterbody	Ordinary High Water Level[1] (feet, NAVD88 datum)	Normal Water Level (feet, NAVD88 datum)
Cavanaugh (Sunset Hill) Pond	--	--
Crane Lake	920.5	917.2[2]
Lost Lake	--	939.1
Medicine Lake	889.2	887.8
Northwood Lake	885.6	--
Parkers Lake	936.0	934.1
Sweeney Lake	827.8	827.6
Twin Lake	--	827.6
Westwood Lake	887.9	886.1
Wirth Lake	819.0	818

(1) MNDR Lakefinder data: LakeFinder | Minnesota DNR (state.mn.us)

(2) Outlet elevation of Crane Lake is 917.2 feet.

A.8.6.2 Stream Gaging and Flow Data

The BCWMC monitors flow in the Main Stem of Ȟaȟá Wakpádaŋ/ Bassett Creek through the Metropolitan Council's watershed outlet monitoring program (WOMP, see Section 0) dating back to 2000. The Bassett Creek WOMP site is located at Van White Memorial Boulevard, just upstream of the tunnel that carries Ȟaȟá Wakpádaŋ/Bassett Creek beneath downtown Minneapolis to the Mississippi River (see Figure 0-9). The most current data are available from the BCWMC website.

A.8.7 Hydrologic and Hydraulic Modeling

The BCWMC performs water quantity modeling to estimate flood levels and floodplain extents, estimate peak flow rates, design hydraulic structures, and assess impacts of projects proposed by the BCWMC and others. This section describes water quantity models developed by the BCWMC.

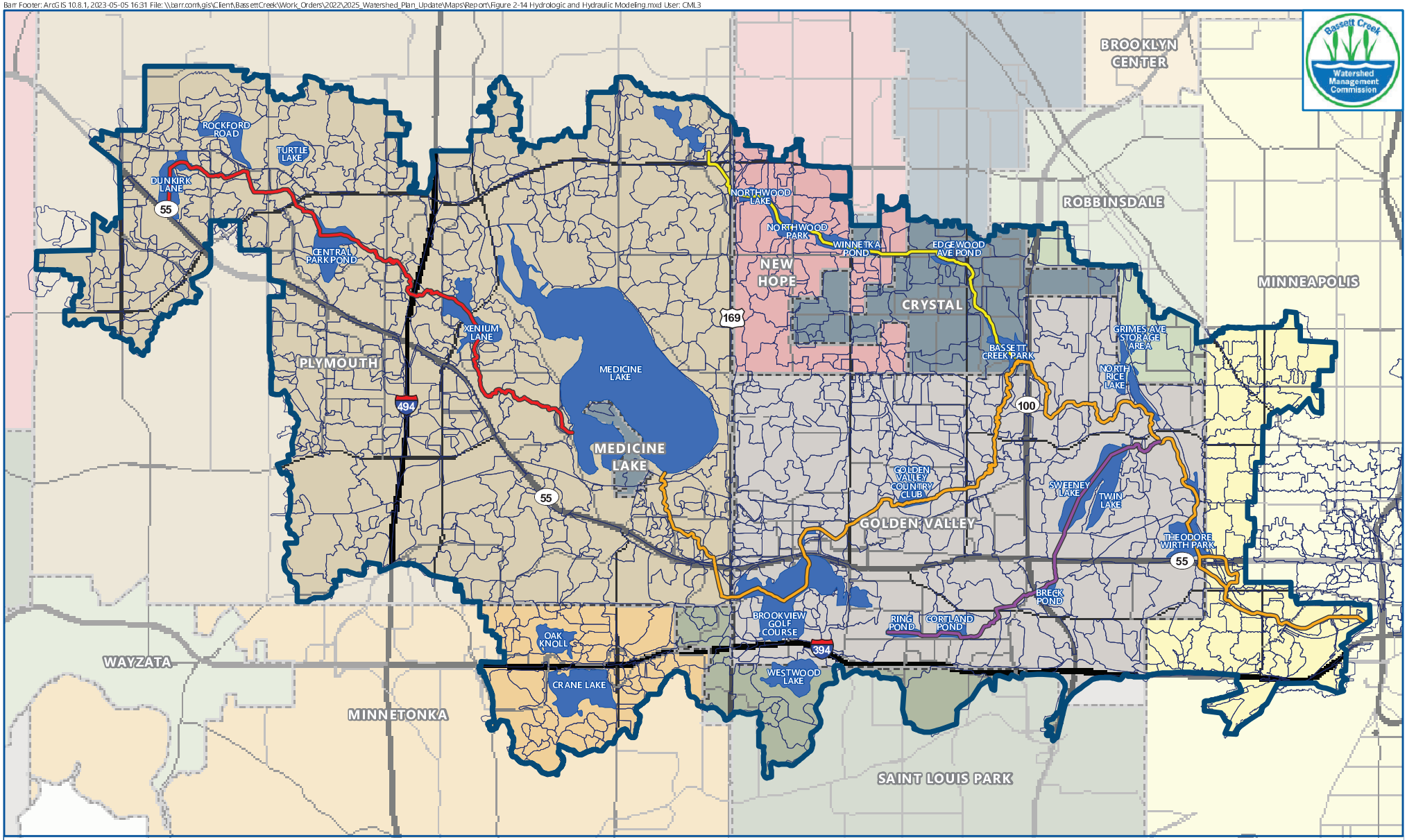
A.8.7.1 Watershed-wide Hydrologic and Hydraulic Model

The original hydrologic and hydraulic models of the Ȟaȟá Wakpádaŋ/Bassett Creek watershed were created in the 1970's. In 2012 and 2013, the BCWMC developed a watershed-wide hydrologic-hydraulic model using XPSWWM software (which uses the EPA's Storm Water Management Model with a prioprietary interface).

Since 2013 update, the BCWMC has updated the SWMM model has been further refined to incorporate member city stormwater systems, additional subwatershed divides, and details of stormwater management BMPs. By incorporating these changes, the modeled runoff rates to the creek system provide a more realistic representation of the actual conditions and may be used to estimate absolute (versus relative) water surface elevations and flow rates.

The BCWMC and member cities use SWMM models to compare relative changes in flow rate or water surface elevations between existing and proposed conditions The BCWMC periodically updates the SWMM model to reflect redevelopment and stormwater infrastructure improvements based on data provided annually by member cities. Figure A-13 presents the watershed divides corresponding to the most recent iteration of the SWMM model.

Barr Footer: ArcGIS 10.8.1, 2023-05-05 16:31 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-14 Hydrologic and Hydraulic Modeling.mxd User: CML3



BCWMC Jurisdictional Boundary

Municipal Boundary

Hydrologic Modeling Subwatershed

BCWMC Trunk System Components

Main Stem Bassett Creek

North Branch Bassett

Plymouth Creek

Sweeney Branch Bassett Creek

Trunk System Storage

N

0 6,000 12,000

Feet

FIGURE A-13

HYDROLOGIC AND HYDRAULIC MODELING

Bassett Creek Watershed Management Commission

2025 Watershed Management Plan

A.9 Natural Communities, Wildlife, and Habitat

A.9.1 Historical Vegetation

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. The Minnesota Biological Survey website contains additional information about remaining areas of native plant communities.

Minnesota Land Cover Classification System (MLCCS) information is available for the entire Ȟaȟá Wakpádaŋ/Bassett Creek watershed, making it a good data source of information that can be used as a management tool. Sites of biological significance are shown in Figure A-8.

Natural vegetation in the Ȟaȟá Wakpádaŋ/Bassett Creek watershed over time has been greatly altered by agricultural development followed by urbanization. In addition to the loss of forested areas, numerous wetlands once present in the central and eastern portions of the watershed have been drained or filled for development. Remaining wetland areas are concentrated in the western part of the watershed and some are the remnants of approximately 1,500 acres of marsh, which once existed between Medicine Lake and the southeast corner of the watershed.

A.9.2 Natural Communities and Rare Species

The Minnesota Biologicla Survey mantains a database of sites of biodiversity significance (see Figure A-8). Sites of biodiversity significance in the BCWMC include a tamarack swamp in Theodore Wirth Regional Park. The National Heritage Information System (NHIS) also notes five occurrences of federally- or state-listed rare animal species in the watershed. Blanding's turtles, trumpeter swans, peregrine falcons, and hooded warblers are rare species that occur in the watershed. Habitat for these species should be protected and improved where feasible.

A.9.3 Wetland Health Evaluation Program

Hennepin County coordinates the Wetland Health Evaluation Program (WHEP). Through the program, volunteers are trained and work as part of a community-based team to collect data on wetland plants and macroinvertebrates using sampling methods and evaluation metrics developed by the MPCA to evaluate wetland health. Metrics are developed for vegetation and invertebrates and converted to an A through F grade (Hennepin County grading scale) or a poor/moderate/excellent rank (MPCA grading scale).

Generally, cities utilize WHEP data as baseline data for specific sites to monitor changes over time. BCWMC member cities have periodically participated in WHEP. BCWMC member cities and partners most recently participating in WHEP include the City of Minnetonka and the Minneapolis Park and Recreation Board.

A.9.4 Aquatic Invasive Species

Aquatic invasive species (AIS) is a term given to invasive species that inhabit lakes, wetlands, rivers, or streams and overrun or inhibit the

growth of native species. Aquatic invasive species pose a threat to natural resources and local economies that depend on them. 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. 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. AIS of particular concern in the Ȟaȟá Wakpádaŋ/Bassett Creek watershed 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 recreational use season, which further inhibit native macrophytes by reducing water clarity and blocking sunlight necessary for growth.
- **Zebra mussels** (*Dreissena polymorpha*): Zebra mussels were identified Medicine Lake in 2017 and are present in several surrounding watersheds. Their huge populations attach to hard surfaces, clog intake pipes for water treatment and power generating plants, 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.
- **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. Common carp are typically spread between lakes by the accidental inclusion and later release of live bait but can also migrate through natural or built channels as adults.
- **Starry stonewort** (*Nitellopsis obtusa*): Starry stonewort 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 and identified in Medicine Lake in 2018.
- **Eurasian watermilfoil** (*Myriophyllum spicatum*): This invasive aquatic plant that reproduces from fragments and seeds. Any fragment of the plant stem that includes a node (whorl of leaves) can produce a new viable plant. Eurasian watermilfoil (EWM) stores carbohydrates which enables the plant to 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.

The BCWMC developed an *AIS Rapid Response Plan* (BCWMC, 2018) addressing seven BCWMC lakes. The plan seeks to reduce the potential establishment, spread, and harmful impacts of a species when new infestations are detected through coordinated containment and suppression/eradication. The BCWMC also partners with the Minnesota Department of Natural Resources (MDNR) 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)

A.9.5 Aquatic Plants (Macrophytes)

Aquatic plants, or macrophytes, are a natural and integral part of most lake communities. A lake's aquatic plants, generally located in the 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 has performed macrophyte surveys of most of its priority waterbodies. Macrophyte surveys are generally performed during the same year as BCWMC water quality monitoring and include two surveys (typically June and August). Macrophyte monitoring includes the identification of native and key invasive species that are present in the waterbodies (see Section A.9.4). Results of aquatic macrophyte monitoring is presented in lake monitoring reports included on the BCWMC website.

A.9.6 MDNR Fisheries Surveys and Stocking

Several BCWMC waterbodies support diverse fish populations. Fish populations can both affect and be an indicator of overall lake health. The MDNR has surveyed the fish populations of several BCWMC lakes and has periodically stocked walleye in both Medicine Lake and Wirth Lake. Results of recent fish surveys of BCWMC priority lakes are summarized in Table A-27. Due to the presence of mercury in fish tissue, the Minnesota Department of Health has issues fish consumption guidance applicable to BCWMC waterbodies.

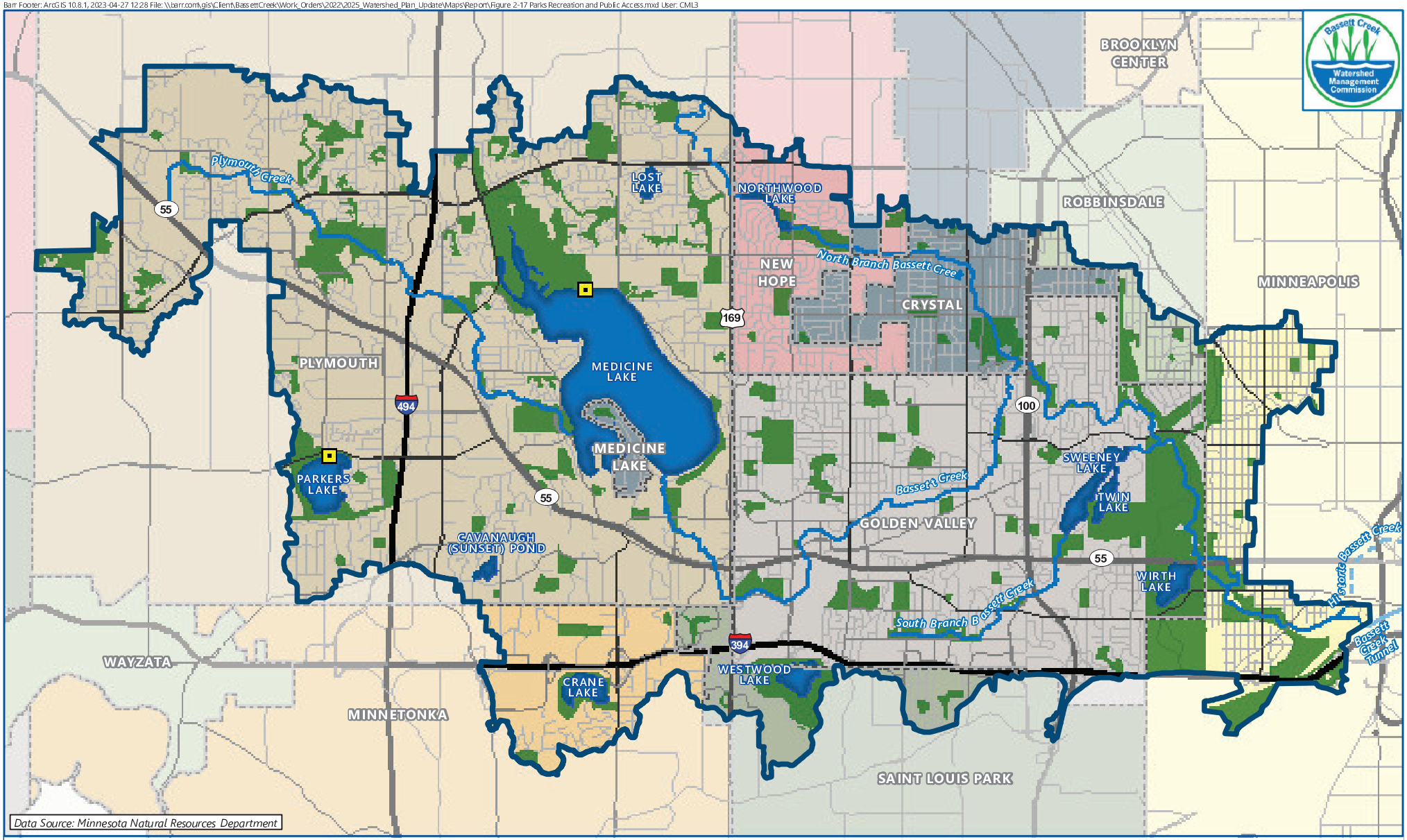
Table A-27 Fisheries Survey Data

Priority Waterbody	Fishing Access	Year of Last Survey[1]	Primary Fish Species Present[1]
Medicine Lake	Two boat ramps (one maintained by TRPD)	2020	Black Crappie, Bluegill, Largemouth Bass, Pumpkinseed, Northern Pike, Walleye, Yellow Bullhead
Parkers Lake	Boat ramp on north side; fishing pier on west side	2017	Bluegill, Hybrid Sunfish, Largemouth Bass, Northern Pike, Pumpkinseed, Yellow Bullhead
Sweeney Lake and Twin Lake	No public fishing access	2013	Black Bullhead, Bluegill, Common Carp, Largemouth Bass, Northern Pike, Pumpkinseed, White Sucker, Yellow Bullhead
Wirth Lake	Public fishing pier (part of MDNR Fishing in the Neighborhood Program)	2018[2]	Black Crappie, Bluegill, Hybrid Sunfish Largemouth Bass, Pumpkinseed, Northern Pike

(1) MNDR Lakefinder data: LakeFinder | Minnesota DNR (state.mn.us)

(2) No Walleye were observed in Wirth Lake in 2018 despite recent stocking.

Barr Footer: ArcGIS 10.8.1, 2023-04-27 12:28 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-17 Parks Recreation and Public Access.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Creek
City, County, or Regional Park
Public Trailer Water Access

N

0 6,000 12,000
Feet

FIGURE A-14

PARKS, RECREATION, AND PUBLIC ACCESS
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

A.10 Pollutant Sources

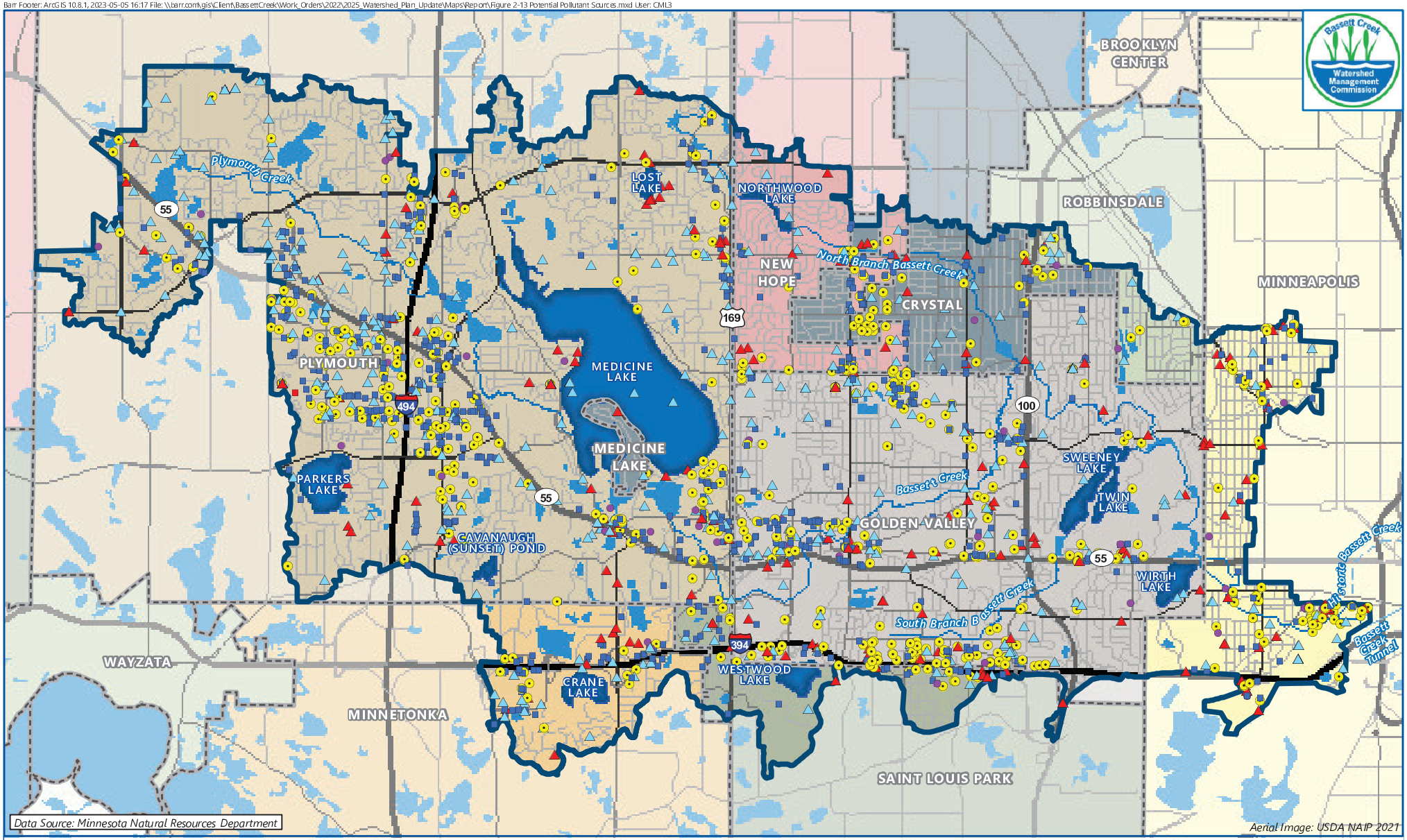
The sources of water pollution in the Ȟaȟá Wakpádaŋ/Bassett Creek watershed are many and varied. There are many permitted sites, hazardous waste generators, and contaminated sites within the BCWMC. The MPCA maintains a database of these sites, which includes permitted sites (air, industrial stormwater, 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. This information is available online through the MPCA's What's In My Neighborhood program, and is presented in Figure A-15. The location of these potentially contaminated or hazardous waste sites should be considered as sites are redeveloped and BMPs 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 from land 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. Point sources frequently discharge continuously throughout the year, while non-point sources discharge in response to precipitation or snowmelt events. For most waterbodies, non-point source runoff, especially stormwater runoff, is the major contributor of pollutants. Table A-18 summarizes the principal pollutants found in stormwater runoff and provides example sources and possible impacts of each pollutant.

Some areas within the BCWMC are served by subsurface sewage treatment systems (SSTS). Failing or substandard SSTS may be a non-point source of pollutants. Improperly sited, installed or maintained systems may achieve inadequate treatment of sewage. In addition to the public health risks of untreated or inadequately treated sewage (e.g., contamination of wells), sewage contains the nutrient phosphorus, which if discharged into waterbodies can cause excessive algae and aquatic plant growth leading to degradation in water quality. The MPCA implements an SSTS regulatory program to manage the environmental and public health impacts of SSTS.

More information about potential pollutant sources is available from the MPCA website: http://www.pca.state.mn.us/index.php/data/wimn-whats-in-my-neighborhood/whats-in-my-neighborhood.html

Barr Footer: ArcGIS 10.8.1, 2023-05-05 16:17 File: \\barr.com\gis\Client\BassettCreek\Work_Orders\2022\2025_Watershed_Plan_Update\Maps\Report\Figure 2-13 Potential Pollutant Sources.mxd User: CML3



BCWMC Jurisdictional Boundary
Municipal Boundary
BCWMC Priority Lake
Public Waters Basin
Creek

Potential Pollutant Source
("What's in my Neighborhood," MPCA)

- Feedlot
- Hazardous Waste
- Investigation and Cleanup
- Solid Waste
- Tanks and Leaks
- Water Quality
- Multiple Activities

N

0 6,000 12,000
Feet

FIGURE A-15

POTENTIAL POLLUTANT SOURCES
Bassett Creek Watershed Management Commission
2025 Watershed Management Plan

Bassett Creek Watershed Management Commission Monitoring Plan

A.1. Bassett Creek Watershed Management Commission (BCWMC) Monitoring Programs

This section describes the different types of monitoring activities performed by the BCWMC. The BCWMC collects and analyzes monitoring data to support and inform a number of its activities. Primary goals of the BCWMC's monitoring program include:

- Assess waterbodies against state standards, including ecological health
- Detect issues within waterbodies early for proactive management
- Track changes and trends over time
- Understand impacts of climate change
- Gather data needed to understand aquatic ecology and chemistry conditions, and to maintain the Commission's pollutant loading and hydrologic/hydraulic models
- Effectively target projects and programs
- Detect new aquatic invasive species (AIS)
- Assess effectiveness of specific BMPs, including CIP projects. Also understand the effectiveness and function of stormwater ponds as nutrient sources or sinks
- Gather data and analyze effects of high chlorides
- Avoid duplication of monitoring efforts

In certain situations, the BCWMC may also extend their monitoring activities to achieve the following objectives:

- Assessing for harmful algal blooms (following the protocol developed for monitoring of potentially harmful algal blooms, available on their website)
- Identify biological stressors
- Understanding impacts of carp (e.g., subwatershed assessments, potential implementation activities from Medicine Lake TMDL assessment)
- Gather data to help with grant applications or grant requirements

The planned performance of each type of monitoring in each BCWMC priority waterbody over the next 10 years is outlined in Table MP-9. Non-priority lakes and streams will not be monitored through regular

BCWMC monitoring programs. The types of monitoring performed by the BCWMC (and the respective abbreviations in Table MP-9) include:

- Detailed lake water quality monitoring (BC-LWQ)
- Zooplankton and phytoplankton monitoring (ZOO-PHYTO)
- Aquatic plant (macrophyte) monitoring (PLANT)
- Stream biotic (invertebrate) monitoring (BIO)
- Stream water quality monitoring (SWQ)

A.1.1. Detailed Lake Water Quality Monitoring

Monitoring Plan ID: BC-LWQ

Planned Monitoring Interval: 3 years (Priority 1 management classification)
5 years (Priority 2 management classification)

Description:

Water quality samples will be collected from one or two (depending on the lake) lake sampling stations representing the deepest location(s). Lakes will be monitored on eight occasions from approximately April (depending on ice-out date) through September. Details follow:

1. One sample will be collected within two weeks after ice out
2. One sample will be collected in late May or early June, depending on the timing of ice out
3. One sample will be collected in mid-June, at least two weeks from the 2nd sampling date
4. Two samples will be collected in July, biweekly, during 1st and 3rd weeks
5. Two samples will be collected in August, biweekly, during 1st and 3rd weeks
6. One sample will be collected during the first week of September

To ensure the safety of staff collecting the samples, two individuals must be present in the boat and collect the samples during each sample event.

Dissolved oxygen, temperature, specific conductance, pH, and Secchi disc transparency will be measured in the field at the depths shown in Table MP-1. Water samples will be collected for laboratory analysis for total phosphorus, soluble reactive phosphorus, total nitrogen, chlorophyll *a*, and chloride at depths as specified in Table MP-1.

In addition to the above, at least one winter sampling event will be completed in January or February of each year. Water samples will be collected for laboratory analysis for chloride and dissolved oxygen, and temperature, specific conductance, and pH will be measured in the field at the depths shown in Table MP-1.

Table MP-1 Parameters measured and depth interval

Parameter	Sample Depth (Meters)	Sample or Measurement Frequency
Field Parameters		
Dissolved Oxygen	Surface to bottom (1-meter intervals)	Each Sample Event
Temperature	Surface to bottom (1-meter intervals)	Each Sample Event
Specific Conductance	Surface to bottom (1-meter intervals)	Each Sample Event
pH	Surface to bottom (1-meter intervals)	Each Sample Event
Secchi Disc	Measured from surface to depth at which the disc is no longer visible	Each Sample Event
Laboratory Parameters		
Total Phosphorus	4 samples collected: • 0-2 meter composite sample • Above thermocline sample • Below thermocline sample • 0.5 meters above bottom sample	Each Sample Event
Soluble Reactive Phosphorus	0-2 meter composite sample	Each Sample Event
Total Nitrogen	0-2 meter composite sample	Each Sample Event
Chlorophyll *a*	0-2 meter composite sample	Each Sample Event
Chloride	2 samples collected: • 0-2 meter composite sample • 0.5 meters above bottom sample	Each Sample Event

Table MP-2 presents the analytical details for phosphorus, nitrogen, and chlorophyll *a* analyses. Methods (and limits) are subject to change, but the laboratory will use a method that is Minnesota Department of Health accredited under the Clean Water Program, where applicable. All analytical results will be reported per the laboratory's reporting limit (RL) and will attain the laboratory control sample limits (LCS Limits %), matrix spike (MS)/matrix spike duplicate (MSD) limits (%), and MS/MSD or duplicate relative percent difference (Dup RPD %) shown in Table MP-2.

Table MP-2 Analytical Method Details

Method	Analyte	RL	Units	LCS Limits %	MS/MSD Limits %	MS/MSD or Dup RPD %
Timberline-001	Total Kjeldahl Nitrogen	0.10	mg/L	84-115	84-115	20
EPA 365.3	Orthophosphate as P	0.003	mg/L	90-110	80-120	20
EPA 365.3	Phosphorus, Total as P	0.003	mg/L	80-120	80-120	80-120
EPA 353.2	Nitrate + Nitrite as N	0.03	mg/L	90-110	90-110	20
EPA 300.0 or SM 4500 CL-E	Chloride	0.5 or 3.0	mg/L	90-110	80-120	20
SM10200H-2011, NRR1-94	Chlorophyll *a* Pheophytin Corrected	1.0	µg/L	Not Available	Not Available	20

A.1.2. Zooplankton and Phytoplankton Monitoring

Monitoring Plan ID: ZOO-PHYTO

Planned Monitoring Interval: 3 years (Priority 1 management classification)
5 years (Priority 2 management classification)

Description:

Lakes will be monitored for phytoplankton on eight occasions from April through September, concurrent with water quality sampling events. Zooplankton will be monitored once monthly, also during water quality sampling events, up to 5 times per year. Phytoplankton will be sampled as a single 0-2 meter composite sample at the location of water quality sampling and preserved with Lugol's preservative at a volume of 1 mL preservative per 100 mL of sample. Zooplankton will be sampled using a bottom to surface tow with a zooplankton net at the location of water quality sampling. Zooplankton samples will be preserved with 40 percent formalin with sugar preservative at a volume of 5 mL preservative per 100 mL of sample.

Phytoplankton analyses will be completed using the inverted microscope procedure of Utermohl as described by Lund et al. (1958). Subsamples will be settled in a 5-milliliter inverted microscope settling chamber for approximately 24 hours prior to counting. Replicate fields of view located in a transect across the center of the counting chamber will be enumerated at a magnification of at least 500 times until the entire transect has been enumerated or at least 500 algal units have been counted. An algal unit is 1 single cell, 1 colony, or 1 filament. Results will be expressed as units per milliliter. All algal units will be identified to the lowest practicable level.

Zooplankton analyses will be completed using the Sedgwick Rafter procedure described in Standard Methods. Zooplankton within two Sedgwick Rafter counting chambers will be identified and enumerated until at least 500 individuals have been counted. All zooplankton will be identified to the lowest practicable level. Results will be expressed as number of zooplankton per square meter.

A.1.3. Aquatic Plant (Macrophyte) Monitoring

Monitoring Plan ID: PLANT

Planned Monitoring Interval: 3 years (Priority 1 management classification)
5 years (Priority 2 management classification)

Description:

Lakes will be monitored for aquatic plants (macrophytes) every 3 years (lakes classified as Priority 1) or every 5 years (lakes classified as Priority 2), in the same year as detailed BCWMC water quality monitoring. Point intercept aquatic plant (macrophyte) surveys will be performed and each lake will be surveyed twice, once in June and once in August.

The aquatic plant (macrophyte) surveys will assess the distribution and growth density of all plants. All sampling and data analysis will be conducted according to the methodologies described in the Minnesota Department of Natural Resources (MDNR) protocol for aquatic vegetation surveys. This methodology is

based upon the point intercept survey method developed by John Madsen in Aquatic Plant Control Technical Note MI-02, 1999. This method consists of the following:

- All future plant surveys in BCWMC lakes will use the same sample points that have been surveyed in past plant surveys. A grid of evenly spaced points across each lake has been pre-determined and mapped. Grid spacing in BCWMC lakes ranges from 21 meters to 100 meters, depending on lake surface area.
- Personnel performing the plant survey will navigate to each point using a global positioning system (GPS) where a double-sided rake attached to a pole or rope will be tossed from the side of the boat or canoe and retrieved to obtain a sample of aquatic vegetation. A boat will be used for the plant survey whenever possible.
- All species of aquatic vegetation will be identified and an abundance ranking from 1 to 3 will be assigned to each species where:

  1 = Sparse; plants covering <25% of the rake head
  2 = Common; plants covering 25%-75% of the rake head
  3 = Abundant; plants covering >75% of the rake head

- Water depth will be recorded at each sampling location to the nearest tenth of a foot.
- Dominant sediment type will be recorded at each sampling location.

All data will be recorded. In addition to basic parameters and species statistics, the following indices will be reported:

- **Simpson Diversity Index Value**—index used to measure plant diversity, which assesses the overall health of the lake's plant communities. The index, with scores ranging from 0 to 1, considers both the number of species present and the evenness of species distribution. A high score indicates a more diverse plant community.
- **C value—**scale of values used to measure the average tolerance of the plant community to degraded conditions. Plant species are assigned C values on a scale of 0 to 10, with increasing values indicating plants are less tolerant of degraded conditions and, hence, are of better quality. An average of the C values for individual species within a lake's plant community indicates the average tolerance of the community to degraded conditions. C values provided by MDNR will be used for BCWMC lakes.
- **Floristic Quality Index (FQI) value—**FQI will be used to assess the quality of the plant communities. FQI considers both the quality of the individual native species found in the lake (C value) and the number of native species collected on the rake.

June and August data from each lake will be analyzed using Chi Squared analyses to identify any significant changes in species frequency of occurrence between June and August. In addition, Chi Squared analyses will be used to identify any significant changes between the present survey and the most recent

previous year of monitoring. For this analysis, June data from the present year of monitoring will be compared with June data from the most recent previous year of monitoring; August data from the present year of monitoring will be compared with August data from the most recent previous year of monitoring.

The MDNR developed a Lake Plant Eutrophication Index of Biological Integrity (IBI) to measure the response of a lake plant community to eutrophication. The Lake Plant Eutrophication IBI includes two metrics: (1) the number of species in a lake and (2) the "quality" of the species, as measured by the FQI. The MDNR developed a threshold for each metric; lakes that score below the thresholds are considered to have degraded plant communities and are likely stressed from anthropogenic (human-caused) eutrophication. FQI scores and the number of species from plant surveys completed in BCWMC lakes will be compared to the MDNR Plant IBI thresholds. Resultant FQI scores and the number of species will also be compared with historical data to assess plant IBI trends.

A.1.4. Stream Biotic Monitoring (Macroinvertebrate Monitoring)

Monitoring Plan ID: BIO

Planned Monitoring Interval: 6 years (Priority streams)

Description:

Macroinvertebrate samples will be collected from Plymouth Creek, Main Stem of Bassett Creek, North Branch of Bassett Creek, and Sweeney Branch of Bassett Creek. The sampling locations are identified as follows (see Figure X-XX of the Plan):

- Plymouth Creek at Industrial Park Boulevard in Plymouth
- North Branch of Bassett Creek at 34th Avenue North in Crystal
- Main Stem of Bassett Creek east of Brookridge Avenue in Golden Valley
- Main Stem of Bassett Creek at Rhode Island Avenue in Golden Valley
- Main Stem of Bassett Creek at Irving Avenue in Minneapolis
- Sweeney Lake Branch of Bassett Creek at Woodstock Avenue (East) in Golden Valley

Minnesota Pollution Control Agency (MPCA) Invertebrate Sampling Procedures (Macroinvertebrate data Collection Protocols for Lotic Waters in Minnesota (state.mn.us)) will be used to collect macroinvertebrate samples. The MPCA multihabitat method will be used to collect a composite sample from up to five different habitat types to get a sample representative of the invertebrate community at each sample location. The habitats to be sampled may include:

- Hard bottom (riffle/cobble/boulder)
- Aquatic macrophytes (submerged/emergent vegetation)
- Undercut banks (undercut banks/overhanging vegetation)

- Snags (snags/rootwads)
- Leaf packs

Sampling will consist of dividing 20 sampling efforts equally among the dominant, productive habitats present in each reach. If the 20 sampling efforts are not equally divisible by the number of habitats present, the least dominant of the habitats will receive the lower number of sampling efforts (i.e., the remainder).

A sample effort is defined as taking a single dip or sweep in a habitat (e.g., hard bottom). A sweep is taken by placing the D-net on the substrate and disturbing an area directly in front of the net opening equal to the net width (1 ft^2) and allowing dislodged invertebrates to drift into the D-net positioned downstream from the disturbed area. Each sample effort should cover approximately 1 ft^2 (0.09 m^2) of substrate. The 20 sampling efforts will sample a total area of 20 ft^2 (1.8 m^2).

The sampling will proceed from downstream to upstream, sampling the various habitats present. All samples will be preserved in 100 percent reagent alcohol and later identified in the laboratory.

Flow and water quality parameters will be sampled at the downstream end of the reach prior to disturbing the area by the macroinvertebrate sampling activity. The following parameters will be measured using field instruments: discharge (flow), temperature, dissolved oxygen, specific conductance, turbidity, and pH.

Physical habitat will be monitored at each sample location every 6 years when benthic macroinvertebrate samples are collected. Physical habitat will be assessed using the MPCA quantitative method (Quantitative Physical Habitat Assessment Protocol for Wadeable Stream Monitoring Sites (state.mn.us)). Habitat will be sampled using the transect point method. Thirteen transects will be established within each sample reach. The sample reach is determined by mean stream width (MSW) and is generally from 150 to 500 meters in length. For the locations in Bassett Creek, the sample reach will be at least 150 meters in length. The reach segment that is sampled will be documented with global positioning system (GPS) measurements. Four equally spaced points, plus the thalweg (or deepest point along the transect line), will be established along each transect; measurements or visual estimates will be made at each sample point to characterize key components of the physical habitat structure. Variables measured include water depth, depth of fine sediment and water, embeddedness, substrate, percent algae, and percent macrophytes. In addition, visual estimates of the following will be made:

- The amount of cover for fish, determined from the percent of transect occupied by undercut banks, overhanging vegetation, woody debris, boulders, submergent macrophytes, emergent macrophytes, and other debris
- The amount of the stream bank that is actively eroding through break down, soil sloughing, or false banks
- The predominant riparian land use within the riparian zone (within 30 meters of the water's edge)

- Riparian buffer width, which is the amount of contiguous undisturbed land use within a 10-meter area adjacent to the stream
- Canopy/shading, which is a measure of overhead canopy cover that is shading the stream channel

The MPCA established biological water quality standards for all Minnesota streams and rivers, including Plymouth Creek and Bassett Creek (North Branch, Main Stem, and Sweeney Branch). A Macroinvertebrate Index of Biotic Integrity (M-IBI) was added to Minnesota standards and approved by the United States Environmental Protection Agency on June 26, 2018. The M-IBI helps identify biologically impaired rivers and streams by assessing the health of their macroinvertebrate communities. The M-IBI score is the sum of the scores from 10 individual metrics. Each metric assesses an attribute of the macroinvertebrate community; collectively, the metrics assess the community's overall health. Each M-IBI metric has a scale of 0 to 10; the lowest possible score is 0, and the highest is 10. Increasing scores indicate improving conditions. Because 10 metrics are summed to attain the M-IBI score, and each metric has a maximum score of 10, the maximum possible score is 100. To meet the MPCA macroinvertebrate standard, the sum of the scores from the 10 individual metrics must equal or exceed the impairment threshold. The MPCA Macroinvertebrate Class 5 (Southern Streams Riffle Run) standard of 37 is applicable to Plymouth Creek, the Main Stem of Bassett Creek, and the North Branch of Bassett Creek. The MPCA Macroinvertebrate Class 6 (Southern Forest Streams Glide Pool) standard of 43 is applicable to the Sweeney Branch of Bassett Creek.

M-IBI will be computed from macroinvertebrate data collected from Plymouth Creek and Bassett Creek (North Branch, Main Stem, and Sweeney Branch). Samples will be processed and enumerated by a BCWMC-approved laboratory. M-IBI scores will be computed using MPCA Methods (Macroinvertebrate data Collection Protocols for Lotic Waters in Minnesota (state.mn.us).

A.1.5. Stream Water Quality Monitoring

Monitoring Plan ID: SWQ

Planned Monitoring Interval: 2 consecutive years of monitoring initiated every 6 years (Priority streams)

Description:

The BCWMC will monitor the chemical water quality and streamflow of the North Branch of Bassett Creek, Sweeney Branch of Bassett Creek, and Plymouth Creek for two consecutive years of monitoring initiated every 6 years. The City of Plymouth also monitors Plymouth Creek annually and intends to continue this monitoring until data is no longer required or funds do not allow. The BCWMC will partner with the City of Plymouth to monitor the creek in those years when both entities are collecting data. Details of the partnership between BCWMC and the City of Plymouth will be determined each time the two entities work together to monitor Plymouth Creek.

The BCWMC purchased equipment for completion of the stream water quality and flow monitoring program. Table MP-3 includes a list of the equipment that BCWMC owns for monitoring the North Branch of Bassett Creek and Sweeney Branch of Bassett Creek. The equipment may also be used for monitoring

Plymouth Creek although past monitoring of Plymouth Creek has been completed using equipment owned by Three Rivers Park District under contract with the City of Plymouth. The BCWMC's equipment is installed at each stream monitoring location during the monitoring season and stored at the Edina Field Office of the BCWMC Engineer (Barr Engineering Co.) when not in use.

Following is a description of the equipment shown in Table MP-3:

- **Radar water-level sensor and measurement and control data logger:** A radar water-level sensor measures water levels at 15-minute intervals, and a measurement and control data logger records the measurements.
- **Cellular modem:** Enables staff to remotely control equipment and download data.
- **SunSaver regulator:** This instrument controls the current flowing from the solar panel to the battery and prevents the current from flowing in reverse (i.e., battery to the solar panel).
- **Solar panel:** Charges the battery used to operate the equipment.
- **Automatic sampler:** Programmable autosampler that collects storm samples.
- **Temperature probe and data logger:** The probe measures water temperature, and the data logger records the measurements.
- **Specific-conductance probe and data logger:** The probe measures specific conductance, and the data logger records the measurements.
- **Dissolved oxygen data logger:** Self-contained unit (i.e., includes sensor and datalogger) that records dissolved oxygen measurements. Telemetry is not included.

Table MP-3 BCWMC Owned Equipment for Stream Water Quality Monitoring

Equipment Description	Make	Model No.	Qty.
Portable Auto-Sampler	Teledyne Isco	3700	1
Radar Water Level Sensor	Campbell Scientific Inc.	CS475	1
Water Conductivity/Temperature Probe	Campbell Scientific Inc.	CS547A	1
Measurement and Control Datalogger	Campbell Scientific Inc.	CR850	1
50 Watt Solar Panel	Campbell Scientific Inc.	SP50	1
Solar Regulator	Morning Star	SunSaver-10	1
Weather -Resistant Enclosure 14" x 16"	Campbell Scientific Inc.	ENC14/16	1
Sampler Control Cable	Campbell Scientific Inc.	10164	1
Cellular Modem (Verizon 4G)	Campbell Scientific Inc.	Cell210	1
HOBO Dissolved Oxygen Data Logger	Onset Corp.	U26-001	1

The automated sampler and equipment to continuously measure water depth, flow, temperature, and specific conductance will be installed and operated for two consecutive years (from snowmelt of year 1

until shortly before ice-in and from snowmelt of year 2 to shortly before ice-in). Water depth, flow, temperature, and specific conductance will be measured every 30 seconds, and 15-minute averages will be recorded throughout the monitoring period. Continuous dissolved oxygen will be measured for at least 4 days in summer (June through September) during each year. Dissolved oxygen will be measured and recorded every 15 minutes during the monitored period.

For QAQC purposes, manual verification measurements of stage, specific conductance, and temperature will be taken periodically (i.e., approximately monthly). When required, the specific conductance probe will be calibrated. The radar water level and temperature sensors cannot be calibrated. If discrepancies are found, these sensors will be returned to the manufacturer for repair or replacement. The manual measurements will also be used to correct for sensor drift during the final year-end QAQC effort. Data are remotely downloaded periodically (i.e., approximately weekly) and reviewed to check for sensor interferences or malfunctions.

The automated sampler will collect water quality samples in periods of high flow (i.e., snowmelt and after storm events). Samples are pumped from the stream through an intake tube and deposited in 1-liter bottles of which there are 24. The 1-liter bottle samples are composited into a single storm event sample. Each discrete sample is collected at an interval based on flow volume creating a flow-weighted sample. Parameters analyzed will include chloride, total and volatile suspended solids, and nutrients (soluble reactive phosphorus, ortho phosphate, total phosphorus, nitrate and nitrite nitrogen, total Kjeldahl nitrogen, and ammonia nitrogen). Grab samples will be manually collected during periods of baseflow. Parameters analyzed will include chloride, *Escherichia* coli bacteria, total and volatile suspended solids, turbidity, nutrients (dissolved phosphorus, ortho phosphate, total phosphorus, nitrate and nitrite nitrogen, total Kjeldahl nitrogen, and ammonia nitrogen), and chlorophyll *a*. Instantaneous pH, dissolved oxygen, temperature and specific conductance will be measured when samples are manually collected. Samples for hardness and metals (cadmium, chromium, copper, lead, nickel, and zinc) will be manually collected quarterly during the 2-year monitoring period.

All samples collected from the North Branch of Bassett Creek and the Sweeney Branch of Bassett Creek will be analyzed by the Metropolitan Council Environmental Services (MCES) laboratory. MCES laboratory method details are shown in Table MP-4. Samples collected from Plymouth Creek will be analyzed by the Three Rivers Park District laboratory or the MCES laboratory. Three Rivers Park District laboratory method details are shown in Table MP-5. Methods (and limits) shown in Table MP-4 and Table MP-5 are subject to change, but the laboratories will use a method that is Minnesota Department of Health accredited under the Clean Water Program, where applicable. All analytical results will be reported per the laboratory's reporting limit (RL) and will attain the laboratory control sample limits (LCS Limits %), matrix spike (MS)/matrix spike duplicate (MSD) limits (%), and MS/MSD or duplicate relative percent difference (Dup RPD %) shown in Table MP-4 and Table MP-5.

Table MP-4 Metropolitan Council Environmental Services Laboratory Analytical Method Details

Method	Analyte	RL	Units	LCS Limits %	MS/MSD Limits %	MS/MSD or Dup RPD %
SM 4500-Cl- E-2011	Chloride	5	mg/L	90-110	90-110	90-110
USGS I-3765-85	Total Suspended Solids	3	mg/L	n/a	n/a	n/a
USGS I-3767-85	Volatile Suspended Solids	3	mg/L	n/a	n/a	n/a
n/a	Turbidity	n/a	n/a	n/a	n/a	n/a
EPA 365.1	Phosphorus, Total as P (low-level)	0.005	mg/L	90-110	90-110	90-110
EPA 365.1	Phosphorus, Dissolved as P (low-level)	0.005	mg/L	90-110	90-110	90-110
EPA 365.4	Phosphorus, Total as P	0.05	mg/L	90-110	90-110	90-110
EPA 365.4	Phosphorus, Dissolved as P	0.05	mg/L	90-110	90-110	90-110
SM 4500-P F-2011	Ortho-phosphate	0.01	mg/L	90-110	90-110	90-110
EPA 353.2	Nitrate + Nitrite as N	0.2	mg/L	90-110	90-110	90-110
EPA 351.2	Total Kjeldahl Nitrogen	0.2	mg/L	90-110	90-110	90-110
EPA 350.1	Ammonia Nitrogen	0.06	mg/L	90-110	90-110	90-110
ASTM D3731-87	Chlorophyll *a*	1	ug/L	n/a	n/a	n/a
SM 9223 B-2016	*Escherichia* coli bacteria	1	mpn/100 mL	n/a	n/a	n/a
SM 2340 B-2011 (calculation)	Total Hardness	3.3	mg/L	n/a	n/a	n/a
EPA 200.8	Cadmium	0.1	ug/L	85-115	70-130	70-130
EPA 200.8	Chromium	2.5	ug/L	85-115	70-130	70-130
EPA 200.8	Copper	1	ug/L	85-115	70-130	70-130
EPA 200.8	Lead	0.5	ug/L	85-115	70-130	70-130
EPA 200.8	Nickel	0.5	ug/L	85-115	70-130	70-130
EPA 200.8	Zinc	5	ug/L	85-115	70-130	70-130

Table MP-5 Three Rivers Park District Analytical Method Details

Method	Analyte	RL	Units	LCS Limits %	MS/MSD Limits %	MS/MSD or Dup RPD %
SM 4500-Cl^- B-11	Chloride	10	mg/L	80-120%	80-120%	20% RPD
SM 2540 D-11	Total Suspended Solids	2.5	mg/L	80-120%	80-120%	20% RPD
EPA 365.3	Phosphorus, Total as P	15	ug/L	80-120%	80-120%	20% RPD
EPA 365.3	Phosphorus, Soluble Reactive as P	6	ug/L	80-120%	80-120%	20% RPD
SM 4500-N-C	Total Nitrogen	0.5	mg/L	80-120%	80-120%	20% RPD
SM 10200H	Chlorophyll a	5	ug/L	NA	NA	20% RPD
9223 B Colilert-18	*Escherichia* coli bacteria	1	CFU/100mL	NA	NA	20% RPD

Approximately 30 samples will be collected during the two-year monitoring period. Assuming climatic conditions provide an adequate number of storms, the samples will be evenly split between samples collected by automated samplers and manually collected samples.

The BCWMC intends to complete a special project to monitor the specific conductance and chloride concentrations of inflows to Crane Lake. For this project, the BCWMC intends to purchase the equipment shown in Table MP-6. The equipment will be installed on-site during the stream monitoring season and stored at the Edina Field Office of the BCWMC Engineer (Barr Engineering Co.) when not in use.

Table MP-6 Equipment for Crane Lake Specific Conductance Monitoring

Equipment Description	Make	Model No.	Qty.
Measurement and Control Datalogger	Campbell Scientific Inc.	CR350	5
20 Watt Solar Panel	Campbell Scientific Inc.	SP20	5
Weather -Resistant Enclosure 12" x 14"	Campbell Scientific Inc.	ENC12/14	5
Water Conductivity/Temperature Probe	Campbell Scientific Inc.	CS547A	5
12 Amp-Hour 12 Volt Rechargeable Battery	Campbell Scientific Inc.	BP12	5

A.2. Other Monitoring Programs

A.2.1 City of Plymouth (Plymouth Creek Monitoring)

Monitoring Plan ID: CITY PLMTH

Planned Monitoring Interval: Annually until data is not required or funds do not allow for continuation

Description:

The City of Plymouth has annually contracted with the Three Rivers Park District (TRPD) since 2001 to monitor Plymouth Creek. Monitoring location Industrial Park 2 (IP2) has been monitored annually since 2004 except for 2007, 2010, and 2011. IP2 is located at a 14-foot-wide concrete weir behind an industrial building at 12940 Teakwood Lane North. This site captures drainage from upstream portions of Plymouth Creek. Monitoring location Plymouth Creek 2 (PC2) has been monitored annually since 2001. PC2 is located on Medicine Lake Drive West near West Medicine Lake Beach. This site captures drainage from IP2 as well as the Parkers Lake watershed just before it reaches Medicine Lake. In 2022-2023, the City of Plymouth monitored a third location, Industrial Park 1 (IP1), located within a pipe just before it discharges into Plymouth Creek a short distance downstream from IP2. The site was added primarily to evaluate flow and chlorides coming from a subwatershed west of Highway 55.

The City of Plymouth intends to monitor Plymouth Creek annually until data is no longer required or funds do not allow for continuation. The city plans to contract the monitoring to TRPD if they are willing to continue with the partnership. Stage and flow would be continuously measured and automated samplers would collect water quality samples in periods of high flow (i.e., snowmelt and after storm events) at locations IP2 and PC2. In addition, samples would be collected manually at a biweekly frequency during periods of baseflow. Parameters analyzed would include total phosphorus, soluble reactive phosphorus, total nitrogen, total suspended solids, and chloride.

The BCWMC will partner with the city to monitor Plymouth Creek whenever both entities are collecting data during the same year. Details of this partnership will be determined between the parties in advance of each shared monitoring year. The BCWMC and the City of Plymouth partnered to monitor Plymouth Creek during 2022-2023. During that period, BCWMC collected quarterly samples from IP2 for hardness and metals (cadmium, chromium, copper, lead, nickel, and zinc) and continuously measured dissolved oxygen at IP2 for one week during each year. All other monitoring of Plymouth Creek was completed by the City of Plymouth as a part of its annual monitoring program of the stream.

A.2.2 Three Rivers Park District (Medicine Lake Water Quality Monitoring)

Monitoring Plan ID: TRPD

Planned Monitoring Interval: Annually in Medicine Lake – Main Basin (subject to change)
3 year intervals in Medicine Lake – Southwest Basin (per BCWMC request)

Description:

Although the TRPD has annually monitored Medicine Lake, future programs are subject to change. The following discussion of planned monitoring for Medicine Lake is based on past programs with the caveat

that sampling frequency, sample locations, types of samples collected, and sampling parameters are subject to change in the future.

The TRPD monitors water quality in the main basin of Medicine Lake annually. Samples are collected bi-weekly from ice-out through September and once after fall turnover in October. Profiles of dissolved oxygen, temperature, specific conductance, and pH are measured at 1-meter intervals from the lake's surface to its bottom. Secchi disc transparency is measured from the lake's surface to the depth at which the disc is no longer visible. Total nitrogen and chlorophyll *a* samples are collected at or near the lake's surface. Total phosphorus and soluble reactive phosphorus samples are collected at or near the lake's surface, at the middle of the lake's water column, and near the lake's bottom. Chloride samples are collected at or near the lake's surface and near the lake's bottom. All samples are analyzed by the TRPD laboratory.

The TRPD annually completes two point-intercept aquatic plant surveys in Medicine Lake (spring and fall).

The TRPD annually monitors its swimming beaches for *Escherichia* coli every week from Memorial Day to Labor Day.

At 3-year intervals, the BCWMC will request that the TRPD perform additional sampling and analysis in the southwest basin of Medicine Lake while conducting its routine monitoring on Medicine Lake as outlined in Section A.1.1. The sampling will occur at one location in the deepest part of the southwest basin. Samples will be collected bi-weekly from ice-out through September and once after fall turnover in October.

Dissolved oxygen, temperature, specific conductance, pH, and Secchi disc transparency will be measured in the field at depths shown in Table MP-7. Water samples will be collected for laboratory analysis for total phosphorus, soluble reactive phosphorus, total nitrogen, chlorophyll *a*, and chloride at depths as specified in Table MP-7. All samples will be analyzed by the TRPD laboratory.

TRPD collects one set of field duplicates from each field crew that samples each day and rotates the field duplicate sites each week in a randomized way. Because each field crew samples multiple sites each day, field duplicates will sometimes be collected from Medicine Lake and sometimes from other sites.

Table MP-7 TRPD Medicine Lake Water Quality Sampling

Parameter	Sample or Measurement Depth (Meters)	Sample or Measurement Frequency
Dissolved Oxygen	Surface to bottom (1-meter intervals)	Each Sample Event
Temperature	Surface to bottom (1-meter intervals)	Each Sample Event
Specific Conductance	Surface to bottom (1-meter intervals)	Each Sample Event
pH	Surface to bottom (1-meter intervals)	Each Sample Event
Secchi Disc	Measured from surface to depth at which it disappears from view	Each Sample Event
Total Phosphorus	3 samples collected: 0-2 meter composite, above the thermocline, and about 1 meter above the bottom	Each Sample Event
Soluble Reactive Phosphorus	3 samples collected: 0-2 meter composite, above the thermocline, and about 1 meter above the bottom	Each Sample Event
Total Nitrogen	0-2 meter composite sample	Each Sample Event
Chlorophyll *a*	0-2 meter composite sample	Each Sample Event
Chloride	2 samples collected: 0-2 meter composite and about 1 meter above the bottom	Each Sample Event

TRPD will collect phytoplankton and zooplankton samples from the main basin and the southwest basin in accordance with the BCWMC protocols outlined in Section A.1.2. A total of 6 samples will be collected from each basin per the following schedule:

1. Within two weeks after ice-out
2. Mid-June
3. Mid-July
4. First and third weeks in August
5. First week in September

Each phytoplankton sample will be a 0-2-meter composite sample and each zooplankton sample will be collected using a zooplankton net towed from near the bottom to the surface of the lake.

A.2.3 City of Plymouth (Parkers Lake Inflow Monitoring)

Monitoring Plan ID: CITY PLMTH

Planned Monitoring Interval: Annually until data is not required or funds do not allow for continuation

Description:

The City of Plymouth has contracted with the TRPD since 2000 to monitor inflows to Parkers Lake from two locations. Monitoring location Parkers Lake 1 (PL1) has been monitored annually since 2000, except for 2008 and 2010 through 2012. PL1 is located on the south side of Parkers Lake at the Luce Line State

Trail. It drains approximately 258 acres into Parkers Lake. Monitoring location Parkers Lake 2 (PL2) was monitored annually during 2000 through 2008 and has been annually monitored since 2013. PL2 conveys water under County Road 6 and outlets near the lake. It is located on the northwest side of the lake adjacent to the public boat access. There are 189 acres of multi-residential and industrial land use that drain to PL2.

The City of Plymouth intends to annually monitor PL-1 and PL-2 until data is not required or funds do not allow for continued monitoring. The city could choose to spot monitor in other locations within the watershed as well. The city intends to annually contract the monitoring to the TRPD if they are willing to continue performing the work. Stage and flow would be continuously measured and automated samplers would collect water quality samples in periods of high flow (i.e., snowmelt and after storm events) at locations PL1 and PL2. In addition, samples would be collected manually at a biweekly frequency during periods of baseflow from PL2. Parameters analyzed would include total phosphorus, soluble reactive phosphorus, total nitrogen, total suspended solids, and chloride.

A.2.4 City of Plymouth (Parkers Lake Monitoring)

Monitoring Plan ID: CITY PLMTH

Planned Monitoring Interval: Regular basis

Description:

The City of Plymouth contracted with the TRPD to monitor Parkers Lake annually during 2001 through 2009 and during 2013, 2014, 2016, 2018, 2019, and 2022. The city intends to continue monitoring Parkers Lake on a regular basis, but will not duplicate the efforts of the BCWMC. The city intends to contract with the TRPD to complete the monitoring if they are willing to continue the partnership. During monitored years, Parkers Lake would be monitored bi-weekly from ice-out through September and once after fall turnover in October. Profiles of dissolved oxygen, temperature, specific conductance, oxidation reduction potential, and pH would be measured at 1-meter intervals from the lake's surface to its bottom. Secchi disc transparency would be measured from the lake's surface to the depth at which the disc is no longer visible. Total nitrogen and chlorophyll *a* samples would be collected at or near the lake's surface. Total phosphorus and soluble reactive phosphorus samples would be collected at or near the lake's surface, at the middle of the lake's water column, and near the lake's bottom. Chloride samples would be collected at or near the lake's surface and near the lake's bottom.

TRPD collects one set of field duplicates from each field crew that samples each day and rotates the field duplicate sites each week in a randomized way. Because each field crew samples multiple sites each day, field duplicates will sometimes be collected from Parkers Lake and sometimes from other sites.

During monitored years, the TRPD would also complete two point-intercept aquatic plant surveys (spring and fall).

A.2.5 Metropolitan Council Community Assisted Monitoring Program (CAMP)

Monitoring Plan ID: CAMP

Planned Monitoring Interval: Annually in Priority 1 and Priority 2 waterbodies

To be determined in non-Priority waterbodies (as requested by the member cities and approved by the Commission)

Description:

The Metropolitan Council's Community Assisted Monitoring Program (CAMP) has been collecting water quality data on dozens of Twin Cities metropolitan area lakes since 1980. On a bi-weekly or monthly basis (April - October), volunteers collect a surface water sample for laboratory analysis of total phosphorus, total Kjeldahl nitrogen, and chlorophyll-a, obtain a Secchi transparency measurement, and provide some user perception information about each lake's physical and recreational condition. Laboratory analysis of collected samples is performed by the Metropolitan Council Environmental Services.

The BCWMC will fund the inclusion of Priority 1 and Priority 2 waterbodies in CAMP.

A.2.6 Metropolitan Council Watershed Outlet Monitoring Program

Monitoring Plan ID: WOMP

Planned Monitoring Interval: Annually on the Main Stem of Bassett Creek

Description:

The Watershed Outlet Monitoring Program (WOMP) is coordinated by the Metropolitan Council Environmental Services (MCES) and consists of a network of monitoring stations located throughout the Twin Cities Metro Area. The Bassett Creek WOMP site is located at Mile 1.7 near Van White Boulevard, about a half mile upstream of the storm sewer tunnel that runs beneath downtown Minneapolis to the Mississippi River. The BCWMC performs flow monitoring at the Bassett Creek WOMP station to assist MCES with the rating curve development through an agreement with MCES. The BCWMC is partially reimbursed ($5,000) for its costs to perform the flow monitoring. MCES pays for all equipment, maintenance, power, cell service and laboratory analysis of samples for the monitoring site and maintains the rating curve. The BCWMC runs the monitoring station including measuring flow to assist MCES with the rating curve and collecting water quality samples.

The Bassett Creek station measures stage and calculates the conversion of stage readings into discharge using a rating curve polynomial. The BCWMC performs rating curve measurements routinely every six weeks and performs additional measurements as conditions require. The BCWMC downloads the rating curve data via modem and shares the data with MCES.

An automatic sampler equipped with 1-liter sample bottles is also housed at the station. When stream stage increases to a chosen trigger depth the data logger controls and activates flow pacing to the sampler. The sampler collects flow-weighted samples during each storm. Specific conductance and temperature are continually recorded.

During runoff events, the individual flow paced samples are collected and combined into one large sample for analysis. In addition, the BCWMC manually collects biweekly grab samples year-round as conditions permit. The BCWMC delivers the samples to MCES where they are analyzed in the MCES laboratory for water quality parameters, including chloride, *Escherichia* coli bacteria, total and volatile suspended solids, nutrients (total dissolved phosphorus, ortho phosphorus, total phosphorus, nitrate plus nitrite nitrogen, total Kjeldahl nitrogen, and ammonia nitrogen), and chlorophyll *a*. Parameters analyzed quarterly (the first grab sample of March, June, September, and December) include hardness (calcium plus magnesium), total alkalinity, sulfate, total organic carbon, and metals (cadmium, chromium, copper, lead, nickel, and zinc). Analytical methods and details are shown in Table MP-5. Instantaneous stage, flow, pH, dissolved oxygen, temperature and specific conductance are measured during grab sampling events.

The BCWMC collects one field blank and one field replicate annually. The field blank and field replicate samples are analyzed for the same parameters as the original sample.

The MCES collects macroinvertebrate samples annually at the WOMP station location in August/September.

The BCWMC will continue to cooperate with the Metropolitan Council on monitoring activities at the WOMP station.

A.2.7 Minneapolis Park and Recreational Board (Wirth Lake Monitoring)

Monitoring Plan ID: MPRB

Planned Monitoring Interval: Annually in Wirth Lake

Description:

The Minneapolis Park and Recreational Board (MPRB) monitors Wirth Lake annually. Monitoring includes one winter sample in January or February, one spring sample in March or April, two samples per month from May through September, and one fall sample in October or November. All samples are collected at mid-lake from a point directly over the deepest point in Wirth Lake. In addition, samples are collected weekly from mid-May through August near the swimming beach. Sampling parameters and frequency at the time this watershed management plan was written are shown in Table MP-8, but may be subject to change in the future.

Table MP-8 Sample location, parameters measured, and sampling frequency

Sample Location	Sampling Frequency	Parameters
Beach	Weekly from mid-May through August	*Escherichia* coli bacteria
Beach	Weekly from mid-May through August	Cyanotoxins
Mid-Lake	Once winter, once spring, twice per month May-September, and once fall	Chloride, chlorophyll *a*, specific conductance, dissolved oxygen, pH, phycocyanin, phytoplankton, Secchi disc transparency, temperature, and nutrients (total nitrogen, total phosphorus, and soluble reactive phosphorus)

Sample Location	Sampling Frequency	Parameters
Mid-Lake	Once winter, once spring, once per month May-September, and once fall	Silica
Mid-Lake	Once spring, once per month May-September, and once fall	Zooplankton
Mid-Lake	Once winter, once spring, twice between May-September, and once fall	Alkalinity, hardness, and nitrogen (ammonia nitrogen, nitrate/nitrite nitrogen, and total Kjeldahl nitrogen)
Mid-Lake	Once in August	*Escherichia* coli bacteria
Mid-Lake	Once August	Zebra mussel eDNA
Mid-Lake	Three times between June and September	Zebra mussel veliger tow

Aquatic invasive plants in Wirth Lake are delineated annually, typically in August, at the swimming beach and boat launch areas to meet MDNR permitting requirements for MPRB's aquatic plant harvesting operations. The MPRB intends to conduct a point intercept survey in Wirth Lake for aquatic plants at least one time during the 2025 through 2034 period, but had not determined the survey year at the time this watershed management plan was written. The BCWMC intends to conduct a point intercept plant survey in Wirth Lake every three years, but will not duplicate the efforts of the MPRB.

A.2.8 City of Minnetonka (Crane Lake Monitoring)

Monitoring Plan ID: CITY MTKA

Planned Monitoring Interval: 3-year cycle in Crane Lake

Description:

The City of Minnetonka monitors Crane Lake on a 3-year cycle. The city program has typically been flexible and willing to shift their schedule to prevent overlap with monitoring efforts by BCWMC on Crane Lake in a given year. Monitoring includes collecting one sample within two weeks of ice-out and monthly samples during June through September for a total of five samples during each year of monitoring. Parameters monitored during each sample event include Secchi disc transparency, temperature, dissolved oxygen, pH, specific conductance, turbidity, total phosphorus, chlorophyll *a*, and chloride. The City of Minnetonka typically does not perform an aquatic plant survey as a part of their Crane Lake monitoring program.

Table MP-9 BCWMC 10-year Monitoring Plan

Waterbody Type	BCWMC Management Classification	Waterbody Name	Year									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Lake	Priority 1 Deep	Medicine Lake	TRPD	TRPD	TRPD+ PLANT ZOO-PHYTO	TRPD	TRPD	TRPD+ PLANT ZOO-PHYTO	TRPD	TRPD	TRPD+ PLANT ZOO-PHYTO	TRPD
		Parkers Lake	CAMP/CITY PLMTH[1]	CAMP/CITY PLMTH[1]	CAMP/CITY PLMTH[1]	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP/CITY PLMTH[1]	CAMP/CITY PLMTH[1]	BC-LWQ/CAMP PLANT ZOO-PHYTO [1]CAMP	CAMP/CITY PLMTH[1]	CAMP/CITY PLMTH[1]	BC-LWQ/ CAMP PLANT ZOO-PHYTO
		Sweeney Lake	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP
		Twin Lake	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP
		Wirth Lake	MPRB[2]	PLANT/MPRB[2]	MPRB[2]	PLANT/MPRB[2]	MPRB[2]	MPRB[2]	PLANT/MPRB[2]	MPRB[2]	MPRB[2]	PLANT/MPRB[2]
	Priority 1 Shallow	Northwood Lake	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO
		Westwood Lake	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP
	Priority 2 Shallow	Crane Lake	BC-LWQ/CAMP/CITY MTNKA PLANT ZOO-PHYTO	CAMP	CAMP	CAMP/CITY MTKA	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP/CITY MTKA	CAMP	CAMP	CAMP/CITY MTKA
		Lost Lake	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP
		Cavanaugh Lake (Sunset Pond/Sunset Hills Pond)	CAMP	CAMP	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO	CAMP	CAMP	CAMP	CAMP	BC-LWQ/CAMP PLANT ZOO-PHYTO

Table MP-9 BCWMC 10-year Monitoring Plan *(Continued)*

Waterbody Type	BCWMC Management Classification	Waterbody Name	Year									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Stream	Priority Stream	Main Stem Bassett Creek	WOMP	WOMP	WOMP	WOMP	WOMP	BIO WOMP	WOMP	WOMP	WOMP	WOMP
		North Branch Bassett Creek	SWQ	--	--	--	--	BIO SWQ	SWQ	--	--	--
		Plymouth Creek	CITY PLMTH	CITY PLMTH	CITY PLMTH	BIO SWQ/CITY PLMTH	SWQ/CITY PLMTH	CITY PLMTH	CITY PLMTH	CITY PLMTH	CITY PLMTH	BIO SWQ/CITY PLMTH
		Sweeney Branch Bassett Creek	--	BIO SWQ	SWQ	--	--	--	--	BIO SWQ	SWQ	--

Notes:

TRPD	Detailed water quality monitoring of Medicine Lake performed by Three Rivers Park District
TRPD+	Same as TRPD, but BCWMC contracts with TRPD to collect and analyze samples at second monitoring location
BC-LWQ	Detailed lake water quality monitoring performed by BCWMC (or contracted party)
CAMP	Surface water quality monitoring by Metropolitan Council's Community Assisted Monitoring Program (CAMP), or equivalent program
MPRB	Detailed water quality and phytoplankton/zooplankton monitoring performed by Minneapolis Park and Recreation Board
ZOO-PHYTO	Zooplankton/phytoplankton monitoring performed by BCWMC (for Medicine Lake TRPD collects the samples and BCWMC analyzes the samples)
PLANT	Aquatic plant survey performed by BCWMC twice per monitoring season (June and August) (for Medicine Lake TRPD performs the aquatic plant surveys; TRPD performs these at no cost to BCWMC)
BIO	Invertebrate monitoring and biotic index analysis performed by the BCWMC
SWQ	Automated water quality monitoring of stream locations performed by BCWMC (or contracted party)
WOMP	Watershed Outlet Monitoring Program facilitated by Metropolitan Council Environmental Services
CITY MTKA	Detailed water quality monitoring performed by the City of Minnetonka (or contracted party)
CITY PLMTH	Detailed water quality monitoring performed by the City of Plymouth (or contracted party)
1	The City of Plymouth intends to continue contracting with TRPD to monitor Parkers Lake on a regular basis; monitoring will not duplicate efforts of the BCWMC. The City of Plymouth will also monitor the South inlet to Parkers Lake (PL-1) and the North Inlet to Parkers Lake (PL2) annually until data isn't required or funds do not allow for monitoring the inflow.
2	MPRB plans to conduct a point intercept plant survey at least once during 2025-2034 but has not set a date for the survey. The BCWMC will complete an aquatic plant survey in 2026 and then every three years starting in 2028; monitoring will not duplicate efforts of the MPRB.

APPENDIX C: Education and Engagement Plan

1.0 Overview

This document supports the education and engagement goals of the 2026 Bassett Creek Watershed Management Plan ("Plan") (Section 3.0). The issue statements and the goals developed to address them are listed below. Specific implementation activities found in Table 4.5 in of the Plan are referenced within each section of this Education and Engagement Plan.

- **ISSUE 1: Public awareness and action** - 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.

    Goal 1: Increase public knowledge of and participation in programs or practices for waterbody and ecosystem caretaking.

    Goal 2: Increase the number of people who access watershed information and improve accessibility to information.

    Goal 3: Support community science and volunteer efforts

- **ISSUE 2: Engagement with diverse communities** - Efforts are needed to engage and build relationships with communities that have been under-represented in past BCWMC planning, programs, and projects.

    Goal 1: Establish and maintain relationships and communication avenues with under-represented communities

    Goal 2: Seek, consider, and respond to input from all impacted communities as part of the BCWMC's plans, programs, and projects.

    Goal 3: Incorporate Dakota place names, history, culture, and Indigenous knowledge into BCWMC projects and programs.

- **ISSUE 3: Recreational opportunities** - 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.

    Goal 1: Support recreational uses of, and access to lakes, streams and natural areas, particularly in underserved communities.

    Goal 2: Consider protecting and enhancing recreational functions of and access to waterbodies and natural areas during BCWMC planning and projects.

This plan is a guide for both 1) disseminating information to various audiences (educating) and 2) engaging with people and communities for collaborative work in improving water and natural ecosystems. Audiences and communities that are part of this work are varied but generally include watershed residents, businesses, policymakers, city staff, educators, students, neighborhood organizations, Native community members,

and others. BCWMC commissioners and alternate commissioners are another audience as recognized under the "commissioner training" section of this plan.

For *education* components of this plan, the BCWMC aims to educate on a variety of topics including:

- The BCWMC as an organization including its structure, history, authorities, and funding;
- The waters of the watershed, their condition, and expectations for future conditions, including the impacts of a changing climate;
- Stormwater pollutants, their sources, and best management practices necessary to protect and improve waters within the BCWMC;
- Volunteer opportunities related to monitoring or improving waters and watersheds;
- Dakota history, culture, and place names as they relate water, land, and natural landscapes;
- Flood potential, flood risk, and flood recovery; and
- Water conservation practices.

On the *engagement* side, this plan recognizes that simply educating audiences may not result in measurable water and watershed improvements. However, authentic engagement and relationship building may help develop "communities of practice" that collectively make a difference and may enhance overall understanding and respect for nature and ecosystems. Different levels of public participation (from inform to consult to empower) may be used to gather input or collaborate with communities on various BCWMC projects and programs. The International Association of Public Participation (IAP2) developed a useful guide on the spectrum of public participation that can be used to develop specific engagement activities.

Funding for implementation of education and engagement activities will largely come from the BCWMC annual operating budget along with collaboration with other entities and possibly grant funding. Each year, the Commission's Education Committee will recommend to the Commission a plan and budget for education and engagement activities. The annual plan and budget will reflect current needs relative to Plan issues and goals, opportunities, and available funding. This Education and Engagement Plan can serve 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 the plan. Some of the partners include Hennepin County, Metro Blooms, West Metro Watershed Alliance, Metropolitan Council, Metro WaterShed Partners, schools, park districts, and neighborhood groups. Some of the activities will be designed to help member cities meet MS4 education & outreach and public

participation goals. 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.

2.0 Commissioner Training & Watershed Tours

Corresponds with Activity EE-1 in Table 4.5

Informed, engaged BCWMC commissioners and alternate commissioners are critical to the organization. While the activities outlined below do not address a specific watershed issue nor goal, well-informed decision makers are necessary for effective and efficient implementation of all activities and progress toward all goals.

The BCWMC will work to ensure that commissioners and alternate commissioners (collectively "commissioners" in this plan) have the knowledge they need for effective and impactful decision making critical to the success of the BCWMC. Newly appointed commissioners, in particular, will be provided with materials and information for efficient and effective onboarding including:

- New commissioner training session through Minnesota Watersheds (typically held during the Minnesota Watershed's annual meeting and conference)
- Minnesota Watersheds Handbook
- Watershed management education materials and training sessions from the Minnesota Board of Water and Soil Resources (currently in development)
- BCWMC new commissioner orientation materials
- One-on-one welcome meeting with BCWMC Administrator, city staff, and others

Current and new commissioners will be encouraged to gain information on a variety of topics from different sources. Many of these educational opportunities will be funded by the BCWMC, including:

- Minnesota Watersheds educational sessions including the annual meeting and conference, legislative briefing, summer tour, Metro Watersheds quarterly meetings, etc.
- Conferences such as the Salt Symposium, Minnesota Water Resources Conference, Minnesota Aquatic Invasive Species Research Council Showcase, etc.
- Watershed tours hosted by BCWMC or hosted by other watersheds

The BCWMC will continue to hold watershed tours every other year for commissioners and partners. Watershed tours of projects and waterbodies are a fun and engaging way to educate and build relationships among commissioners. Tours can incorporate demonstrations, introduce city or partner staff, and provide insights on specific topics.

Finally, if resources allow and the desire is substantial, the BCWMC may also coordinate their own trainings or workshops for commissioners on specific topics, as needed or on a regular basis.

3.0 Public Meetings, Open Houses, and Community Conversations

Supports:
Issue 1 Goals 1 and 2
Issue 2 Goals 1 and 2
Corresponds with Activities EE-2 and EE-4 in Table 4.5

Sharing information and gathering community input on BCWMC programs and projects (particularly capital projects) is a critical engagement activity. **The BCWMC will continue to host public meetings or open houses (often in collaboration with a member city) on proposed capital projects during the feasibility study and again during project design**. These events are an important step in the overall Capital Improvement Program (CIP) process to promote transparency, understand potential opposition to a project, discuss concerns, mitigate conflicts, and ultimately develop a project that is in line with community desires and values.

Similarly, conversations about BCWMC goals, priorities, and activities with various communities in the watershed is warranted. This is particularly important in historically underserved or under-represented areas. **The BCWMC will seek opportunities for engagement, building relationships, and developing avenues of communication, particularly in North Minneapolis neighborhoods.** This may include regular attendance by commissioners and/or staff at neighborhood meetings and events. Engagement with marginalized communities may also be accomplished in collaboration with partnering organizations such as Metro Blooms.

4.0 Digital Communications

Supports:
Issue 1 Goal2
Issue 2 Goal 3
Issue 3 Goal 1
Corresponds with Activities EE-4, EE-5, and EE-6 in Table 4.5

Website: The BCWMC website is a primary avenue for disseminating information on a wide variety of topics. **The BCWMC will update its website for ADA compliance and will regularly maintain the website with updated information. The website will host the following information**:

- Maps of the watershed, project locations, "find your address" function
- BCWMC information such as history, structure, meeting materials and minutes, budgets, annual report, financial audits
- Meeting and event calendar
- Latest news and/or featured projects
- Capital project webpages including project overview and outcomes, project status, announcements, and documents such as feasibility studies, designs, etc.
- Lakes and streams webpages including location, primary information, latest water quality data, links to reports and projects
- Information on Native culture, history, practices
- Educational resources
- Links to partners webpages and related resources

Social Media and Other Digital Content: **As resources allow, the BCWMC will maintain social media accounts to help disseminate information and engage with a broad audience**. Potential platforms include Facebook, Instagram, TikTok, etc. The BCWMC may create and disseminate their own content and will share pertinent content from partners and member cities.

The BCWMC may also use short videos, online training modules, story maps, and other digital communication tools to disseminate education on specific topics. Rather than creating their own content, these resources will likely be developed by partners or agencies and shared or promoted by the BCWMC.

The BCWMC will use both Dakota and English names for the creek as "Ȟaȟá Wakpádaŋ / Bassett Creek" on the website and in digital materials, wherever appropriate.

5.0 Printed Materials

Supports:
Issue 1 Goals 1 and 2
Issue 2 Goal 3

Issue 3 Goal 1
Corresponds with Activities EE-4 and EE-5 in Table 4.5

Although digital communication is sometimes easier to produce and can quickly reach a broad audience, printed materials continue to be an important education tool. **The BCWMC will develop, print, and disseminate (on its own or in collaboration with others) materials such as:**

- Watershed map
- Capital project fact sheets
- BCWMC annual report executive summary
- "10 Things You Can Do" brochure developed by West Metro Water Alliance (WMWA)
- Low Salt, No Salt Minnesota campaign materials or similar messaging
- Aquatic Invasive Species identification cards
- Guides for new homeowners or lakeshore owners on protecting or improving waters

The BCWMC will use both Dakota and English names for the creek as "Ȟaȟá Wakpádaŋ / Bassett Creek" on printed materials, wherever appropriate.

6.0 Signage, Displays, Promotional Items



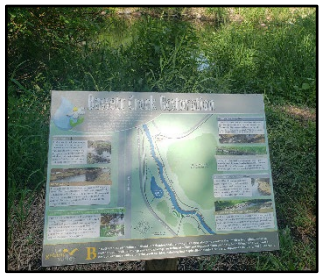
Supports:
Issue 1 Goals 1 and 2
Issue 2 Goal 3
Issue 3 Goal 1 and 2
Corresponds with Activities EE-4 and EE-5 in Table 4.5

Signage in key locations throughout the watershed offers an excellent opportunity to educate the public on topics unique to a specific place or project; or information extrapolated to the broader watershed.

The BCWMC aims to incorporate educational signage at all capital project locations (particularly if the project is in a public space with frequent visitors or foot/bike traffic).

The BCWMC will work with road authorities to install creek identification signs at all major creek crossing locations. Signs along the Main Stem will identify the creek as Ȟaȟá Wakpádaŋ/Bassett Creek.

The BCWMC will work with partners, park districts, and businesses to install signs in key locations and points of interest. Examples include small signs along the creek at Utepils Brewery in Minneapolis, at kiosks along Three Rivers Park District bike trails, or at water access points or boat landings.



The BCWMC will use both Dakota and English names for the creek as "Ȟaȟá Wakpádaŋ / Bassett Creek" on educational materials including signs and displays, wherever appropriate.

When appropriate, signs will include a QR code for additional information on the BCWMC website or other pertinent sites.

The BCWMC will continue to use existing educational displays (e.g., vertical banners or bean bag toss game) **and may develop additional displays, as needed or desired**.



The BCWMC may continue to use "give-away" items to promote certain messages (e.g., dog waste bag dispensers).

7.0 Events, Presentations, Workshops

Supports:
Issue 1 Goals 1, 2 and 3
Issue 2 Goals 1, 2 and 3
Corresponds with Activities EE-2 and EE-4 in Table 4.5

There is no substitute for the benefits gained from engaging with residents, public officials, and others at in person events. A robust conversation on streams or lakes, the challenges they face, and ways to improve them is an opportunity not only to inform, but to learn, understand, and build trust.

The BCWMC will continue to participate in and/or promote events throughout the watershed to engage with residents and partners, disseminate written materials, answer questions, and learn their concerns or observations. Examples of events for "tabling" and/or brief presentations from BCWMC staff or commissioners include farmers markets, sustainability fairs, neighborhood or community events, clean up events, invasive species pulling events, etc.

Presentations by BCWMC staff or commissioners are another way to convey information and provide an opportunity for dialogue. Examples of venues for presentations on specific topics or general watershed or BCWMC information include:

- Lake association meetings
- City council or commission meetings
- Neighborhood association meetings
- Presentations at conferences and meetings such as the MN Watersheds annual conference, MN Watersheds summer tour, Minnesota Water Resources Conference, etc.
- History museums and organizations
- Ȟaȟá Wakpádaŋ Water Blessing Ceremony

Finally, workshops sponsored or promoted by the BCWMC can educate various audiences on specific topics, usually with the goal of changing behavior or encouraging an activity. Examples include:

- Shoreline restoration workshop
- Low Salt, No Salt Minnesota presentation for property managers or boards of homeowners' associations, faith-based communities, etc.
- Raingarden or native plantings workshop
- AIS Early Detection Training
- Invasive species management workshop
- BMP maintenance workshop

8.0 Leveraging Education through Partnerships

Supports:
Issue 1 Goals 1, 2 and 3
Issue 2 Goals 1, 2, and 3
Issue 3 Goals 1 and 2
Corresponds with Activities EE-3 and EE-4 in Table 4.5

The BCWMC will continue to augment its educational programming and funding through a variety of existing programs and partnerships.

Coordination with Member Cities – The BCWMC will collaborate with member cities on educational activities whenever possible. BCWMC education programs and messages will aim to augment and align with member city education activities, avoiding duplication or conflicting messages. Member cities have education requirements through their MS4 permits that may be enhanced or even met by BCWMC education activities. The BCWMC will provide member cities with a letter of understanding in the first quarter of each year to report on the education activities of the prior year. Cities may wish to incorporate the letter into annual reporting for their MS4 permit.

West Metro Water Alliance (WMWA) – WMWA is a partnership (currently) among four watershed organizations in the west metro including BCWMC, Shingle Creek WMC, Elm Creek WMC, and West Mississippi WMC. These watersheds pool funding to collaboratively develop and implement educational content with consistent messages. The BCWMC is a voting member of the group which meets monthly. WMWA tracks activities, produces an annual report, and has previously received grants for specific programs. Shingle Creek WMC is the fiscal and contracting agent for WMWA. Examples of products and programs of WMWA include:

- Watershed PREP 4th and 5th grade education program: WMWA contracts with educator(s) to deliver lessons on watersheds, water pollution, etc. that meet MN State Science Standards.

- Educational Displays and Materials: WMWA developed the "roots display" (available for use at community events), handouts/digital content for various topics such as pet waste and chlorides, and the "10 Things You Can Do" brochure.
- Coordinates Conservation Specialist: WMWA directs the WMWA-specific work of this shared position with Hennepin County (more information below).

Conservation Specialist: In 2023 Hennepin County hired a Conservation Specialist that is shared (50-50) between the county and WMWA (plus Richfield-Bloomington WMO) on outreach and implementation programming. This position is funded through a variety of sources including WMWA; Minnesota Board of Water and Soil Resources Watershed Based Implementation Funds (through BCWMC), Shingle Creek WMC, West Mississippi WMC, Elm Creek WMC, Richfield-Bloomington WMO; and Hennepin County. This person assists WMWA with developing and disseminating educational content, participating in educational events, promoting the Adopt-a-Drain program, delivering Low Salt, No Salt Minnesota messages, and coordinating targeted community engagement projects in each watershed.

The BCWMC shares and supports the long-term vision of WMWA to expand its ability to provide and facilitate a variety of educational activities to achieve greater levels of conservation implementation though coordinated programming. This long-term vision includes a full time Education and Outreach Coordinator to provide programming and technical services and to coordinate the efforts of many partners toward common goals. The model for this program is the East Metro Water Resource Education Program (EMWREP), a partnership of Washington County, Washington Conservation District, eight WMOs, and 15 cities and townships.

Metro WaterShed Partners Membership & Adopt a Drain: The BCWMC will continue to provide financial support to the Metro WaterShed Partners and the Adopt-a-Drain Program. Metro WaterShed Partners maintains a listserv and a website as forums for information sharing, holds monthly meetings for members to collaborate, and coordinates the Adopt-a-Drain program. As staffing and resources allow, the BCWMC may participate in monthly meetings.

Partnership with Metro Blooms: The BCWMC will continue its support and partnership with Metro Blooms on outreach, engagement, and project installation in Near North neighborhoods in Minneapolis. Metro Blooms "partners with communities to create resilient landscapes and foster clean watersheds, embracing the values of equity and inclusion to solve environmental challenges." The projects aim to engage residents and commercial businesses, train youth, and install water quality practices in Minneapolis' Near North neighborhoods. The BCWMC will collaborate on grant-funded projects and offer its own financial support. These programs result in authentic and sustained engagement with Minneapolis residents and commercial/institutional property owners and help to build trust and understanding. Further, projects implemented in collaboration with residents and businesses result in actual water quality improvements.

Volunteer Monitoring Programs: The BCWMC will continue to participate in the Citizen Assisted Monitoring Program (CAMP) through an agreement with the Metropolitan Council. This program engages with volunteers to collect samples and data from BCWMC priority lakes throughout the watershed. The data are used to augment data collected by the BCWMC through its regular monitoring program. The BCWMC

will consider partnering with other water or wetland monitoring programs if they become available (e.g., River Watch, Wetland Health Evaluation Program).

Friends of Bassett Creek: The BCWMC will continue to lend support and assistance, as resources allow, to Friends of Bassett Creek for events such as invasive species pulls or native plantings, development of restoration plans or projects, or other activities undertaken by the group.

Community Members: The most impactful group of partners in water protection and improvement are the people who live, work, and recreate in the watershed. As opportunities arise or upon request, the BCWMC will partner with individual residents, neighborhood groups, civic organizations, faith based communities, or others to improve knowledge or provide resources for improved watershed stewardship.

9.0 Cost Share Programs

Supports:
Issue 1 Goals 1 and 3
Corresponds with Activity EE-7 in Table 4.5



The BCWMC may develop and implement a cost share program for residents and partners to incentivize the implementation of smaller projects and best practices such as shoreline protection or restoration, rain gardens, chloride reduction projects, habitat improvement, native plantings, etc. A cost share program could be implemented in collaboration with partners such as member cities, non-profit organizations, neighborhood associations, multi-family housing properties, etc. Such a program could be paired with workshops related to specific practices (such as shoreline restoration workshops) and may be contingent on grant funding to the BCWMC for implementation.

10.0 Program Evaluation

The BCWMC will evaluate the reach and relative impact of its education and engagement activities. Evaluation could take the following forms:

1. Surveys to understand public's awareness, knowledge, use, and perception of water resources and their use of best practices. Surveys can be implemented in conjunction with cities or other entities or done through the BCWMC.
2. Number of commissioners attending workshops, trainings, conferences, etc.
3. Number of copies of watershed maps, brochures, or written materials that are disseminated.
4. Number of events held by BCWMC or with BCWMC participation.
5. Number of meetings or events attended by BCWMC representatives in historically under-represented or marginalized communities

6. Number of signs installed (creek crossing signs, CIP project signage, etc)
7. Number of people attending or contacted through events, tours, open houses, public meetings, etc.
8. Number of unique and total website visits
9. Number of engagements on social media
10. Program/workshop evaluations submitted by participants
11. Number of volunteers
12. Number of storm drains adopted and pounds of material reported as removed
13. Number of students reached through WMWA Watershed PREP classroom visits

APPENDIX D

BOARD OF WATER AND SOIL RESOURCES

Level II Performance Review

Bassett Creek

Watershed Management Commission

Local Government Unit Review

Final Report

June 17, 2021

Minnesota Board of Water and Soil Resources

520 Lafayette Road North

St. Paul, MN 55155

651-296-0768

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This report has been prepared for **Bassett Creek Watershed Management Commission** by the Minnesota Board of Water and Soil Resources (BWSR) in partial fulfillment of the requirements of Minnesota Statutes, Chapter 103B.102, Subd.3.

Prepared by Brett Arne (brett.arne@state.mn.us; 218-850-0934).

BWSR is reducing printing and mailing costs by using the Internet to distribute reports and information to wider audiences. This report is available in alternative formats upon request.

Introduction

This is an informational document prepared by the staff of the Board of Water and Soil Resources (BWSR) for the Bassett Creek Watershed Management Commission. It reports the results of a routine performance review of this organization's water management plan implementation and overall organizational effectiveness in delivery of conservation projects and programs. The findings and recommendations are intended to give local government units (LGUs) constructive feedback they can use to enhance their joint and individual delivery of conservation services.

For this review, BWSR has analyzed data submitted by Bassett Creek WMO's Administrative staff, including the reported accomplishments of their management plan action items, determined the organization's compliance with BWSR's Level I and II performance standards, surveyed members of the organization and their partner organizations for feedback, and conducted a routine spot check of Wetlands Conservation Act activities if applicable.

This routine evaluation is neither a financial audit nor an investigation and it does not replace or supersede other types of governmental review of local government unit operations.

While the performance review reported herein has been conducted under the authority granted to BWSR by Minnesota Statutes Chapter 103B.102, this is a staff report and has not been reviewed or approved by the BWSR board members.

What is PRAP?

PRAP is an acronym for BWSR's Performance Review and Assistance Program. Authorized by the 2007 Minnesota legislature, the purpose of PRAP is to support local delivery of conservation and water management by periodically reviewing and assessing the performance of local units of government that deliver those services. These include soil and water conservation districts, watershed districts, watershed management organizations, and the local water management functions of counties.

BWSR has developed four levels of review, from routine to specialized, depending on the program mandates and the needs of the local governmental unit. A Level I review annually tabulates all local governmental units' compliance with basic planning and reporting requirements. In Level II, conducted by BWSR once every ten years for each local government unit, the focus is on the degree to which the organization is accomplishing its water management plan. A Level II review includes determination of compliance with BWSR's Level I and II statewide performance standards, a tabulation of progress on planned goals and objectives, a survey of staff and board members of the factors affecting plan implementation, a survey of LGU partners about their impressions of working with the LGU, and a BWSR staff report to the organization with findings, conclusions and recommendations. BWSR's actions in Levels III and IV include elements of Levels I and II and then emphasize assistance to address the local governmental unit's specific needs. More details can be found on the BWSR PRAP webpage.

Executive Summary

Minnesota Board of Water and Soil Resources (BWSR) staff met with the administrative consultants and the Bassett Creek WMC board to discuss an evaluation of the water management function of the Bassett Creek Watershed Management Commission. The findings in this document represent the data collected over the course of 60 days of review and the recommendations are a result of the observations and conclusions we have made based on that data. There are four distinct parts of a Level II evaluation conducted via the BWSR Performance Review and Assistance Program (PRAP) as authorized by M.S. 103B.102.

Part 1: Evaluation of the progress made by water management entities toward goals stated in their approved and adopted local water management plans.

Part 2: Review of the entities' adherence to level I and II standards as directed by statutes, policies, and guidelines via a performance standards certification checklist.

Part 3: Board member and staff surveys as well as partner surveys to assess internal and external perceptions of performance, communication, partnerships, and delivery of conservation programs and customer service.

Part 4: Wetlands Conservation Act spot check to evaluate WCA program performance and delivery.

After thorough review of the data we develop a list of Actions and Recommendations to help guide the water management entities in their continued growth of program delivery. We do this to ensure they continue to meet basic standards as established in statutes and policy. We also develop a list of commendations for the great work these entities do as our partners in delivering conservation across the varied landscapes of Minnesota. Each of the above listed parts of the review are described in the findings section of this document, and the completed documents can be found in the notated appendices for further review. This report will be summarized in conjunction with other PRAP level II reports collected in 2021 to be used as the official BWSR PRAP report delivered to the legislature as part of our reporting requirement under M.S. 103B.102.

Key Findings and Conclusions

The Bassett Creek Watershed Management Commission should be commended for their work in implementing core programs, rules, the Wetlands Conservation Act, planning efforts, and building partnerships. The board and administrative consultants are viewed very favorably by their partners and have made significant progress toward implementing their watershed management plan.

Ongoing water management challenges in the metro area have created the necessity to forge stronger working relationships among partners to improve local water management within the watershed, and the switch to comprehensive watershed management plans throughout the state means new opportunities for increased prioritization of projects and available funding.

The Bassett Creek WMC is commended for meeting all of the basic performance standards including having data practices policies, updated capital improvement program, and completing required annual reports. They are also commended for their effective administration of the Wetlands Conservation Act, and also for meeting several high performance standards, a testament to the quality of work they are recognized for by their partners.

Summary of Recommendations

There were several recommendations made by BWSR staff. These recommendations stem from the data we collected through the four parts of this review, as discussed previously. We rely heavily on our relationships with local government staff as well as the input of partners, staff, and board members to make sure we provide recommendations that are relevant, timely, and helpful for the LGUs to implement and improve their operations. The full text of the recommendations can be found in the conclusions section.

Recommendation 1 – Prioritize developing an education and outreach strategy for BCWMC constituents

Recommendation 2 – Conduct a review of the BCWMC capital improvement program (CIP)

Recommendation 3 – Develop clear, measurable goals and actions for future plan implementation

Recommendation 4 – Prioritize all training opportunities for staff implementing WCA

Recommendation 5 – Consider a WCA appeals fee and clarify the appeals process

Findings

This section describes what BWSR learned about the performance of the Bassett Creek Watershed Management Commission via the various collection methods as outlined below.

Findings Part 1: Planning

The findings in this section describe the Bassett Creek Watershed Management Plan and action items and the accomplishments to date.

As part of this review, the administrator for BCWMC prepared a table (See Appendix A) listing the accomplishments to-date for each of the action items for which they are responsible. The table contains a progress rating applied by BWSR to each item indicating whether it has been completed or its target was met, whether progress has been made and work is continuing, or whether it was dropped or not started yet.

In reviewing the Watershed Management Plan for BCWMC, it was noted that there were 122 action items listed. These action items were actually called "policies" within the plan, but denote the ongoing plan items with which the BCWMC is making progress. These 122 action items were separated by 10 specific objectives or "policy" groupings:

- Water quality
- Flooding and rate control
- Groundwater management
- Erosion and sediment control
- Stream restoration and protection
- Wetland management
- Public ditches
- Recreation, shoreland, and habitat management
- Education and outreach
- Administration

Typically, fewer action items in a long-range plan denote more broad, continuous activities and fewer specific goals. Conversely plans with too many action items may be too specific to be achievable within a reasonable timeframe. The BCWMC watershed management plan falls toward the middle of the scale in regards to metro watershed management plans and is a moderately aggressive plan. What we found in our review was that just over the halfway point of plan implementation there was identifiable progress made toward 115 of the actions. 15 of the identified actions had been completed or the target has been met, and we found that seven action items had not been started or they were dropped – although a few of these items were denoted as the responsibility of other agency partners as well. Typical of plans with numerous action items, much of the work completed by the BCWMC is part of ongoing programs.

The BWSR rated version of the Plan Progress Evaluation Table submitted by Bassett Creek staff is contained in Appendix A, pages 13-42.

Findings Part 2: Performance Standards

BWSR has developed a set of performance standards that describe both basic requirements and high-performance best management practices related to the overall operation of the organization. These standards are different depending on the type of LGU. Nevertheless, each set of standards addresses four areas of operation: administration, planning, execution, and communication/coordination. The basic standards describe practices that are either legally required and defined by state statute or fundamental to watershed management organization operations as determined by BWSR board policies. Each year BWSR tracks all of Minnesota's water management LGUs' compliance with a few of the basic standards to make sure our partners stay in compliance with statutory or other legislative requirements. These typically include annual report submittals for BWSR grant activities, website reporting requirements, and financial reporting requirements as well.

The high-performance standards describe practices that reflect a level of performance that exceeds the required practices and may be items found within BWSR guidance materials. While all local government water management entities should be meeting the basic standards, only the more ambitious ones will meet many high-performance standards. The performance standards checklists submitted and reviewed for Bassett Creek WMC are contained in Appendix B, pages 43-44.

For this Level II review, BCWMC reports compliance with all of 17 applicable basic standards, and 8 of 11 high performance standards. The high achievements noted include:

- BCWMC has a consultant administrator on retainer
- Certified wetland delineator on staff or retainer
- Tracking water quality trends for specific waterbodies
- Tracking watershed hydrologic trends
- Track progress toward information and education objectives within the watershed management plan
- Operational partnerships/cooperative projects accomplished with neighboring organizations
- Coordination with cities, townships, county and SWCD boards
- Current operation guidelines for fiscal procedures and conflicts of interest

Findings Part 3: Internal and External Surveys

Part 3 of this performance assessment is based on responses to an on-line survey of LGUs' staff and board and an online survey to partner organizations. The board and staff were asked different survey questions than the partners. The survey questions are designed to elicit information about LGU successes and difficulties in implementing plan goals and objectives and assessing the extent and quality of partnerships with other related organizations.

Internal Survey: Self-Assessment by BCWMC consultant staff and Board Members

A total of 18 staff and board members of the BCWMC were invited to take the online survey, and 11 responses were provided (61%).

***Please note: Information in this section has been analyzed and paraphrased to keep responses anonymous*.**

Survey participants were asked which programs or projects they consider to be particularly successful over the past few years. Examples given for Bassett Creek WMC were:

- Capital Improvement Program
- DeCola Ponds project
- Harrison neighborhood outreach
- Aquatic invasive species rapid response
- Plymouth Creek restoration
- Sweeney Lake water quality improvements

When asked why these projects and programs were successful, the following examples were given:

- Efficiency and competency of the BCWMC
- Coordination and collaboration with city staff
- Successful grant writing
- Good planning
-

The BCWMC staff and Board were asked to provide examples of areas where the agencies' work has been difficult to implement, as well as potential explanations for the difficulties. Answers provided are summarized below.

Identified Difficulty	Examples/Causes provided in survey (*paraphrased*)
• Regulatory program • Some CIP projects • Chlorides • Jevne Park stormwater improvement project • Water monitoring • Flooding • Schaper Pond baffle	• *Regulatory program hampered by joint-powers limitations, disagreement on thresholds and criteria* • *CIP projects on hold for changing timelines due to market forces, also unwillingness to partner* • *Defunct lake association* • *High costs for projects* • *Carp causing problems* • *Finding space and funding for flood management projects*

Participants for the BCWMC survey were asked to list partners they had good working relationships with:

- All nine member cities
- Three Rivers Park District
- Minneapolis Park and Recreation Board
- Metro Blooms
- Metropolitan Council
- FEMA
- Government partners
- Barr Engineering
- Westwood Hills Nature Center
- West Metro Water Alliance

The survey also asked participants to identify organizations with whom they would like to collaborate with more often:

- Minneapolis Park and Recreation Board
- Non-profits
- Developers
- Twin West chamber of commerce
- Business owners
- Real estate/property management communities
- FEMA

Finally, the BCWMC staff and board were also asked to identify ways to improve the effectiveness of their organizations. Responses are summarized below:

- *Reduce the number of commissioners and compensate commissioners*
- *Contract with or hire more staff*
- *More funding for education*
- *Continue building support for state-wide chloride legislation*
- *Increase competition for engineering services*
- *Significantly more funding*

The full content of internal and external survey responses can be found in Appendix C, pages 45-49.

External Survey: Assessment of BCWMC by Partners

Bassett Creek WMC Partners Survey: BWSR was provided a list of 33 partners by BCWMC staff. 18 partners responded to the survey for a better-than 50% response rate which is excellent. These partners reported a wide range of interaction with the BCWMC over the past 2-3 years: 50% of the respondents reported they interacted with BCWMC in some way several times a year, 31% reported monthly interaction and 19% said almost every week. 94% of the respondents indicated that the amount of interaction they had with the BCWMC overall was about right.

The partners also assessed their interactions with the BCWMC in five operational areas within the survey. The partners' rating of the commission's work in these areas was overwhelmingly "strong" or "good" indicating a very strong working relationship between the partners and BCWMC. 100% of the partners rated the district's communications as strong or good which is excellent. Quality of work, again was mostly strong to good as well with a combined rating of 94% between those two categories with the remaining 6% rated as "I don't know".

Performance Area	BCWMC Partner Ratings (percent)				
	Strong	Good	Acceptable	Poor	Don't Know
Communication	44%	56%	0%	0%	0%
Quality of Work	63%	31%	0%	0%	6%
Customer Relations	50%	25%	0%	0%	25%
Initiative	63%	19%	6%	0%	12%
Timelines/ Follow through	75%	25%	0%	0%	0%

Relationships with customers were judged to be strong by 50% of the partners while 25% rated it good with 25% of respondents indicating they didn't know.

Partner ratings for the BCWMC's initiative and timelines were rated strong and good as well, again with no ratings below the acceptable level.

The partners' overall rating of their working relationship with the BCWMC was Strong (44%), and Powerful (38%). There were three ratings that indicated their working relationship was good, but it could be better. It should be noted that there were no ratings of "poor" in any category which indicates the BCWMC maintains strong relationships with partners and should be commended for their efforts.

A couple of partners chose to make comments about their working relationship with the BCWMC:

- *Would be good to have more collaborative opportunities related to education and outreach*
- *The staff and board are very supportive of our partnership and willing to try new projects and rely on our expertise*

When partners were asked for additional thoughts about how the BCWMC could be more effective, they mostly indicated that they are already very effective and provided the following summarized comments:

- *The BCWMC is doing a great job with its partners and I think that continuing on the path they are currently on will serve them well.*
- *They do quite a bit with the investment they make in projects and staff. They invest less than some of the surrounding watersheds, though and they could make an even bigger impact with even small increases in revenue.*
- *BCWMC and Laura Jester, specifically, are phenomenal advocates for our lake and improving water quality.*
- *They would benefit from full time staff and a bigger budget.*

Findings Part 4: Wetland Conservation Act Administrative Review

BWSR uses the administrative review process to evaluate LGU and SWCD performance related to their responsibilities under the WCA rules, Chapter 8420. The review is intended to determine if an LGU or SWCD is fulfilling their responsibilities under WCA and to provide recommendations for improvement as applicable.

Data for this section of our report was collected via interview(s) with staff, a review of an appropriate number and type of project files, a review of existing documentation on file (i.e. annual reporting/resolutions), and through prior BWSR staff experience/interaction with the LGU or SWCD. Due to the COVID-19 pandemic interviews with staff were conducted virtually.

The review focused on nine performance standards in both the administration and execution of the local WCA program. Compliance with Performance Standards are ranked from "Does not meet minimum requirements", "Meets minimum requirements but needs improvement", to "Effectively implementing the program". If necessary, recommendations to further improve implementation are listed. Several of these standards can also be found as part of the "Performance Standards" checklist that the BCWMC staff completed as part of the overall PRAP report.

The Bassett Creek WMC adopted WCA administration in 2016. The BCWMC has administered WCA on behalf of some member cities since the early 1990s. The BCWMC currently administers WCA on behalf of the cities of Medicine Lake, Robbinsdale, and St. Louis Park. Bassett Creek WMC has delegated WCA decision-making authority in regards to exemptions, no loss, wetland boundary and type applications to staff including the WMC engineer and contracted Administrator. The WMC board serves as the appeals board.

Overall BWSR commends the Bassett Creek WMC and its Staff, especially Karen Wold, for exemplary administration of the Wetland Conservation Act. Although the watershed is highly developed and WCA workload volume is low, Bassett Creek staff do an exceptional job noticing applications on time and making decisions based on rule in a timely manner. Despite some minor administrative or procedural recommendations that if implemented would further strengthen the program, Bassett Creek WMC is effectively and fairly implementing WCA.

Full details regarding the Wetland Conservation Action review can be found in Appendix D, pages 50-53 of this report.

General Conclusions

After a thorough review of the provided information including water plan progress, Wetlands Conservation Act, performance standards, and reviewing the survey inputs we have developed some recommendations for both the Bassett Creek Watershed Management Commission.

In brief review, the BCWMC reports compliance with all of 17 applicable basic performance standards, and 8 of 11 high performance standards. In addition, the BCWMC is meeting all 4 applicable basic WCA Administrative Review performance standards. The BCWMC has demonstrated effectiveness in implementation of core programs and their partners believe they are doing great work and have been generally good to work with. The BCWMC should continue to build strong working relationships with partners to meet the water management and conservation challenges in the watershed.

The Bassett Creek watershed management plan is a moderately aggressive plan with 122 stated actions that were reviewed and progress on plan goals and actions has been excellent with most actions having some progress started and the majority of the actions considered ongoing. We found that the plan however did not have stated measurable resource outcomes for most of the actions so we were unable to judge resource outcomes in general and will be recommended for future planning efforts.

Commendations

Commendations are based on achievement of BWSR's high performance standards (see Findings, Part 2 and Appendix B, pages 43-44). These practices reflect above average operational effectiveness and level of effort.

The Bassett Creek Watershed Management Commission is commended for:

- Maintaining an adequate watershed management plan
- Contracting with and retaining qualified consulting administrative and engineering staff
- Water quality data collected and trends tracked for priority water bodies
- Website contains additional content beyond minimum required
- Coordination with state watershed-based initiatives
- Convening an active technical advisory committee
- Developing a communication piece within the last 12 months

Action Items

Action items are based on compliance with BWSR's basic practice performance standards (see Findings, Part 2 and Appendix B pages 35-38). Action Item address lack of compliance with one or more basic standards.

The BCWMC has no action items to address at this time due to their successful implementation of all applicable basic standards.

Recommendations

This section contains recommendations offered by BWSR to the commissioners and staff of the BCWMC. The intention of these recommendations is to enhance the organization's delivery of effective water and related land resource management and service to the residents of the watershed. BWSR financial assistance may be available to support the implementation of some of these recommendations. See BWSR website for more information: https://bwsr.state.mn.us/prap-grants

Recommendation 1 – Prioritize developing an education and outreach strategy for BCWMC constituents

There were several survey respondents that indicated there were potential roadblocks to implementing education and outreach activities – specifically staff capacity and funding were identified several times as barriers to doing more outreach activities. BWSR recommends that the BCWMC cultivate an education and outreach strategy for their constituents taking into account some of the limitations to make sure education and outreach remains a top priority for the commission. City staff should be included in this discussion on a parallel track through the TAC. Options for implementing the strategy may include annual events, more communication pieces sent to residents, or creating a citizen advisory board for special projects etc.. The comments received on education also seemed to tie into other issues the Commission may face in implementing the CIP program.

Recommendation 2 – Conduct a review of the BCWMC capital improvement program (CIP)

There were numerous barriers to successful completion of BCWMC CIPs identified within the survey. Among them were standard barriers like funding, regulatory constraints, etc. However, landowner willingness was also mentioned specifically for one project, and additional education and outreach efforts may also be helpful. BWSR recommends the BCWMC review the CIP program to identify specific barriers limiting implementation of some large projects, and develop a strategy for addressing those issues, which can be tied to education and outreach strategies as listed in our first recommendation. The strategy could also include a process for implementation which could define a role for neighborhood/community meetings while in the project development phase to build local support.

Recommendation 3 – Develop clear, measurable goals and actions for future plan implementation

After reviewing the BCWMC plan, it is clear that there are numerous activities in an ongoing basis within the Bassett Creek watershed. However, one issue that arose was in identifying clear actions that tie back to specific goals for assessing progress toward goals, and there are no measurable numerical goals for water quality improvement. It is highly recommended as BCWMC embarks on future planning efforts that the next generation plan define a strategy to identify the top resource priorities, identify clear measurable goals and actions, and develop metrics to measure progress. Ensuring that highly prioritized projects are targeted would make it easier to show how the BCWMC impacts its constituents directly and make it easier to communicate the need for projects in terms of achievable water quality improvements.

Recommendation 4 – Prioritize all training opportunities for staff implementing WCA

Continuing education is important for regulatory programs. It was recommended by BWSR WCA staff that any BCWMC staff involved in WCA regulation continue to attend trainings such as BWSR academy, WDCP, WPA and any other training opportunities that arise.

Recommendation 5 – Consider a WCA appeals fee and clarify the appeals process

It was noted by BWSR WCA staff that the appeals process for BCWMC WCA issues was not entirely clear. Appeals are handled by the BCWMC, but on forms such as the Notice of Decision (NOD) it was indicated that BWSR handled the appeals. It was also recommended that BCWMC implement an appeals fee for handling appeals locally.

LGU Comments and BWSR Responses

Bassett Creek Watershed Management Commission board members and staff were invited to comment on the findings, conclusions and joint recommendations in the draft version of this report. BWSR did not receive an official response letter from BCWMC to include in the final report.

Appendix A. Plan Accomplishments

Indicator symbol for Progress Rating: ☐=not started/dropped ○=on-going progress ✧=completed/target met

LGU Name: Bassett Creek Watershed Management Commission Date of This Assessment: April/May 2021

Type of Management Plan: Watershed Management Plan

Date of Last Plan Revision: September 2015 (with minor amendments 2017, 2018, 2020)

Objective: WATER QUALITY POLICIES, page 4-2

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
1. The BCWMC will classify priority waterbodies based on desired water quality standards and other uses of the waterbodies. Table 2-6 lists the management classifications of the priority waterbodies	Classifications were assigned within Plan		Classifications assigned within Plan adopted Sept 2015	✧	Re-evaluate classifications during next plan development
2. The BCWMC adopts MPCA water quality standards (Minnesota Rules 7050, as amended) for BCWMC priority waterbodies (see Table 2-7).	MPCA standards adopted as part of this Plan		Standards adopted with Plan, Sept 2015	✧	Re-evaluate standards during next plan development
3. Member cities shall classify other waterbodies according to the BCWMC classification system and include this information in their local water management plans.	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed

4. The BCWMC will work with stakeholders to manage its priority waterbodies to meet the applicable water quality goals of the BCWMC.	2015-2025	Ongoing	BCWMC does nearly all its work in partnership with member cities including development reviews, CIP project implementation, education, AIS management, modeling and monitoring.	O	Continue existing activities
5. The BCWMC and the member cities will implement the improvement options listed in the BCWMC's CIP (Table 5-3) to address the water quality of priority waterbodies based on feasibility, prioritization, and available funding (see policy 110 regarding CIP prioritization criteria).	2015-2025	Ongoing	See attached table with CIP project implementation status	O	Continue annually implementing CIP program
6. The BCWMC will prioritize water quality improvement projects that are most effective at achieving water quality goals, including non-structural BMPs and education.	2015-2025	Ongoing	Done annually through development of our 5-year CIP in collaboration with our TAC. In 2018, in an effort to better target CIP projects where they would have ethe most benefit, we created the CIP Prioritization Committee which developed a CIP scoring matrix to assess potential projects starting in 2019.	O	Continue using CIP pollutant hot spot maps, flood risk maps, and scoring matrix to target projects
7. The BCWMC will cooperate with member cities, the MPCA and other stakeholders in the preparation of total maximum daily load (TMDL) studies for waterbodies on the MPCA's current or future impaired waters 303(d) list, including Northwood Lake and Bassett Creek. The BCWMC will work to align TMDL implementation items into its Watershed Management Plan to achieve efficiency. The BCWMC will work with the cities to evaluate funding options for the TMDL studies.	Dependent on MPCA timeline	None	We continue to collect extensive monitoring data to assess waterbodies and update our P8 and XPSWMM models to target implementation. However, the MPCA has not initiated TMDL studies for Northwood Lake nor Bassett Creek. All other impairments in the watershed have completed TMDLs.	O	Will work on new TMDLs as opportunities arise. Will continue monitoring and modeling program

8. The BCWMC will continue to identify opportunities to achieve and maintain excellent water quality in priority waterbodies.	2015-2025	Ongoing	Twin Lake has the best water quality of our waterbodies. We continue to monitor the lake (including supporting a CAMP volunteer for years when we're not actively monitoring there). We are currently holding funds for a second alum treatment in the lake if conditions warrant.(First treatment in spring 2015). Other unimpaired waterbodies are regularly monitored and trends closely tracked.	O	Continue monitoring program to track trends and assess needs
9. The BCWMC will continue to monitor its priority waterbodies on a rotating schedule as described in the BCWMC Monitoring Plan	2015-2025	Ongoing	Monitoring program closely follows schedule laid out in monitoring plan. In 2020, the TAC performed a detailed review of the monitoring program to ensure goals were being met and State protocols being followed to adequately assess conditions. The monitoring program changed slightly as a result.	O	Continue implementing monitoring program
10. For every year sampling is conducted for the BCWMC's lakes and/or streams, the BCWMC will compile the available monitoring data, include the data in an annual report available on the BCWMC website, and submit the data to the MPCA in an appropriate format	2015-2025	Ongoing	All applicable monitoring data are submitted to EQIS. User friendly monitoring reports are developed, presented to the Commission and posted online (see individual waterbody webpages). Quick-view water quality graphs are also maintained and available online.	O	Continue existing reporting practices
11. The BCWMC will coordinate monitoring efforts with other programs	2015-2025	Ongoing	In an effort to augment data and utilize existing monitoring efforts, the BCWMC coordinates monitoring with multiple entities including cities, Met Council (WOMP), volunteers (CAMP), MPRB, and TRPD	O	Continue existing coordination efforts

12. The BCWMC requires all stormwater to be treated in accordance with the MPCA's Minimal Impact Design Standards (MIDS) performance goal for new development, redevelopment, and ~~linear projects~~.	2015-2025	Ongoing	Ongoing through development review process. Requirements for linear projects were revised in 2017.	O	Continue implementing development review program
13. The BCWMC will review projects and developments to evaluate compliance with the MPCA's Minimal Impact Design Standards (MIDS) performance goals, triggers, and flexible treatment options	2015-2025	Ongoing	Ongoing through development review process.	O	Continue implementing development review program
14. The BCWMC requires public agencies to comply with water quality management standards and policies presented in this Plan in order to maintain or improve water quality of stormwater runoff.	2015-2025	Ongoing	Ongoing through development review process.	O	Continue implementing development review program
15. Member cities shall not allow the drainage of sanitary sewage or non-permitted industrial wastes onto any land or into any watercourse or storm sewer discharging into Bassett Creek	2015-2025	Ongoing	Included in LWMPs	O	None needed
16. The BCWMC will maintain a water quality model (e.g., P8) for the watershed. Each year, member cities shall provide the BCWMC with plans for BMPs constructed within their city.	2015-2025	Ongoing	BCWMC regularly asks cities for data and information in order to update the model. The BCWMC also incorporates its own CIP projects into the model.	O	Continue regular model updates
17. The BCWMC encourages member cities to implement best management and good housekeeping practices to minimize chloride loading to surface water and groundwater resources, utilizing emerging technology, as appropriate	2015-2025	Ongoing	The BCWMC and cities are continually working to find ways to reduce chlorides including training winter maintenance staff (MPCAs Smart Salt Certification), education materials, and CIP implementation	O	Implement Parkers Lake Chloride Reduction Project; provide education; seek additional chloride reduction opportunities

18. The BCWMC will assist and cooperate with member cities, MPCA, MDNR, MnDOT, other watersheds and other stakeholders in implementing projects or other management actions resulting from the Minnesota Pollution Control Agency's Twin Cities Metro Chloride Project or future chloride TMDL.	2015-2025	Ongoing	BCWMC is a partner (and now coordinator) of the Hennepin County Chloride Initiative. The BCWMC is implementing the Parkers Lake Chloride Reduction Project and is currently instrumental in the development of a chloride management plan template for property managers. The BCWMC has hosted and co-hosted multiple Smart Salting Certification Trainings.	O	Continue to coordinate Hennepin Co. Chloride Initiative and other chloride reduction projects

Objective FLOODING AND RATE CONTROL POLICIES, page 4-5

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
19. The BCWMC will maintain a Flood Control Emergency Repair Fund for funding emergency repairs of the BCWMC Flood Control Project features.	2015-2025	Ongoing	Fund maintained. No expenses to date; $500,000 balance	O	Maintain fund; utilize as needed
20. The BCWMC will maintain a Long-Term Maintenance Fund with annual assessments. The BCWMC will use the Long-Term Maintenance Fund to fund major repairs and major maintenance of the BCWMC Flood Control Project features	2015-2025	Ongoing	Fund maintained. Up to $25,000 added to the fund each year from the annual operating budget. Funds are used for inspections and minor maintenance	O	Maintain fund; annually contribute to fund; reassess fund balance vs. contributions vs. expenses
21. The BCWMC will regularly inspect the BCWMC Flood Control Project system, including water level control and conveyance structures, and perform the follow-up reporting.	2015-2025	Ongoing	Inspections and reporting happen annually on minor FCP features. Reports are sent to member cities. Cities must report back on their maintenance and repairs. The Bassett Creek tunnel components are inspected every 5 years (double box culvert) and 10 years (deep tunnel to Mississippi River).	O	Continue inspections program

22. During the first five years of Plan implementation, the BCWMC will work with the member cities to determine responsibilities for major rehabilitation and replacement of the BCWMC Flood Control Project features and establish the associated funding mechanisms	2016	2016	TAC, Commission, engineers, and legal counsel collaborated on development of the Flood Control Project Policies to assign inspection, maintenance and repair responsibilities and estimated future costs.	✧	Continue to implement policies
23. The BCWMC will finance major maintenance and repair of water level control and conveyance structures that were part of the original BCWMC Flood Control Project on the same basis as the original project.	2015-2025	Ongoing	Codified in Flood Control Project Policies	○	Continue to follow policies
24. Member cities shall be responsible for routine maintenance and repair of BCWMC Flood Control Project structures located within each city	2015-2025	Ongoing	Codified in Flood Control Project Policies. Annual inspection report is sent from BCWMC to cities. Cities are required to perform maintenance/repairs and report back to BCWMC	○	Review city reports to ensure routine maintenance and repairs
25. The BCWMC will reevaluate flood elevations and flood risk to affected properties based on the most recent NOAA precipitation data (e.g., Atlas 14) and will determine actions for protection, including partnering with and applying for grants from Federal and State agencies	2015-2017	2015 – 2017 + 2021	Hydrologic & hydraulic model (XP-SWMM) was updated through a Phase II project using Atlas 14 figures (2017). Floodplain and floodway mapping was updated through FEMA-DNR grant (2021). Multiple BCWMC CIP projects address localized flooding and flood risk.	✧	Adopt new floodplain maps after 2021 mapping update. (Planned for late 2021)

26. When implementing BCWMC flood risk reduction projects, the BCWMC will identify properties prone to flooding. The most effective and reasonable solutions as approved by the member city will be evaluated. Solutions to be considered may include purchase of the properties, with attention to impact on tax base and other community factors	2015-2025	Ongoing	Evaluated with appropriate BCWMC CIP project feasibility studies	○	Continue evaluating with CIP projects
27. The BCWMC will develop criteria for the allocation of funding for flood risk reduction projects, which may include the purchase of property prone to flooding.	2019	-	Instead of allocating funding, thus far the BCWMC has funded flood risk reduction projects through its CIP. Also, the Flood Control Project repairs, etc. will be funded through the CIP.	□	No criteria development planned to date
28. The BCWMC will monitor or coordinate with other entities to monitor water levels on the primary lakes in the watershed.	2015-2025	Ongoing	Accomplished annually through lake level monitoring program, WOMP station, and stream monitoring program	○	Continue lake level and WOMP monitoring
29. The member cities must implement the BCWMC's development policies, including minimum building elevations of at least 2 feet above the 100-year flood level for new and redeveloped structures, as outlined in the BCWMC's *Requirements for Improvements and Development Proposals* document	2015-2025	Ongoing	Implemented through development review process and local controls	○	Continue through development review process

30. The BCWMC encourages property owners to implement best management practices to reduce the volume of stormwater runoff beyond the minimum requirements	2015-2025	Ongoing	Encouraged through checklist of proposed BMPs on the development review application. The intent of the checklist is to help developers/applicants think about other BMPs that could be incorporated in the site plans. Also included in BCWMC educational materials (see "10 Things" brochure)	O	Continue utilizing checklist and educating public
31. The BCWMC and member cities must require rate control in conformance with the Flood Control Project system design and this Plan	2015-2025	Ongoing	Implemented through development review process and local controls	O	Continue through development review process
32. The BCWMC requires cities to manage stormwater runoff so that future peak flow rates leaving development and redevelopment sites are equal to or less than existing rates for the 2-year, 10-year, and 100-year events.	2015-2025	Ongoing	Implemented through development review process and local controls	O	Continue through development review process
33. The BCWMC will revise floodplain elevations along the trunk system as necessary to reflect channel improvement, storage site development, or requirements established by appropriate state or federal governmental agencies	As needed	2017 and 2021	Hydrologic & hydraulic model (XP-SWMM) was updated through a Phase II project using Atlas 14 figures (2017). Updated floodplain maps were adopted. Floodplain and floodway mapping was updated through FEMA-DNR grant (completed March 2021). Adoption of updated floodways is expected later 2021.	O	Adopt new floodplain elevations after 2021 mapping effort (late 2021)
34. The BCWMC will allow only those land uses in the BCWMC-established floodplain that will not be damaged by floodwaters and will not increase flooding	2015-2025	Ongoing	Implemented through development review process.	O	Continue through development review process

35. The BCWMC prohibits the construction of basements in the floodplain; construction of all other infrastructure within the floodplain is subject to BCWMC review and approval	2015-2025	Ongoing	Implemented through development review process.	○	Continue through development review process
36. The BCWMC prohibits permanent storage piles, fences and other obstructions in the floodplain that would collect debris or restrict flood flows.	2015-2025	Ongoing	Implemented through development review process and local controls.	○	Continue through development review process
37. Where streets, utilities, and structures currently exist below the 100-year floodplain, the BCWMC encourages the member cities to remove these features from the floodplain as development or redevelopment allows	2015-2025	Ongoing	Encouraged through review of city projects if review thresholds are triggered	○	Continue through development review process
38. The BCMWC requires that projects within the floodplain maintain no net loss in floodplain storage and no increase in flood level any point along the trunk system. The BCWMC prohibits expansion of existing non-conforming land uses within the floodplain unless they are fully flood-proofed in accordance with codes and regulations.	2015-2025	Ongoing	Implemented through development review process and local controls.	○	Continue through development review process
39. The BCWMC requires member cities to maintain ordinances that are consistent with BCMWC floodplain standards.	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed
40. The BCWMC will review changes in local water management plans, comprehensive land use plans, and other plans, for their effect on the adopted floodplain and Flood Control Project, when such plans are submitted to BCWMC	2015-2025	Ongoing	Reviews performed when submitted.	○	Review as needed

41. The BCWMC will update, as necessary, the existing flood profile to reflect any increases resulting from modifications to a flood storage site or the Flood Control Project 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.	As needed	2017 and 2021	Hydrologic & hydraulic model (XP-SWMM) was updated through a Phase II project using Atlas 14 figures (2017). Updated floodplain maps were adopted. Floodplain and floodway mapping was updated through FEMA-DNR grant (completed March 2021). Adoption of updated floodways is expected later 2021.	○	Adopt new floodplain elevations after 2021 mapping effort (late 2021)
42. BCWMC will review diversion plans to determine the effect of the proposal on the Bassett Creek watershed and such plans will be subject to BCWMC approval.	2015-2025	Ongoing	Reviews performed when submitted.	○	Review as needed
43. The BCWMC will pursue opportunities to collaborate with state agencies and other entities in the development of action plans (or similar management tools) related to the response of surface water and groundwater resources to long-term changes in precipitation and hydrology.	2015-2025	Ongoing	In 2020 and 2021, staff participated in input meetings for the Hennepin County Climate Action Plan; reviewed and commented on draft plan	○	Seek opportunities to collaborate with Hennepin County and other entities on Climate Actions; consider presentation of Climate Action Plan at future meeting
44. The BCWMC will continue to monitor water quantity and quality in the watershed and will seek opportunities to contribute BCWMC data to other datasets, for the purpose of assessing the response of surface water and groundwater resources to long-term changes in precipitation and hydrology	2015-2025	Ongoing	Ongoing work through water quality and quantity monitoring program. Report and provide data as required, requested, and warranted. Floodplain and floodway mapping was updated through FEMA-DNR grant (completed March 2021). Adoption of updated floodways is expected later 2021.	○	Continue monitoring programs and providing data where requested or beneficial

Objective: GROUNDWATER MANAGEMENT POLICIES page 4-8

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
45. The BCMWC will review all MDNR groundwater appropriation permit applications in the BCWMC excluding applications for temporary appropriations permits	2015-2025	Ongoing	Annually reviewed permit applications	○	Continue to review MDNR appropriations permits applications
46. The BCWMC will work with member cities to consider a program to review development or redevelopment projects which include long-term dewatering within 1,000 feet of priority waterbodies	2015-2025	Limited Progress	No actual program considered to date. BCWMC reviews MDNR appropriations permits and comments as needed. In 2020, we reviewed a MDNR appropriations permit city of Plymouth for increasing pumping capacity from one a municipal well. We recommended the DNR perform adequate review to ensure the increased pumping rate does not impact surface water elevations of Medicine Lake, local wetlands, and creek flows. We also recommended additional groundwater monitoring.	□	Continue to review MDNR appropriations permits applications
47. The BCWMC will collaborate with local and state agencies if/when these agencies develop a groundwater action plan in an effort to gain a better understanding of groundwater-surface water interaction and develop management strategies that consider the protection of both resources.	2015-2025, when applicable	NA	No groundwater action plan developed by local or state agencies	□	Will collaborate if/when local or state groundwater action plan is developed

48. To protect groundwater quality, the BCWMC requires infiltration practices to be implemented in accordance with the following guidance for determining the feasibility of infiltration (NPDES, MDH, MIDS)	2015-2025	Ongoing	Review development and redevelopment projects for consistency with BCWMC standards and requirements	○	Continue through development review process
49. The BCWMC encourages member cities to educate residents regarding the importance of implementing BMPs to protect groundwater quality and quantity	2015-2025	Ongoing	BCWMC partners with cities on a variety of education topics including this one.	○	Continue through collaborative education activities
50. Member cities shall share groundwater elevation data, where available, with the BCWMC.	2015-2025	Ongoing	Groundwater elevation data has not been requested from cities to date	○	Request data as needed

Objective: EROSION AND SEDIMENT CONTROL POLICIES, page 4-9

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
51. Member cities shall continue managing erosion and sediment control permitting programs and ordinances as required by their NPDES MS4 permit and the NDPES Construction Stormwater General Permit.	2015-2025	Ongoing	Each member city has active permitting and management via ordinances for NPDES MS4 and general permits. All criteria listed are being met.	○	Investigate erosion control issues and/or city enforcement as warranted or needed.
52. The BCWMC will review projects and developments to evaluate compliance with BCWMC erosion and sediment control standards.	2015-2025	Ongoing	Implemented through BCWMC development review process	○	Continue through development review process

53. The BCWMC requires preparation of erosion control plans for construction projects meeting the applicable BCWMC threshold. Erosion control plans shall meet the standards given in the NPDES Construction Stormwater General Permit (as amended), and shall show proposed methods of retaining waterborne sediments onsite during the construction period, and shall specify methods and schedules for restoring, covering, or re-vegetating the site after construction	2015-2025	Ongoing	Implemented through BCWMC development review process	○	Continue through development review process
54. Member cities shall perform regular erosion and sediment control inspections for projects triggering BCWMC review and subject to BCWMC erosion and sediment control standards. The member cities will annually report to the BCWMC regarding compliance with BCWMC standards as part of annual MS4 reporting or as requested by the Commission	2015-2025	Ongoing	Implemented through city controls. BCWMC reviews inspection reports from cities, as submitted. Inspection reports from cities are not annually requested by BCWMC.	○	Continue to review reports as received.
55. The BCWMC requires local water management plans to describe existing and proposed city ordinances, permits, and procedures addressing erosion and sediment control	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed

56. The BCWMC will work with member cities to evaluate end-of-pipe sediment sources and controls. Following adequate source control, the BCWMC may fund removal of end-of-pipe sediment deltas downstream of intercommunity watersheds, or facilitate collaboration among responsible parties to remove these deltas	2015-2025	Ongoing	Policy allows for BCWMC CIP to implement projects that address sediment downstream of pipes. Projects include: Winnetka Pond Dredging Project, Briarwood/Dawnview WQ Improvements, Crane Lake Improvement Project, Northwood Lake Improvement Project, Main Stem Lagoon Dredging Project	○	Continue implementing policy as current practice

Objective: STREAM RESTORATION AND PROTECTION POLICIES, page 4-10

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
57. The BCWMC will continue to maintain a Channel Maintenance Fund through an annual assessment. This fund will be used to help finance minor stream maintenance, repair, stabilization and restoration projects and/or portions of larger stream restoration projects.	2015-2025	Ongoing	Fund is maintained; contributions of $25,000 are made to the fund from the annual operating budget. Funds are allocated to cities based on their percentage of Trunk System for channel maintenance activities (that aren't large enough to be consider for CIP)	○	Continue maintenance of and contributions to the fund; continue allocating funding to cities
58. The Channel Maintenance Fund may also be used to finance the BCWMC's share of maintenance projects that have a regional benefit, or to partially fund smaller, localized projects that cities wish to undertake.	2015-2025	Ongoing	The fund has not yet been utilized for this purpose	□	Continue implementing policy as needed
59. Major stream and streambank stabilization and restoration projects will be considered and prioritized by the BCWMC for inclusion in its annual CIP.	2015-2025	Ongoing	Streambank restoration projects that have been implemented through the CIP since 2015 include 2015CR-M, 2017CR-M, 2017 CR-P (see CIP project list and status)	○	Continue implementing stream restoration projects through the CIP

60. Recognizing their benefits to biodiversity and more natural appearance, the BCWMC will strive to implement stream and streambank restoration and stabilization projects that use soft armoring techniques (e.g., plants, logs, vegetative mats) as much as possible and wherever feasible.	2015-2025	Ongoing	The BCWMC prepares feasibility studies for stream restoration projects that focus on the use of bioengineering techniques whenever possible. The BCWMC designs project with these techniques or recommends these techniques when others design.	○	Continue to implement policy through CIP implementation
61. The BCWMC will consider improving natural habitat and navigability, and will consider the needs of pedestrians when planning and implementing near-stream and in-stream projects, and when rehabilitating existing projects	2015-2025	Ongoing	Aquatic, riparian, wetland, and/or upland habitat improvements are always incorporated into CIP projects. Stream navigability and waterbody access are also considered during CIP design	○	Continue to implement policy through CIP implementation
62. The member cities are responsible for funding maintenance and repairs that are primarily aesthetic improvements	2015-2025	Ongoing	BCWMC CIP projects are implemented through agreements with member cities. Agreements require ongoing project maintenance by citiies.	○	Continue to implement policy through CIP implementation
63. The BCWMC will take into account aesthetic and habitat values of future flood control and stabilization/restoration projects	2015-2025	Ongoing	Aesthetics and habitats (including tree loss) are always considered during CIP design	○	Continue to implement policy through CIP implementation
64. Member cities shall maintain and enforce buffer requirements adjacent to priority streams for projects that will result in more than 200 yards of cut or fill, or more than 10,000 square feet of land disturbance. Buffer widths adjacent to priority streams must be at least 10 feet or 25 percent of the distance between the ordinary high water level and the nearest existing structure, whichever is less.	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed

Objective: WETLAND MANAGEMENT POLICIES, page 4-11

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
65. The BCWMC requires member cities to inventory, classify and determine the functions and values of wetlands, either through a comprehensive wetland management plan or as required by the Wetland Conservation Act (WCA).	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed
66. The BCWMC requires member cities to develop and implement wetland protection ordinances that consider the results of wetland functions and values assessments, and are based on comprehensive wetland management plans, if available. For wetlands classified as Preserve or Manage 1 (or comparable classification if BWSR's Minnesota Rapid Assessment Method (MnRAM) is not used), member cities are encouraged to implement standards for bounce, inundation, and runout control that are similar to MnRAM; member cities are encouraged to apply standards for other wetland classifications	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed

67. The BCWMC recommends that cities use the Minnesota Rapid Assessment Method (MnRAM) (or similar) wetland assessment method and wetland management classification system. Member cities are encouraged to use such a method for all wetland assessment and classification, but are not required to perform reassessments for wetlands already assessed	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed
68. Member cities shall maintain and enforce buffer requirements for projects containing more than one acre of new or redeveloped impervious area. Average minimum buffer widths are required according to the MnRAM classification (or similar classification system):	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed
69. The member cities are required to manage wetlands in accordance with the WCA.	With LWMP adoption	With LWMP adoption	All nine LWMPs were approved between Sept 2018 and March 2019	✧	None needed
70. The BCWMC will serve as the local governmental unit (LGU) responsible for administering the WCA for member cities, as requested (currently Medicine Lake, Robbinsdale, and St. Louis Park).	2015-205	Ongoing	WCA related tasks are completed for Medicine Lake, Robbinsdale, and St. Louis Park as needed	○	Continue to serve as LGU for 3 cities
71. The BCWMC prefers any wetland mitigation to be performed within the same subwatershed as the impacted wetland	2015-205	Ongoing	No activity	□	None planned

72. The BCWMC requires that member cities annually inspect wetlands classified as Preserve for terrestrial and emergent aquatic invasive vegetation, such as buckthorn and purple loosestrife, and attempt to control or treat invasive species, where feasible.	2015-2025	Ongoing	Assume cities are performing this task but haven't checked with them	○	Will poll cities with regards to this activity
73. The BCWMC encourages member cities to pursue wetland restoration projects, as opportunities allow.	2015-2025	Ongoing	Assume cities are performing this task but haven't checked with them. BCWMC incorporates wetland habitat improvements into most CIP projects.	○	Continue to seek wetland restoration opportunities with BCWMC CIP projects
74. The BCWMC encourages member cities to participate in wetland monitoring programs (e.g., Wetland Health Evaluation Program).	2015-2025	Ongoing	Unknown progress within cities	○	Will poll cities and reiterate encouragement

Objective: PUBLIC DITCH POLICIES, page 4-13

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
75. 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).	2015-2025	Ongoing	Unknown progress within cities	○	Will poll cities and reiterate encouragement

76. 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.	As applicable	None	No known efforts to date to pursue legislation	☐	None planned
77. The BCWMC will manage abandoned or transferred public ditches that are part of the trunk system consistent with the policies of this Plan. Member cities will be responsible for management of abandoned or transferred public ditches that are not on the trunk system, but are currently part of their municipal drainage system.	2015-2025	None	No abandoned or transferred public ditches.	☐	None planned

Objective: RECREATION, SHORELAND, AND HABITAT MANAGEMENT POLICIES, page 4-13

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
78. The BCWMC will consider developing and implementing a shoreland habitat monitoring program for its Priority 1 lakes to monitor biological and physical indicators and to recommend management actions (to cities or for the Commission's consideration) based upon monitoring results.	2016	2016-2017	TAC review in 2016 Commission approved TAC recommendation not to pursue program 2017	✧	None, project complete

79. The BCWMC will support and collaborate with other entities (e.g., agencies, lake association, cities, counties) to manage and prevent the spread of aquatic invasive species	2015-2015	Ongoing	On-going work through routine aquatic vegetation surveys and lake monitoring program including analyzing for possible AIS; work of AIS/APM Committee June 2016 – June 2017 and their approved recommendations (July 2017). AIS budget line created, AIS Prevention Grants received from Hennepin County (2018, 2019, 2021), annual treatment of CLP on Medicine Lake in partnership with TRPD, financial contributions to boat access inspections annually to TPRD.	O	Continue to implement APM/AIS committee recommendations, continue CLP treatment on Medicine Lake, continue partnering with TRPD, pursue development of APM Plan for Medicine Lake
80. The member cities are responsible for shoreland regulation and are required to adopt MDNR-approved shoreland ordinances, in accordance with the MDNR's priority phasing list.	2015-2025	Ongoing	Implemented through local controls	O	None planned
81. The BCWMC will promote the protection of natural and native shoreland areas, including the preservation of lakeshore and streambank vegetation during and after construction projects, and the establishment and maintenance of buffers adjacent to priority waterbodies	2015-2025	Ongoing	Promotion through BCWMC education materials. Implementation during our own CIP projects	O	Disseminate lakeshore restoration information specifically to Medicine Lake homeowners.
82. The BCWMC encourages cities to develop and maintain water-related recreational features (such as trails adjacent to waterbodies and water access points), with consideration for buffers, use of pervious surfaces, and other best management practices to reduce runoff.	2015-2025	Ongoing	Implemented locally by cities. Also, BCWMC CIP projects often incorporate trails, piers, and other access points adjacent to waterbodies	O	Continue to implement through CIP program

83. The BCWMC will take into account aesthetics, habitat, and recreation benefits during CIP project selection and prioritization, and when considering how a project might address multiple Commission goals (see policy 110).	2015-2025	Ongoing	BWCMC CIP projects always improve habitat and aesthetics; and often improve access to waterbodies. Potential CIP projects are always evaluated for possibly meeting multiple goals	O	Continue to implement through CIP program
84. The BCWMC will encourage public and private landowners to maintain, preserve or restore open space and native habitats such as wetlands, uplands, forests, shoreland, streambanks, and prairies for the benefit of wildlife through education and by providing information on grant programs	2015-2025	Ongoing	Promotion through BCWMC education materials. Implementation during our own CIP projects. Although BCWMC doesn't have a grant program, when asked by residents about grants I forward information about county grants.	O	Continue to disseminate educational materials
85. Member cities shall consider opportunities to maintain, enhance, or provide new open spaces and/or habitat as part of wetland creation or restoration, stormwater facility construction, development, redevelopment, or other appropriate projects	2015-2025	Ongoing	Implemented locally.	O	None planned
86. The BCWMC will cooperate with the MDNR and other entities, as requested, to protect rare and endangered species under the State's Endangered Species Statute. The BCWMC will review the Natural Heritage Information System during the design phase of Commission projects	2015-2025	Ongoing	CIP project feasibility studies and designs always accountant for and plan for the protection of rare and endangered species	O	Continue to implement through CIP program

87. The BCWMC will submit data, as available, and encourages others to submit data regarding occurrences of rare and endangered species and native plant communities to the State's Natural Heritage Information System	2015-2025	Ongoing	In 2015, the BCWMC reported the first record of *Lynchnothamnus barbaratus* (bearded stonewort), a native plant found first in Westwood Lake through our regular monitoring program.	O	Will continue to report as current practice
88. The BCWMC will consider implementing a grant or cost-share program to fund the establishment of buffers adjacent to priority waterbodies	None specified	2021	A grant program specific to buffer establishment has not been considered. A grant program for private developers/redevelopers to provide water quality treatment above requirements was discussed by the TAC and Commission in early 2021.	O	BCWMC plans to reconsider various grant programs during development of its next watershed plan
89. Member cities shall adopt State buffer and/or shoreland management requirements for public waters in incorporated areas, if and when they are promulgated	None specified	NA	Implemented locally, as applicable	O	None needed

Objective: EDUCATION AND OUTREACH POLICIES, page 4-14

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
90. The BCWMC will develop an education and outreach plan	Education Plan developed for watershed plan, Appendix B		Education Plan developed for watershed plan. Education Committee meets annually to develop an annual education work plan and budget with guidance from the overall education plan.	O	Re-evaluate education plan during next watershed plan development

91. The BCWMC will develop and maintain standard BCWMC messaging items to increase awareness of the BCWMC and its role.	2015-2025	Ongoing	Educational messaging is developed and considered through annual Education Work Plan.	O	Continue to implement through education program
92. The BCWMC will evaluate the success of its education and public involvement plan.	2015-2025	Ongoing	Educational programming success is difficult to measure. Our current metric include number of participants at events or trainings + website and social media engagements, followers, etc. BCWMC includes education program results in its annual report and through letters of understanding to each member city.	O	Continue to implement through education program
93. The BCWMC will recruit volunteers to conduct monitoring and participate in activities sponsored or promoted by the BCWMC and will provide training as needed	2015-2025	Ongoing	BCWMC staff recruit and coordinate volunteers for the Met Council's CAMP. We annually have 8 – 10 volunteers collecting water samples. Training is provided through Met Council.	O	Continue to implement through education program
94. The BCWMC will support cooperative educational and volunteer programs, such as the West Metro Water Alliance, Blue Thumb, River Watch, Metro Blooms, Metro Watershed Partners, Citizen Assisted Monitoring Program, Wetland Health Evaluation Program, etc.	2015-2025	Ongoing	BCWMC annually provides financial support to multiple educational programs and organizations and is actively involved as a West Metro Water Alliance member. See annual report for specifics	O	Continue to implement through education program

95. The BCWMC will develop and implement a recognition program (certificates, letters of appreciation, events, thank you ads, etc.) for BCWMC volunteers.	2015-2025	Intermittent implementation	Volunteers are sometimes recognized through press releases. Thank you cards were sent to volunteers, for a few years, but not consistently. No formal recognition program developed	O	None planned
96. The BCWMC will update and maintain its website and use it to communicate with and provide information to the public	2015-2025	Ongoing	BCWMC's new website launched in 2016. The site is continually updated with meeting information, reports, finances, contact information, water quality data, educational materials, meeting materials and minutes, CIP information, etc.	O	Continue to regularly maintain website.
97. The BCWMC will seek opportunities to incorporate education and public involvement efforts into all of its proposed projects.	2015-2025	Ongoing	BCWMC CIP projects often incorporate education components including signage (e.g., Northwood Lake Improvement Project) or interactive components (e.g., Westwood Lake Improvement Project)	O	Continue to implement through CIP program
98. The BCWMC will seek opportunities to use a citizen advisory committee to complete tasks meaningful to the Commission.	2015-2025	None	BCWMC does not utilize a CAC. However, committee members may include members of the public. In the past, the Education Committee has members of the public.	O	A CAC will be utilized during development of the next watershed management plan
99. The BCWMC will distribute BCWMC meeting notices and agendas to city officials and key staff. The meeting notice and/or agenda will include a description of the key discussion item(s).	2015-2025	Ongoing	Meeting notices and a link to materials are emailed to all TAC members (city staff), and other city staff upon request. All materials are posted online one week before the meeting.	O	Continue current practice

100. The BCWMC will post informational signs at BCWMC projects during construction. The BCWMC will consider installing permanent informational signs at BCWMC watershed projects, major BCWMC waterbodies, monitoring sites, demonstration projects, adopt-a-stream/wetland sites, etc. The BCWMC will work with cities and other road authorities to install stream identification signs along roads at stream crossings.	2015-2025	Ongoing	A temporary sign is erected on site during CIP construction informing visitors about the BCWMC project and how its funded. As noted above, many CIP projects incorporate permanent educational signs. BCWMC and cities have installed stream crossing signs at 7 crossings throughout the watershed. Three on Plymouth Creek and four on Bassett Creek.	O	Continue current practice
101. The BCWMC will regularly hold watershed tours for the Commission and the public.	Every other year	2014, 2016, 2019	Watershed tours via coach bus were given in 2014 and 2016, and as part of the 50th anniversary celebration in 2019. Invitees include commissioners, TAC members, local officials, county commissioners, partners, volunteers	O	A watershed tour is likely in fall 2021
102. The BCWMC will tailor its communications and educational strategies to present complex and/or technical issues in a manner that is appropriate for the audience.	2015-2025	Ongoing	BCWMC strives to make watershed information accessible and understandable to a wide audience. One example is the change in water monitoring reports from 60-page highly technical reports to 4-8 pages public-friendly document with color graphs, photos, and non-technical text. (e.g., Northwood Lake 2019 report)	O	Continue current practice

Objective: ADMINISTRATION, page 4-15

Planned Actions or Activities	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating	Next Steps
103. The BCWMC will fund 100 percent of eligible project costs for those projects listed in the 10-year CIP (Table 5-3). Eligible project costs are listed in Table 5-1.	2015-2025	Ongoing	Implemented through CIP program	○	Continue to implement CIP program
104. The Commission will review projects that trigger BCWMC review.	2015-2025	Ongoing	Implemented through project review program. Number and titles of projects reviewed are reported in the annual report. The BCWMC requirements document is posted online and updated/revised on occasion after TAC discussion and approval of their recommendations by the Commission.	○	Continue to implement project review program
105. At the request of the member cities, the BCWMC will review projects that would not otherwise trigger review per the BCWMC's *Requirements for Improvements and Development Proposals*	2015-2025	Ongoing	Implemented as needed. In 2015, the Commission created a new budget line for expenses related to reviewing/discussing projects (often with city staff and sometimes with developers) before a formal project application and fee is submitted. This allows for earlier coordination for complicated or controversial projects.	○	Continue current practice
106. The BCWMC will review local water management plans for compliance with this Plan's goals and policies	2015 - 2025	As needed	Each member city has LWMP reviewed and approved through resolution by the BCWMC. (9/2018 – 3/2019) See annual report for listing and years of approval.	○	Will review LWMP revisions, as needed

107. The BCWMC will annually evaluate member cities' compliance with the goals and policies of this Plan (see Section 5.1.1.6). The BCWMC will take appropriate administrative or legal action in response to non-compliance.	2015 - 2025	Ongoing	BCWMC does not evaluate compliance of member cities with specific policies but maintain close relationships with city staff and partner regularly on water-related activities and programs	○	Continue current practice
108. The BCWMC will review applications for MDNR Work in Public Waters Permits.	2015-2025	Ongoing	Commission engineers review all public waters permits and provide comments, as needed.	○	Continue current implementation
109. The BCWMC will annually review and update its 10-year CIP. The BCWMC will re-evaluate new or proposed additions to the CIP annually or as new data or opportunities develop, with consideration for the criteria outlined in policy 110.	2015-2025	Ongoing	The TAC and Commission annual update the rolling 5-year CIP by adding, removing, or shifting CIP projects, as needs, opportunities, and priorities shift. Minor Plan amendments were approved for CIP changes in 2017, 2018, and 2020.	○	Continue current implementation
110. The BCWMC will consider including projects in the CIP that meet one or more of the following "gatekeeper" criteria.	2015-2025	Ongoing	Gatekeeper criteria listed in the policy are strictly followed when considering adding new projects to the CIP	○	Continue current implementation
111. The BCWMC defines the trunk system as the collection of waterbodies and natural or constructed conveyances listed in Table 2-9 of this Plan	Established in the 2015 Plan	Ongoing	Trunk system definition has not changed. Definition is used to delineate BCWMC floodplain jurisdiction, channel maintenance activities, etc.	○	None needed
112. 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.	2015-2025	Ongoing	BCWMC reviews member city ordinances at their request (e.g., Crystal, Golden Valley, Medicine Lake) or as part of reviewing their local water management plans.	○	Continue current practice

113. Member cities must inform the BCWMC regarding updates to city ordinances or comprehensive plans that will affect stormwater management. Stormwater management elements of the member cities' comprehensive plans must conform to the BCWMC Plan	2015-2025	Ongoing	Changes to comp plans and ordinances are reviewed when submitted by cities.	○	Continue current practice
114. The BCWMC will annually assess its progress towards the goals presented in this plan, using quantitative metrics where appropriate. The BCMWC will provide this analysis, or a summary, to BWSR, as part of its annual reporting.	2015-2025	Ongoing	Progress and activities are annually reported in the BCWMC Annual Report, and through water quality reports and graphs presented online.	○	Continue current implementation
115. The BCWMC will work with member cities to assess the financial impact of regulatory controls and identify areas where the BCWMC may assist member cities in meeting the requirements of their MS4 permits	2015-2025	Ongoing	BCWMC has not assessed financial impact of regulatory controls. However, BCWMC assists cities with meeting MS4 permit requirements for education activities. (Annual Letter of Understanding submitted to each city outlining previous year's education activities). Regular updates to BCWMC P8 model helps cities determine progress toward meeting TMDLs. The BCWMC XPSWMM model is also useful/helpful in meeting MS4 permit requirements.	○	
116. The BCWMC will periodically review its capital improvement program (CIP) process and revise the process, as necessary	2015-2025	2018	In 2018, in an effort to better target CIP projects where they would have ethe most benefit, we created the CIP Prioritization Committee which developed a CIP scoring matrix to assess potential projects starting in 2019.	✧	None planned until development of next watershed management plan

117. The BCWMC will assist in calculating or calculate when necessary, the apportionment of costs between adjoining communities for water resource projects with intercommunity participation	2015-2025	Ongoing	Done upon request and inconjunction with certain project (e.g., DeCola Ponds B&C Improvement Project)	○	Nothing specific planned
118. The BCWMC will assist member cities in resolving watershed management disputes, as requested.	2015-2025	Ongoing	In 2013 a BCWMC Dispute Resolution Committee worked with the cities of New Hope, Crystal, and Golden Valley to make recommendations regarding the distribution of cost for a Phase II study evaluating flooding issues in the DeCola ponds area.	○	Continue current implementation
119. The BCWMC will maintain a Technical Advisory Committee (TAC) to promote communication and cooperation between the BCWMC and member cities.	2015-2025	Ongoing	TAC meets several times a year on an as-needed basis or at the request of the Commission to review, study, make recommendations on specific topics. See annual reports for more information on # of meetings and topics	○	Continue current implementation
120. The BCWMC will continue to rely on member cities to implement the BCWMC's policies at the time of development and redevelopment. Member cities shall inform developers and other project applicants regarding BCWMC requirements	2015-2025	Ongoing	Continually implemented through BCWMC project review program.	○	Continue current implementation
121. The BCWMC will continue to rely on member cities to issue permits. Member cities shall permit only those projects that conform to the policies and standards of the BCWMC.	2015-2025	Ongoing	Continually implemented through BCWMC project review program.	○	Continue current implementation

122. For CIP projects that have been ordered by the Commission, the BCWMC requires member cities to acquire and maintain easements, right-of-way, or interest in land necessary to implement and maintain projects upon order of the BCWMC	2015-2025	Ongoing	CIP projects are implemented through an agreement with the member city where the project is located. On-going maintenance of the project is a requirement with in the agreement.	O	Continue current implementation

Appendix B. Performance Standards

METRO WATERSHED DISTRICT and WMO PERFORMANCE STANDARDS

LGU Name: **Bassett Creek Watershed Management Commission**

Performance Area		Performance Standard	Level of Review	Rating	
	★ High Performance standard ■ Basic practice or statutory requirement (see instructions for explanation of standards)		I Annual Compliance II BWSR Staff Review & Assessment *(1/10 yrs.)*	Yes, No, or Value	
				YES	NO
Administration	■	Activity report: annual, on-time	I	X	
	■	Financial report & audit completed on time	I	X	
	■	Drainage authority buffer strip report submitted on time	I	NA	
	■	eLINK Grant Report(s): submitted on time	I	X	
	■	Rules: date of last revision or review	II	NA	
	■	Personnel policy: exists and reviewed/updated within last 5 years	II	NA	
	■	Data practices policy: exists and reviewed/updated within last 5 years	II	X	
	■	Manager appointments: current and reported	II	X	
	■	Consultant RFP: within 2 yrs. for professional services	II	X	
	■	**WD/WMO has resolution assuming WCA responsibilities and appropriate delegation resolutions as warranted** (N/A if not LGU)	II	X	
	■	**WD/WMO has knowledgeable & trained staff that manages WCA program or has secured qualified delegate.** (N/A if not LGU)	II	X	
	★	Administrator on staff	II	Consultant	
	★	Board training: orientation and continuing education plan, record for each board member	II		X [1]
	★	Staff training: orientation and continuing education plan and record for each staff	II	NA	
	★	Operational guidelines for fiscal procedures and conflicts of interest exist and current	II	X	
	★	Public drainage records: meet modernization guidelines	II	NA	
Planning	■	Watershed management plan: up-to-date	I	X	
	■	City/twp. local water plans not yet approved	II	0	
	■	Capital Improvement Program: reviewed every 2 years	II	X	
	★	**Strategic plan or self-assessment completed in last 5 years**	II		X
	★	Strategic plan identifies short-term priorities	II		X

Execution	■	Engineer Reports: submitted for DNR & BWSR review	II	NA	
	■	**WCA decisions and determinations are made in conformance with all WCA requirements. (if delegated WCA LGU)**	II	X	
	■	**WCA TEP reviews & recommendations appropriately coordinated. (if delegated WCA LGU)**	II	X	
	★	**Certified wetland delineator on staff or retainer**	II	X	
	■	Total expenditures per year (past 10 yrs.)	II	see below	
	★	Water quality trends tracked for key water bodies	II	X	
	★	Watershed hydrologic trends monitored / reported	II	X	
Communication & Coordination	■	Website: contains information as required by MR 8410.0150 Subpart 3a, i.e. as board meeting, contact information, water plan, etc.	II	X	
	■	Functioning advisory committee(s): recommendations on projects, reports, 2-way communication with Board	II	TAC only	
	■	Communication piece: sent within last 12 months	II	X	
		Communication Target Audience:			
	★	Track progress for Information and Education objectives in Plan	II	X	
	★	Coordination with County Board, SWCD Board, City/Township officials	II	Partial	
	★	Partnerships: cooperative projects/tasks with neighboring organizations, such as counties, SWCDs, WDs, Non-Government Organizations	II	X	

[1] New Commissioner orientation materials available online: https://www.bassettcreekwmo.org/about/commissioner-orientation; budget for commissioner training and attendance at conferences (rarely used)

Year	Total Expenditures (CIP + operating funds from audit)
2020	$2,422,197
2019	$2,752,663
2018	$2,251,061
2017	$1,055,069
2016	$3,540,517
2015	$1,676,859
2014	$668,563
2013	$1,951,599
2012	$900,674
2011	$1,602,286

Appendix C. Summary of External Survey Results

Bassett Creek WMC Board and Staff Questions and Responses

How often does your organization use your current management plan to guide decisions about what you do?	(response percent)
Always	80%
Usually	20%
Seldom	0%
Never	0%

List your organization's most successful programs and projects during the past 3-5 years.
Capital Improvement Program
** DeCola Ponds project * Schaper Pond diversion project * XPSWMM watershed modeling * 2020 Deep tunnel inspection * Harrison neighborhood outreach/citizen engagement*
Our success lies in the partnerships we've created and maintained over the years with our member cities, Three Rivers Park District, Minneapolis Park and Rec Board, Hennepin County, Met Council, state agencies, and others. We could not do our work without working collaboratively with these entities. I believe our single most successful program is our robust capital improvement program and our ability to utilize 103B.251 for capital funds. Since 2004, we've installed 35 capital projects resulting in 2,000 lbs of TP removed, 650 tons of sediment removed, 5.7 miles of streambanks restored, and 1 delisted lake.
- our administrator has been hugely successful in securing AIS management grants - excellent use of our AIS rapid response plan when starry stonewort was found in Medicine Lake - extensive ed to elementary age students through WMWA's traveling Watershed PREP class
CIP program and education about salting smart
Sweeney Lake water quality improvements Wirth Park dredging project
The Westwood Hills Nature Center educational efforts and water cycle project
plymouth creek restoration

What helped make these projects and programs successful?
The efficiency of the commission and the competency of all member cities
*Staff coordination and collaboration with city water staff * (For project) sound engineering design, diligent development and professional implementation, strong water-quality and resource-improvement results. * Partnership with effective nonprofit organization. * Successful grantwriting*
Partnerships with our member cities, the support of Hennepin County staff and commissioners for the levy funding, and grant funding. Since 2004, we've secured over $3M in county, state, and federal grants..
Laura Jester and her ability to create partnerships
The CIP projects are carefully chosen to give the best cost-benefit. The salt education program is the first of its kind (that I'm aware of) to target residents about smart salting practices
Sweeney like project used an innovative approach to improve water quality issues created by using the lake to mitigate flooding in the watershed. The Wirth Park dredging project was almost 3 times our annual CIP project but also me of the most cost effective and provides benefits to North Minneapolis; a racially diverse and socio economic disadvantaged community. It required ingenuity to administer such a large project.
The collaboration of multiple parties to complete a successful project

good planning

During the past 3-5 years, which of your organization's programs or projects have shown little progress or been on hold?
Now that I'm aware of
BCWMC's regulatory program is not clearly effective. Development and implementation of capital projects is not super well connected to goals or an overarching strategy in the plan..
We have a couple CIP projects on hold due to various conditions and constraints. We also have limited funding for watershed education
the chloride challenge is huge and needs more partnership from cities and local businesses
Jevne Park Stormwater Improvement Project. I believe this was put on hold due to resident concerns.
Reducing the costs of water monitoring
Flooding, the Commission has new storm water models, using ATLAS 14, and it's taken time to get a good understanding of the magnitude of the flooding and how to best address the issues.
Schaper Pond baffle

List the reasons why the organization has had difficulty with these projects and programs.
Regulatory program effectiveness is hampered by joint-powers agreement limitations on authority, city push for compromise on thresholds and criteria in the regulations. CIP approach is something of a pot luck of contribution of ideas from cities. Also, generally, there are too many commissioners (9) and they vary widely in their level of competence and contribution. Cities, to some degree through authority over commissioners, restrain effectiveness of commissioners as leading the commission's efforts
CIP projects on hold are due in one case to market forces changing the redevelopment timeline of the Four Seasons Mall in Plymouth. In another case, the city where the project would be located (Jevne Park Project in the city of Medicine Lake) is currently unwilling to cooperate on the project.
it's amazing how many positive actions laura and bassett creek have been able to accomplish for medicine lake given that the lake association is basically defunct
In general, I don't think BCWMC has
There is not a lot of competition in the industry. This is a significant portion of our budget and it should not cost this much.
Finding space in a fully developed watershed, funding, and general development of flood management of projects
Carp were causing additional problems

Regarding the various organizations and agencies with which you could cooperate on projects or programs…
List the ones with which you work well already
All member cities
Metro Blooms, city water-resources and public works staffs (sometimes)
All of our nine member cities, Hennepin County, Three Rivers Park District, Minneapolis Park and Rec Board, Met Council
Nearly all government partners
Three-Rivers Park District, all nine member cities, Barr Engineering, West Metro Water Alliance, Watershed Partners, Westwood Hills Nature Center
The Administrator, Laura Jester, Metro Blooms

FEMA
List the ones with which better collaboration would benefit your organization
Minneapolis Park Board
Other nonprofits, private property (re)developers
We look forward to BWSR input and cooperation during the development of our next watershed management plan
twin west chamber of commerce, the real estate/real property management communities, business owners
FEMA
If you don't know much about your organization's working relationships with partners, enter "I don't know"
2 responses

What steps could your organization take to increase your effectiveness in accomplishing your plan goals and objectives?
Over the last 15 years, I have been involved with many watershed organizations. This is the best-run organization that I have worked with
Find ways to increase competition for engineering services, legal services and water quality monitoring
Keep working together to improve upon our existing systems and significant more funding.
Not sure
None that I'm aware of
Reduce the number of commissioners and compensate commissioners. Contract with/hire more staff
I would really like more funding for education. We are members of the West Metro Water Alliance which works on education programming across four watersheds. We would like to emulate the East Metro Water Resource Education Program in Washington County but we don't have the funding
continue building support (within limits) for state-wide chloride legislation

How long have you been with the organization?	**(response percent)**
Less than 5 years	30%
5 to 15 years	60%
More than 15 years	10%

Bassett Creek WMC Partner Organization Questions and Responses

Question: How often have you interacted with this organization during the past two to three years? Select the response closest to your experience.	**(response percent)**
Not at all	0%
A few times	0%
Several times a year	50%
Monthly	31.25%
Almost every week	18.75%
Daily	0%

Comments:

- *None.*

Is the amount of work you do in partnership with this organization…	**(percent)**
Not enough, there is potential for us to do more together	6.25%
About right	93.75%
Too much, they depend on us for work they should be doing for themselves	0.0%

Too much, we depend on them for work we should be doing ourselves or with others	0.0%

Based on your experience working with them, please rate the organization in the following areas:					
Performance Characteristic	**Rating (percent of responses)**				
	Strong	**Good**	**Acceptable**	**Poor**	**I don't know**
Communication *(they keep us informed; we know their activities; they seek our input)*	43.75 %	56.25%	0%	0%	0%
Quality of work *(they have good projects and programs; good service delivery)*	62.50 %	31.25%	0%	0%	6.25%
Relationships with Customers *(they work well with landowners and clients)*	50%	25%	0%	0%	25%
Initiative *(they are willing to take on new projects, try new ideas)*	62.50 %	18.75%	6.25%	0%	12.5%
Timelines/Follow-through *(they are reliable and meet deadlines)*	75%	25%	0%	0%	0%

How is your working relationship with this organization? (percent)	
Powerful, we are more effective working together	37.50%
Strong, we work well together most of the time	43.75%
Good, but it could be better	18.75%
Acceptable, but a struggle at times	0%
Poor, there are almost always difficulties	0%
Non-existent, we don't work with this organization	0%

Comments from Partners about their working relationship with the BCWMC:

- *Would be good to have more collaborative opportunities related to education and outreach*
- *The staff and board are very supportive of our partnership and willing to try new projects and rely on our expertise.*

Do you have additional thought about how the "subject" organization could be more effective?
The BCWMC is doing a great job with its partners and I think that continuing on the path they are currently on will serve them well. During the current plan cycle, they have also taken a more watershed-first approach (as opposed to city-submittal) to project identification which should benefit the resource and the system to a greater degree.
They do quite a bit with the investment they make in projects and staff. They invest less than some of the surrounding watersheds, though and they could make an even bigger impact with even small increases in revenue. Perhaps they could set a goal for a minimum percentage investment of the overall tax base. This would give them "cover" for increasing spending in the watershed if desired. They could also do a review of the metro watersheds and see where they fall.
Continuing to look at changing dynamics in land use in the watershed
BCWMC and Laura Jester, specifically, are phenomenal advocates for our lake and improving water quality. They have accomplished more in the past few years than I thought would be possible in the next ten

They would benefit from full time staff and bigger budget. When I compare what they produce to lets say 9 mile creek it is very small. However when I compare it to what Elm Creek produces it is quite high. I do not know the budget or constraints for any of these organizations.
Nope. I think they do a great job

How long have you been with your current organization?	(response percent)
Less than 5 years	25%
5 to 15 years	50%
More than 15 years	25%

Appendix D. Wetland Conservation Act Administrative Review Report

Wetland Conservation Act Administrative Review Report

Report Prepared for: Bassett Creek Watershed Management Commission (BCWMC)

Report Date: May 17, 2021

Prepared by: Ben Carlson, BWSR Wetland Specialist

Ben Meyer, BWSR Wetland Specialist

Introduction

In 1991, the Legislature passed the Wetland Conservation Act (WCA) in order to achieve a no-net loss in the quantity, quality, and biological diversity of Minnesota's wetlands. In doing so, they designated certain implementation responsibilities to local government units (LGUs) and soil and water conservation districts (SWCDs) with the Board of Water and Soil Resources (BWSR) to provide oversight. One oversight mechanism is an administrative review of how LGUs and SWCDs are carrying out their responsibilities.

BWSR uses the administrative review process to evaluate LGU and SWCD performance related to their responsibilities under the WCA. The review is intended to determine if an LGU or SWCD is fulfilling their responsibilities under WCA and to provide recommendations for improvement as applicable.

This review has been conducted in conjunction with the PRAP process, a summary of which is provided in the overall PRAP report.

Methods

Data for this report was collected via direct interview(s) with staff, a review of an appropriate number and type of project files, a review of existing documentation on file (i.e. annual reporting/resolutions), and through prior BWSR staff experience/interaction with the LGU or SWCD. In some cases, a project

site review may be necessary. Generally, interviews, project file reviews and site visits were done with two BWSR staff on agreed upon dates.

A copy of the questions and form(s) used during the data collection phase are available upon request.

Specific Methods

BWSR Staff interviewed Karen Wold and Laura Jester, Bassett Creek WMC (BCWMC) representatives on April 7, 2021. The interviews occurred remotely through a Microsoft Teams meeting and included Ben Carlson and Ben Meyer, BWSR Wetland Specialists. In addition to the data collection forms completed, seven project files were reviewed: 2 No Loss determinations, 1 Sequencing and Replacement Plan application, 2 Boundary and Type application, 1 Exemption determinations, and 1 Enforcement file. District staff also provided copies of the 2016 Bassett Creek WMC board resolution #16-04, with the Cities of Medicine Lake, Robbinsdale, and St. Louis Park designating the Bassett Creek WMC as the WCA LGU and identifying the local appeals board. No project site visits were required or conducted.

WCA Report Summary and Recommendations

A. Administration

Bassett Creek WMC is the LGU for Medicine Lake, Robbinsdale, and St. Louis Park within its jurisdictional boundaries. Bassett Creek WMC covers approximately 40 square miles of urban land located entirely within Hennepin County.

Trained and Knowledgeable Staff

Bassett Creek WMC has one staff (Karen Wold, Barr Engineering) that is trained in environment and natural resources and the 1987 Delineation Manual to meet MN Rule 8420.0240. Based solely on the interview and previous staff interaction, the watershed meets the requirement for being trained and knowledgeable. In addition, staff has attended trainings through BWSR and WDCP. The staff does an excellent job coordinating with other agencies (local, state, and federal). Additionally, the staff has a good rapport with landowners and effectively communicates WCA requirements to landowners. **This is effectively implementing the program.**

> **WCA Administrative Recommendation:** The watershed staff implement WCA rule and wetland technical review at a high level of skill and performance, but should continue to make it a priority to have any staff involved with wetland regulation to attend BWSR Academy, WDCP, WPA and other trainings to keep current and further develop the skills and knowledge required to implement the WCA and technical review of delineations.

Delegation of WCA/Joint Powers Agreements

Bassett Creek WMC adopted WCA administration through Board Resolution #16-04 on February 18, 2016. The Watershed administers the WCA in all or portions of the following municipalities: Medicine Lake, Robbinsdale, and St. Louis Park. Resolutions designating WCA authority from Medicine Lake (1994), Robbinsdale (1993), and St. Louis Park (1993) to Bassett Creek WMC are retained in BWSR records. **This meets the requirement of the program.**

Delegation of Staff Decision-Making Authority
Bassett Creek WMC has designated decision making authority to staff, which includes the Commission Engineer, and the Commission Administrator for administering the WCA and making decisions related to exemption, no loss, wetland boundary and type applications. This decision was documented in Resolution 16-04 and provided to and retained in record by BWSR.
This meets the requirement of the program.

Appeals
Bassett Creek WMC does have a local appeal process per Resolution 16-04. Staff decisions may be appealed to the Bassett Creek WMC board. After reviewing multiple notice of decisions, it was noted that the local appeal process box was not checked, rather, appeal to BWSR was identified. **This meets minimum WCA requirements but needs improvement.**

> **WCA Administrative Recommendation:** Bassett Creek WMC may want to consider an appeal fee be adopted by the board of managers and clarification of the appeal process identified on the NOD form.

B. Execution and Coordination

WCA Decisions and Determinations
WCA decisions appear to be made following the parameters of MN Rules Chapter 8420.0255 and MS 15.99. File review showed examples of good documentation and accurately completed forms. The LGU consistently includes rule citations and clearly describes the decision being made. Missing information on notices included appeal process information. **This is effectively implementing the program.**

Record Retention
8420.0200 Subp. 2. G requires the LGU to retain a record of all decisions for a minimum of ten years. The LGU currently has retained all project files and decisions since adopting the act. A hard copy is retained onsite or at an offsite storage, electronic copies are saved on a server. **This is effectively implementing the program.**

TEP Incorporation/Coordination
Bassett Creek WMC is the LGU per MN Rule 8420.0200 Subp. 1. B. and convenes TEPs when necessary. Members of the TEP include the BWSR Wetland Specialist, Hennepin Conservation District, and LGU Wetland Specialist. The Commission is proactive in inviting members of the TEP for all projects. Representatives from the Corps and DNR are involved when necessary. The TEP is utilized for projects that require TEP involvement as well as projects beyond what is required as necessary. **This is effectively implementing the program.**

Violation and Complaint Resolution
Bassett Creek WMC responds to and investigates actual and potential wetland violations as necessary. Due to the highly urbanized nature and limited aquatic resources, generally, violations are minimal within the watershed. One enforcement action occurred since 2010. Through its staff of wetland specialists and inspectors, the Commission worked with the TEP and landowner to comply with the WCA

as well as Watershed Rules. Bassett Creek WMC will inspect sites and elevate apparent violations to the Hennepin Conservation District, DNR and TEP as needed. **This is effectively implementing the program.**

C. Conclusion

BWSR commends the Bassett Creek WMC and its Staff, especially Karen Wold, for exemplary administration of the Wetland Conservation Act. Although the watershed is highly developed and WCA workload volume is low, Bassett Creek staff do an exceptional job noticing applications on time and make decision based on rule in a timely manner. Despite some minor administrative or procedural recommendations that if implemented would further strengthen the program, Bassett Creek WMC is effectively and fairly implementing WCA. Good job and keep up the good work.

Appendix E. Program Data

Time required to complete this review

BCWMC Staff: Administrator: 11.25 hours; Commission Engineer: 11.0 hours; WCA Staff: 7.5 hours (29.75hrs)

BWSR Staff: 80 Hours

Schedule of Level II Review

BWSR PRAP Performance Review Key Dates

- March 18, 2021: Initial meeting with BCWMC Board
- March 1, 2021: Initial meeting with BCWMC staff
- March 23, 2021: Survey of board, staff, and partners
- June 17, 2021: Presentation of Draft Report
- July 15, 2021: Transmittal of Final Report to LGU (tentative)

NOTE: BWSR uses review time as a surrogate for tracking total program costs. Time required for PRAP performance reviews is aggregated and included in BWSR's annual PRAP report to the Minnesota Legislature.

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BARR

Memorandum

To: Commissioners, Bassett Creek Watershed Management Commission
From: Karen Chandler, Greg Williams (Barr), and Laura Jester, BCWMC Administrator
Subject: 2025 Watershed Management Plan Gaps Analysis
Date: May 26, 2022

This document, referred to as the Gaps Analysis, includes a list of issues and/or topic areas and subsequent discussion of those areas as they relate to the existing 2015 Bassett Creek Watershed Management Commission (BCWMC) Watershed Management Plan (2015 Plan). The Gaps Analysis will guide development of the new Plan by identifying new or evolving issues that may warrant updating the 2015 Plan based on new data, Commission priorities, or regulatory, political, or social environment.

1.0 Addressing Significant Gaps

This memorandum summarizes a range of gaps. The matrix below provides a qualitative comparison of 1) the relative effort or complexity to address each gap, and 2) the relative priority to address each gap as estimated by Commission staff. Priority level is subject to further discussion by the Commission.

		Priority to address		
		Low	**Medium**	**High**
Complexity / difficulty to address	**High**	• Community BMP grants		• DEI • CIP process • Chloride pollution • H&H modeling and mapping • Linear project requirements
	Medium	• WBIF policies • Grant funding for flood risk reduction • Sediment deltas	• AIS management • Buffer standard implementation • Impaired waters and TMDLs • Update priority waterbodies • Assess organizational capacity* • Stream health assessment • Bassett Creek Valley Plan	• Goal measurability* • Progress assessment* • Water quality modeling • Climate change and precipitation trends • Education program
	Low	• Performance standards documentation • Groundwater mgmt. roles • Shoreline habitat monitoring • NPDES construction stormwater permit	• Infiltration guidance	• Wetland priority areas*

* Plan content requirement per Minnesota Rules 8410

The priority and complexity of each gap assigned herein is preliminary, based on best professional judgement of BCWMC staff. The relative effort to address each gap will vary according to the "solution" pursued by the BCWMC (see Next Steps). Some of these gaps are the result of internal drivers (e.g., commissioner priorities) while others are functions of external drivers (e.g., agency requirements). Gaps related to Plan content requirements are identified as high priority and specifically noted.

2.0 Analysis of Gaps by Topic Area

Specific gaps are described in this section according to the topic areas of the 2015 Plan. Topic areas within this document include:

- Water quality
- Water quantity and flooding
- Erosion and sedimentation
- Streams
- Wetlands, habitat, and shoreland areas
- Groundwater
- Education and outreach
- Administration

While issues addressed in this document are categorized into one of the preceding sections, many of the issues have implications for other topic areas.

2.1 Water Quality

Section 3.1 of the 2015 Plan discusses water quality issues in the Bassett Creek watershed, including water quality performance standards, impaired waters and total maximum daily load (TMDL) studies, pollutant (primarily nutrient) loading, and water quality monitoring.

Topic/Current Status	Identified Gap	Possible Opportunity
Impaired waters and TMDL progress Relative to the 2015 Plan, the 2022 MPCA impaired waters list includes no new impairments within the BCWMC. Since the 2015 Plan, Wirth Lake has been delisted for its nutrient impairment. The recent approval of the Lake Pepin/ Mississippi River nutrient TMDL includes new wasteload allocations applicable to metro MS4s.	The BCWMC and its member cities have performed several projects to address existing impaired waters that should be described in the Plan. The Plan does not address the most recent wasteload allocations for MS4s tributary to the Mississippi River and Lake Pepin. New impairments and/or de-listings (e.g., Sweeney Lake) may occur during Plan development, including anticipated stream and lake listings.	The Plan should be updated to reflect current progress towards existing TMDLs and updated to address any new impairments that arise during Plan development.

Topic/Current Status	Identified Gap	Possible Opportunity
Water quality performance standards The BCWMC's water quality performance standards are based on the MPCA's Minimal Impact Design Standards (MIDS). For projects >1 acre, the BCWMC generally requires capture and retainage of 1.1 inches of runoff from new or redeveloped impervious surface sites without restrictions. For linear projects, the standard applies for projects that create 1 or more acres of new impervious surface regardless of the area of redeveloped impervious surface.	The BCWMC's water quality volume standard is not as stringent as the 2020 MS4 permit. The 2020 MS4 permit requires MS4s to enforce standards for volume control of linear projects (or demonstrate what they try to do); the water control volume must be the greater of one inch over the new impervious area or 0.5 inch over the sum of the new and redeveloped impervious area. In some cases, this may result in a water quality control volume greater than that required by the BCWMC. Inconsistency between BCWMC requirements and MS4 requirements may lead to confusion when reviewing and permitting projects. The current BCWMC linear project standard allows potential water quality improvement opportunities to be missed during development and redevelopment activities.	The BCWMC may consider revising its water quality performance standard for linear projects to match the standard included in the 2020 MS4 general permit. The BCWMC may consider a tiered approach to linear requirements so as to capture more water quality improvement opportunities.

Topic/Current Status	Identified Gap	Possible Opportunity
Infiltration guidance The 2015 Plan included performance standards to emphasize infiltration as the preferred and primary mechanism to treat stormwater runoff. Since the development of the 2015 Plan, the MPCA's NPDES Construction Stormwater General Permit and MS4 General Permit have been revised. The revised permits include reference to an MPCA screening checklist to determine site suitability for infiltration practices.	While infiltration is still the preferred strategy to treat stormwater runoff in many locations, portions of the Plan text may refer to outdated infiltration guidance. The flowchart from the *Requirements for Development and Redevelopment Proposals* document (Requirements document) does not reference the MPCA screening checklist.	The Plan should be updated to reference current guidance regarding infiltration site restrictions and/or explicitly describe those site restrictions in the Plan. The BCWMC may also consider concurrent updates to the Requirements document.
Chloride loading Chloride loading was an emerging issue at the time of 2015 Plan development. It is briefly described in the Plan issues section. Policies included in the 2015 Plan are limited to encouraging cities to limit chloride loading to waters and cooperate with partners to implement the then-future Twin Cities Metro Area Chloride TMDL. Since the 2015 Plan, the Twin Cities Metro Area Chloride TMDL and implementation plan have been completed.	The 2015 Plan does not fully characterize chloride loading issues within the watershed.	The 2025 Plan should utilize recent land use analysis and P8 modeling to illustrate and prioritize chloride hot spots. The BCWMC may consider adopting a goal (and supporting policies) specifically related to chloride issues. The BCWMC could identify chloride management practices that are currently implemented, what gaps remain, and how the BCWMC can assist in filling those gaps. New BCWMC projects or programs could include targeted CIP projects to reduce chloride pollution or new requirements prioritized in watersheds of impaired waters

Topic/Current Status	Identified Gap	Possible Opportunity
Water quality modeling Since the 2015 Plan was adopted, the BCWMC has developed and updated a watershed-wide P8 model.	Watershed-wide pollutant loading estimates were not available or included in the 2015 Plan. Comprehensive pollutant loading estimates (in combination with other data) provide a quantitative means to prioritize areas or subwatersheds for program or project implementation.	The BCWMC may establish priority areas (i.e., hot spots) for implementation based on high pollutant loading and/or low existing treatment.
BCWMC priority waterbodies The development of the 2015 Plan included the identification of Level 1 and Level 2 priority waterbodies based on a number of factors including: public access, size, intercommunity watershed, impairments, and others.	The existing priority waterbody classification may not reflect current BCWMC and/or member city priorities. The existing waterbody classification does not consider water quality trends/data observed since 2015.	The BCWMC may review the waterbody classification data (Appendix C of the 2015 Plan), updated to reflect more recent water quality, and affirm or revise the list of BCWMC priority waterbodies.

2.2 Flooding and Rate Control

Section 3.2 of the 2015 Plan addresses water quantity and flooding issues. Specific issues discussed include risk to public health, infrastructure, and natural resources from flooding, floodplain management, Medicine Lake water levels, and maintenance of the BCMWC Flood Control Project.

Current Status	Identified Gap	Possible Opportunity
Climate change and precipitation trends The 2015 Plan includes discussion of Atlas 14 precipitation data, published in 2013. Recent studies suggest continuing increasing trends in precipitation volume and intensity. The 2011-2020 period was the wettest decade in Minnesota in recorded history. Public awareness of climate change and political interest in addressing climate change have increased relative to the 2015 Plan.	The 2015 Plan does not address include policies related to climate change, precipitation trends, or climate resiliency (e.g., performance of BCWMC projects under future climate conditions).	The BCWMC may consider its role relative to increased precipitation trends as well as broader climate change. Specific issues to consider may include, but are not limited to: - Sustainability and/or carbon footprint of BCWMC projects - Designing for larger storm events - Assessing flood risk of larger storm events - Impacts of increasing precipitation on the Bassett Creek Flood Control Project
Hydrologic and hydraulic modeling and mapping Since adoption of the 2015 Plan, the BCWMC has developed and updated a watershed-wide XP-SWMM hydrologic and hydraulic model (including inundation mapping for the 100-year event).	Watershed-wide inundation mapping in the 2015 Plan is limited to FEMA-mapped areas. Updated watershed-wide modeling is available and may be used to prioritize areas of increased flood risk for BCWMC projects. The watershed-wide model may need to be updated to estimate impacts of future precipitation trends on city and/or BCWMC infrastructure.	The BCWMC may establish priority areas for flood risk reduction projects based on model results. The BCWMC may update the watershed-wide model (beyond the regular updates made to incorporate new/re-development) to inform policies, projects, and projects related to climate change and precipitation trends.

Current Status	Identified Gap	Possible Opportunity
Grant funding for flood risk reduction Since adoption of the 2015 Plan, BWSR has provided non-competitive watershed-based implementation funding (WBIF) for projects to address water quality issues. WBIF funding cannot be used for projects primarily to address flood risk reduction. Some member cities have successfully obtained Minnesota Department of Natural Resources Flood Reduction Grants to offset the cost of BWCMC CIP projects addressing flood risk.	New funding tools may not be available to address flood risk reduction as a primary benefit. Projects that incorporate water quality improvements alongside flood risk reduction may provide an opportunity for multiple benefits to be achieved through WBIF.	The BCWMC may consider revising the project prioritization framework to further promote projects that incorporate both water quality and water quantity benefits.

2.3 Erosion and Sediment Control

Section 3.3 of the 2015 Plan addresses erosion and sedimentation issues. Specific issues discussed include requirements for MS4s to implement erosion and sediment controls and sediment deltas downstream of stormwater outfalls identified by stakeholders during 2015 Plan development.

Current Status	Identified Gap	Possible Opportunity
NPDES Construction Stormwater Permit The Plan references the 2013 NPDES Construction Stormwater Permit. The permit was updated in 2018.	The references to the MPCA's 2013 NPDES Construction Stormwater Permit in the 2015 BCWMC Plan are out of date. The updates to the permit do not substantially impact the references in the BCWMC Plan.	The BCWMC must revise impacted sections of the Plan to reference the current Construction Stormwater Permit.

Current Status	Identified Gap	Possible Opportunity
Sediment deltas Accumulation of sediment deltas downstream of pipe outfalls was identified as an issue during 2015 Plan development. The 2015 Plan includes a policy to potentially fund sediment removal in intercommunity waterbodies.	Existing policy may not be sufficient to determine roles and responsibilities related to addressing sediment deltas in BCWMC lakes or streams. The 2015 Plan lacks an implementation component to address this issue.	The BCWMC may consider consulting the City TAC to determine the extent and severity of this issue. If determined to be significant, the BCWMC may consider addressing it with a program or project(s) within the Plan implementation schedule.

2.4 Stream Management

Section 3.4 of the 2015 Plan addresses stream management issues. Specific issues discussed include altered stream hydrology, ravine and streambank degradation, and stream restoration (including project prioritization methods and use of natural materials).

Current Status	Identified Gap	Possible Opportunity
Stream health assessments Following adoption of the 2015 Plan, the BCWMC began monitoring flow and water chemistry on Bassett Creek tributaries. This data is in addition to the ongoing watershed outlet monitoring program (WOMP) and BCWMC stream biotic monitoring. Biotic impairments of BCWMC streams are anticipated with the 2024 impaired waters list.	Bassett Creek tributary water chemistry data was not available during 2015 Plan development. Stream health in the BCWMC has not been comprehensively assessed. Existing stream health tools may not be appropriate for urbanized streams like those in the BCWMC.	Plan development is an opportunity to develop a more complete assessment of BCWMC stream health and to better understand stream impairments, applicable stressors, and the impact of current or future protection or restoration strategies.

2.5 Wetlands, Habitat and Shoreland

Section 3.5 of the 2015 Plan summarizes issues related to wetlands, habitat and shoreland areas. Specific issues discussed include wetland buffer widths, aquatic invasive species (AIS) management, and member city wetland classification and management. During 2015 Plan development, residents ranked wildlife habitat and AIS as high priorities.

Current Status	Identified Gap	Possible Opportunity
Wetland priority areas The 2015 Plan includes discussion of the National Wetland Inventory (NWI) and corresponding figure. The 2015 Plan also notes that member city wetland inventories exist but vary in their extent.	The 2015 update to Minnesota Rules 8410 requires that the Plan include priority areas for wetland preservation, enhancement restoration, and establishment. The 2015 Plan does not include such a prioritization.	The 2025 Plan should include the determination of priority areas for wetland management to be consistent with MN Rules 8410.0060.
Buffer standard implementation The 2015 Plan and subsequent revisions to the Requirements document included increased minimum buffer width performance standards. Member cities mush include buffer widths in their local controls (e.g., ordinances).	Since adoption of the 2015 Plan, the BCWMC has not comprehensively reviewed the implementation of wetland buffer width standards to assess its impact on resource protection or development or redevelopment opportunities (i.e., are higher standards limiting projects)	The planning process is an opportunity for the BCWMC to review buffer width implementation by member cities to determine if any changes to performance standards or implementation are warranted.
AIS management Since adoption of the 2015 Plan, the BCWMC developed the *BCWMC AIS Rapid Response Plan*. That plan includes specific roles for cities, the BCWMC, and partner agencies related to AIS management in BCWMC Level 1 priority waterbodies.	The policies in the 2015 Plan related to AIS do not reflect the specific roles and responsibilities detailed in the *BCWMC AIS Rapid Response Plan*. The inventory of AIS present in the BCWMC in the 2015 Plan is not current and should be updated (e.g., to include zebra mussels and starry stonewort).	The planning process is an opportunity for the BCWMC to reflect on the implementation of the *BCWMC AIS Rapid Response Plan*, revise the AIS plan if needed, and update Plan policies to be consistent with the *BCWMC AIS Rapid Response Plan*, as revised.

Current Status	Identified Gap	Possible Opportunity
Shoreland habitat monitoring Policy 78 of the 2015 Plan states that the BCWMC will consider implementing a shoreline habitat monitoring program for Level 1 priority lakes.	Following a recommendation by the TAC in November 2016, the BCWMC chose not to implement the monitoring program referenced in policy 78 of the 2015 Plan.	The 2015 policy should be updated (or deleted) to reflect the BCWMC prior action or current intend. The planning process is an opportunity for the BCWMC to re-evaluate if additional habitat monitoring of BCWMC priority lakes is worthwhile and should be included in the ongoing monitoring program (or coordinated with member cities).

2.6 Groundwater

Section 3.6 of the 2015 Plan summarizes issues related to groundwater management. Specific issues discussed include clarifying the BCWMC's role in groundwater management, guidance for infiltration in vulnerable areas, and groundwater conservation.

Current Status	Identified Gap	Possible Opportunity
Groundwater Management Roles Policy 47 in the 2015 Plan identifies potential BCWMC groundwater management roles in coordination with other partners, including: - identify data gaps and attempt to fill those gaps through collection of groundwater level data and/or surface water flow data. - develop a groundwater budget for the watershed. - develop and utilize tools to assess surface water impacts and groundwater impacts of groundwater use	To date, the BCWMC has not collaborated with partners to perform the potential groundwater roles identified in policy 47.	The BCWMC may use the Plan update process to get input from planning partners regarding priority groundwater issues and appropriate roles for the BCWMC.

2.7 Public Involvement and Education

Section 3.7 of the 2015 Plan discusses issues related to outreach and education. The 2015 Plan notes opportunities for increased education tracking metrics, collaborative relationships with Metro Blooms, West Metro Watershed Alliance, Hennepin County, and other partners, and identification of specific training for member city staff.

Current Status	Identified Gap	Possible Opportunity
Diversity, equity, and inclusion (DEI) The 2015 Plan does not address diversity, equity, or inclusion in watershed management. The BCWMC has expressed interest in addressing DEI in the 2025 Plan. The BCWMC co-hosted an event in April 2022 to share information about DEI aspects of watershed management.	The BCWMC has identified DEI as a gap in the current Plan. There are opportunities to address DEI in the Plan, including: - Goals - Policies - Implementation priorities - Outreach and partnerships *Note: while this item is included under "Outreach and Education" it affects many aspects of the Plan update and ongoing operations.*	BCWMC staff and/or commissioners plan to meet with representatives from community groups to identify ways the BCWMC can address DEI in its operations, programs, and projects. The BCWMC may develop outreach strategies to increase engagement with under-represented groups and consider equity principals in setting priority areas for programs and projects.
Community Grants The BCWMC does not currently provide grant funds to individuals or groups to implement stormwater BMPs.	There is increasing public interest in water and natural resource stewardship. Many watershed management organizations (WMOs) implement grant programs to fund voluntary stormwater BMPs constructed on private property.	The BCWMC may consider developing (or partnering to support) a grant program to implement private-property stormwater BMPs.

Current Status	Identified Gap	Possible Opportunity
Education Program Appendix B of the 2015 Plan is an Education and Outreach Plan (EOP). That plan describes key audiences, methods for communication, topics and messages, and methods for evaluation.	BCWMC evaluation of education program may identify areas for effective outreach. The topics emphasized in the EOP may not reflect priority issues identified in this Plan update. The EOP does not address issues or strategies related to DEI. A key recommendation in the 2021 Watershed Performance Review and Assistance Program (PRAP) Report developed by BWSR includes "Prioritize developing an education and outreach strategy for BCWMC constituents." The PRAP noted that BCWMC education programs are limited by staff capacity and funding.	The BCWMC may update the EOP concurrent with the Plan update to reflect the priorities of the Plan and specifically address DEI gaps. The BCWMC should explore opportunities to expand its education programs through additional funding, additional staff, collaboration with Hennepin County, or expanded partnership with the West Metro Water Alliance.

2.8 Administration and Implementation

Section 3.8 of the 2015 Plan describes issues and opportunities related to the BCWMC's responsibilities and implementation. Issues identified in the 2015 Plan include lack of quantifiable goals, opportunities to clarify maintenance roles, evaluation of member city implementation, and updates to Minnesota watershed law.

Current Status	Identified Gap	Possible Opportunity
Measurable goals Since development of the 2015 Plan, the Board of Water and Soil Resources (BWSR) revised Minnesota Rules 8410 and placed additional emphasis on the measurability of goals. Most of the goals in the 2015 Plan are qualitative.	Existing BCWMC goals included in the 2015 Plan are not sufficiently measurable or quantifiable.	BCWMC Plan goals must be updated to provide additional measurability to receive BWSR approval. This is also reflected as a recommendation in the 2021 PRAP by BWSR to "develop clear, measurable goals and actions for future plan implementation."

Current Status	Identified Gap	Possible Opportunity
Performance standards documentation The 2015 Plan includes several performance standards related to water quality volumes, minimum building elevations, vegetated buffers, and stormwater rate control. These are included in the 2015 Plan policies. These performance standards are also included in the BCWMC's *Requirements for Development and Redevelopment Proposals* document (Requirements document).	BCWMC performance standards are documented in two different sources. The Requirements document has been revised several times since adoption of the 2015 Plan. Including performance standards in two documents may result in future inconsistencies.	The BCWMC may consider omitting performance standards from the policies included in the Plan. Instead, the Requirements document may be used as the sole source of performance standards. The Requirements document may be referenced within, and appended to, the Plan.
Progress assessment The revised Minnesota Rules 8410 require the BCWMC to assess its progress towards measurable goals at least every two years. The BCWMC submits an annual report each year.	The 2015 Plan does not describe a process for assessing progress towards goals. Progress towards goals is not quantified in the BCWMC's annual report.	The Plan must include description of a process for assessing progress towards measurable goals. This may include a tracking table, summary sheets for select goals and/or waterbodies, or other methods.
Capital Improvement Planning Following adoption of the 2015 Plan, the BCWMC developed a project prioritization framework to score and rank potential CIP projects. New projects are often added with TAC recommendations.	The BCWMC CIP project prioritization framework is a tool to rank potential projects following their addition to the CIP. Some commissioners have expressed interest in a more "proactive" process that includes a more systematic identification of possible projects.	The planning process is the ideal time for the BCWMC to evaluate its CIP development, project scoring process, and program implementation to determine if changes are needed. This was also a recommendation in the 2021 PRAP by BWSR to "conduct a review of the BCWMC capital improvement program (CIP)."

Current Status	Identified Gap	Possible Opportunity
Watershed-based implementation funding (WBIF) It is likely that BWSR will continue to allocate non-competitive grant funding to be used in the Bassett Creek watershed via WBIF. The BCWMC collaborates with cities, Hennepin County, and others to allocate those funds.	WBIF is in its early stages and the process for its allocation has changed with each biennium. The 2015 Plan generally describes funding sources but does not address a cooperative grant source like WBIF.	The BCWMC may use the Plan update process to clarify its financial policies and/or program and project priorities as they relate to WBIF or similar sources of funding.
BCWMC Organizational Capacity The BCWMC does not maintain full time staff. The BCWMC contracts with a part time administrator and consultants to conduct its operations and implement the Plan.	The existing BCWMC organizational capacity may not be sufficient to carry out all tasks necessary to maintain the organization and implement the updated BCWMC Plan.	The BCWMC may use the Plan update process to evaluate whether increases in staff resources/capacity are necessary to implement the updated Plan.
Bassett Creek Valley Master Plan Implementation The City of Minneapolis seeks to implement portions of the Bassett Creek Valley Master Plan (BCVMP). The Plan identifies potential flood storage and water quality treatment opportunities.	Implementation of the BCVMP may provide potential opportunities to achieve shared City/BCWMC goals, including increased flood storage and water quality treatment. Potential project funding sources, roles, and responsibilities for implementing the BCVMP are not established.	The BCWMC may use Plan development as an opportunity to collaborate with Minneapolis to identify improvements to achieve shared goals move forward with the BCVMP.

3.0 Next Steps

This memorandum summarizes known and anticipated gaps the Commission may choose to address as part of the Plan update process (and some gaps that must be addressed to address Plan requirements). This version of the memorandum was developed prior to the results of other planned stakeholder engagement activities including:

- Responses to the Plan notification letter
- Responses to the City staff questionnaire

- Resident survey responses
- Meetings with community groups

The gaps presented in this memorandum are intended to serve as input to commissioner discussion of priority issues at a workshop tentatively scheduled for July 2022. Following that discussion, BCWMC staff will develop a more detailed scope and schedule to address those gaps/challenges identified as high priority.

APPENDIX F: PLAN DEVELOPMENT ENGAGEMENT & INPUT

The BCWMC began development of this plan 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.

Equity in Watershed Management Workshop

In April 2022, the BCWMC held a workshop for BCWMC commissioners and TAC members to learn how equity principles (like diversity, equity, inclusion, and access (DEIA)) can be incorporated and addressed within watershed management. The event featured speakers from multiple organizations including Hennepin County, Metro Blooms, Mississippi Watershed Management Organization, and Minnesota Renewable Now. Presentations and small group discussions centered on topics such as locations and definitions of vulnerable communities, reflecting on experiences with environmental injustice, environmental healing and building relationships, and incorporating equity principals in watershed management. The group came away with a better sense of what DEIA means and examples of how the BCWMC watershed plan might help address environmental inequities.

In an effort to gather input from underserved or marginalized communities, early in 2023 the BCWMC approved a policy to incentivize (compensate) individuals or groups for participating in input-gathering activities such as interviews or focus groups. The policy was designed to remove a potneital barrier for residents wishing to provide input by offering compensation ($50 gift cards) that could be used to offset the costs of childcare, travel expenses, or lost wages. Despite efforts to reach new voices with this offer, only one individual utilized the incentive.

Member City Input

In summer 2022, outreach materials were developed to help BCWMC Technical Advisory Committee members communicate with residents, city administration, and city officials about the plan development process and timeline and to help solicit input on watershed issues and priorities. Member cities provided feedback on the level of service and quality of programs provided by the BCWMC, activities that are working well and where improvements could be made, BCWMC programs that could be expanded or reduced, and priority concerns.

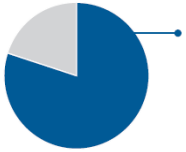
Public Input Survey

The BCWMC hosted a public survey to gather input from watershed residents and others interested in the health of the watershed. The survey was hosted online June 2022 – January 2023 and paper copies of the survey were available at events during the same timeframe. The survey gathered responses from 165 people (Figure F-1).

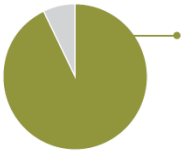
Press Release

A press release about the development of the BCWMC Watershed Plan and the need for input from residents was developed and submitted to local newspapers. The Sun Sailor and Sun Post printed/posted the article on September 9 and September 15, 2022, respectively. www.hometownsource.com/sun_sailor/free/bassett-creek-watershed-seeks-input-and-insights-on-lakes-streams-and-natural-areas/article_4ee22d54-2fbb-11ed-9ca9-f7652dde7d05.html.

165 Respondents

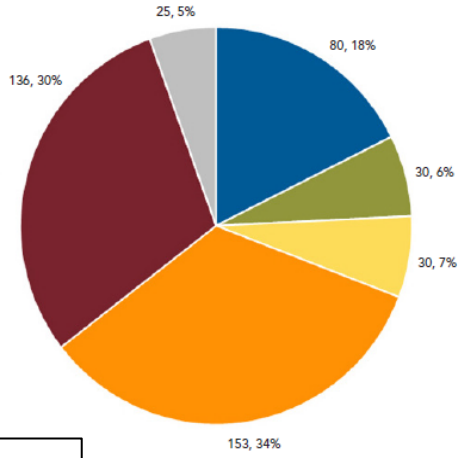


80% indicate natural resources like lakes, streams, and wetlands are very important to their quality of life

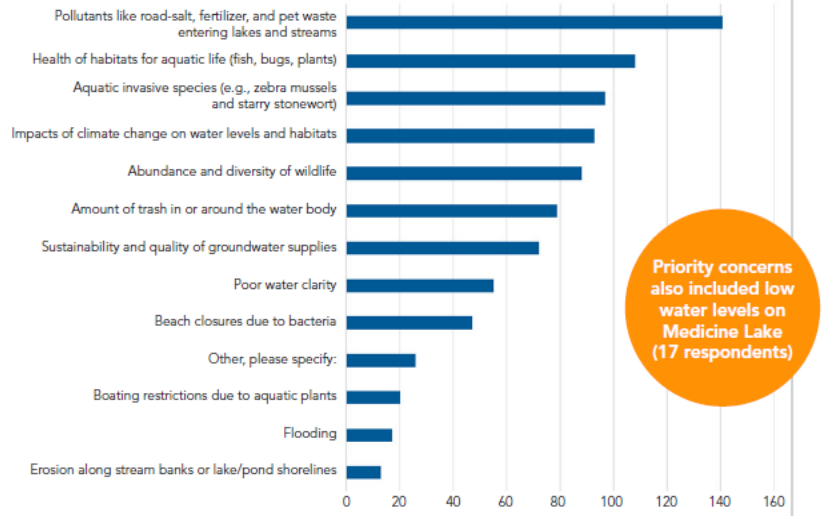


93% of respondents indicate they have adequate access to natural resources in their community; 7% DO NOT have adequate access

How do you interact with the water and natural resources (lakes, streams, wetlands, natural areas) in the BCWMC?



Of the following, what concerns you about the condition of lakes, streams, and natural areas in the Bassett Creek Watershed? (select top five concerns)

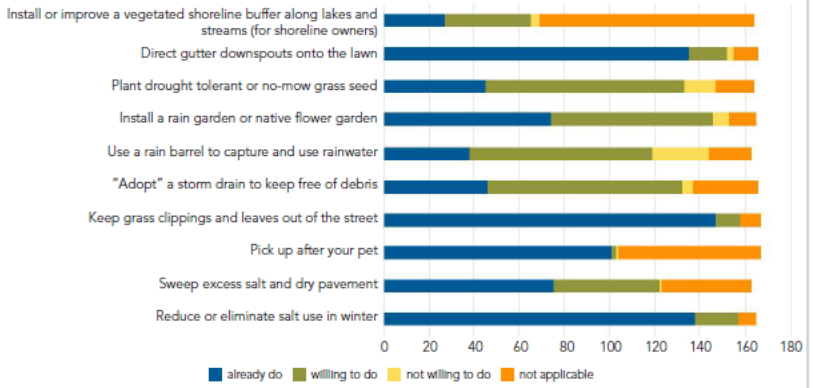


SUGGESTIONS

on what could be improved in the watershed included the following:

- Less trash in lakes and along streams
- Lower chloride levels (less salt!)
- More logs for turtles
- Less streambank and shoreline erosion
- More education of residents
- Better access to the creek for paddlers and enjoying nature
- Incentives for native plantings and other best practices

How willing are you to take the following actions around your home and yard to improve surface water and groundwater quality?



Community Outreach at Events

Beginning in June 2022 and continuing through much of 2023, BCWMC commissioners and staff participated in various events around the watershed to gather input on watershed issues and to begin building relationships with Minneapolis neighborhoods. Watershed commissioners and staff discussed various topics with residents, provided educational materials, reviewed the watershed map, discussed priority issues, and requested completion of the public input survey (through QR code link or paper copy). At some events, a shortened version of the survey was provided to enable quicker responses on the high priority questions. The table below includes the outreach events attended by the BCWMC during this timeframe.

Date	Event	Location	Notes
6/4/2022	Haha Wakapadan Community Event	Golden Valley	BCWMC tabled; marketed survey
6/16/2022	Electric Vehicle Showcase	Golden Valley	BCWMC tabled; marketed survey
8/2/2022	National Night Out	Medicine Lake	BCWMC tabled; marketed survey
8/4/2022	Plymouth Kids Fest	Plymouth	BCWMC tabled; marketed survey
9/8/2022	Jordan Area Community Council	Minneapolis	Joined a community gathering hosted by JACC and Metro Blooms to gather input on designs/ideas for pocket park
9/25/2022	Elim Church Harvest & Creation Care Celebration	Robbinsdale	BCWMC tabled outdoor event, primarily elderly guests (replied to short "dot questionaire")
9/25/2022	Golden Valley Sustainability Fair	Golden Valley	BCWMC tabled; marketed survey
10/17/2022	NRRC Annual Meeting	Minneapolis	Attended meeting; tabled + gave brief overview of watershed and planning process to whole group
11/1/2022	New Hope City Days	New Hope	BCWMC joined Public Works booth; marketed survey
11/9/2022	BMNA Board Meeting	Minneapolis	Gave brief presentation with overview of BCWMC, planning process, and opportunities for input.
11/15/2022	JACC Annual Meeting	Minneapolis	Gave brief presentation with overview of BCWMC, planning process, and opportunities for input.
11/21/2022	NRRC Board Meeting	Minneapolis	Gave brief presentation with overview of BCWMC, planning process, and opportunities for input.
2/26/2023	Harrison Neighborhood Association	Minneapolis	Met with HNA Community Outreach Specialist to discuss priority concerns of HNA residents
4/28/2023	Loppet Foundation Sustainability Fair	Theodore Wirth Park	BCWMC tabled at event hosted by Loppet Foundation
9/28/2023	BEAM Grand Opening	Minneapolis	Joined a community gathering hosted by Jordan Area Community Council and Metro Blooms to enjoy newly installed/planted pocket park

Public Open House

On Tuesday, February 28, 2023, the BCWMC hosted a public open house to engage with watershed residents and stakeholders and gather input for development of the Watershed Plan. The open house fulfilled the requirements of Minnesota Rules 8410.0045 Subp.5 to host an "initial planning meeting presided over by the organization's governing body to receive, review, and discuss input" on the 2025 Plan.

The meeting was publicly noticed and was held at the Golden Valley Library from 4:00 – 7:00 p.m. The BCWMC used an open house format to provide flexibility for visitors to come and go on their own schedules. Free childcare was offered to promote accessibility and was used by four families.

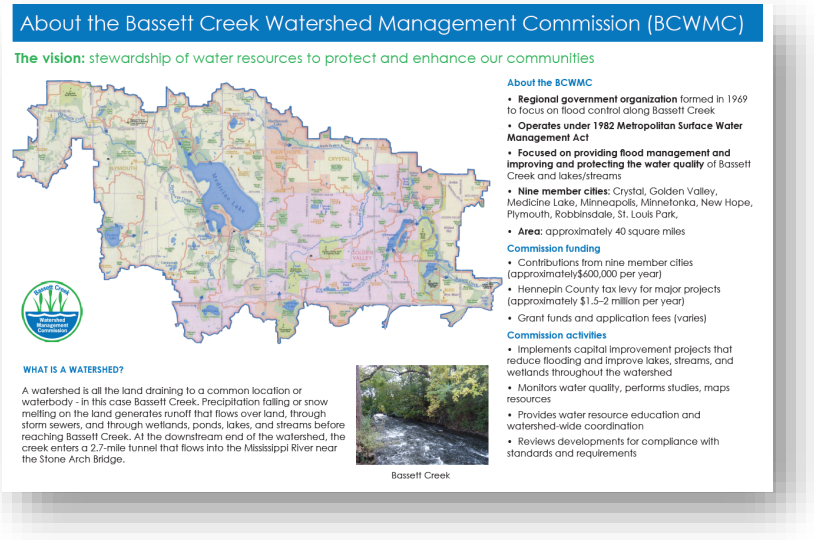
Groups directly invited to the open house included:

- Member city staff, council members, city clerks, city commission members
- Bryn Mawr Neighborhood Association
- Harrison Neighborhood Association
- Jordan Area Community Council
- Northside Residents Redevelopment Council
- Hennepin County staff
- Hennepin County Commissioners Fernando, Greene, and Lunde
- Met Council staff
- MN Board of Water and Soil Resources staff
- MN Department of Natural Resources staff
- MN Pollution Control Agency staff
- MN Department of Health staff
- MN Department of Transportation staff
- Three Rivers Park District staff and commissioners
- Minneapolis Park and Recreation Board staff and commissioners
- Metro Blooms staff
- Freshwater staff
- BCWMC meeting announcement recipients
- Former BCWMC commissioners
- Volunteers monitoring lakes in the watershed
- Lake association/lake group leaders
- Friends of Bassett Creek
- Members of the Native Community in Golden Valley
- Wellington Management
- Minnesota Renewable Now
- Survey respondents who listed an email for further updates (79)

Open house attendees included:

- 34 residents, partners, and stakeholders from BCWMC communities
- 3 BCWMC staff
- 11 BCWMC commissioners/alternate commissioners
- 8 BCWMC TAC members
- At least five member cities were represented by commissioners or alternates at all times, maintaining the mandatory quorum for this public meeting.

The open house included general educational displays and materials, a scrolling slide show of watershed photos (water resources, projects, people), and six "boards" on easels with information on various topics including:



- General BCWMC information and map
- Map showing subwatersheds and flow paths through the watershed
- Graphic depicting the planning process and milestones
- Map with location of BCWMC Capital Improvement Projects
- Results of public input survey
- Summary of input from member cities and agencies

The event also included 5 tables, each focused on a different topic, where visitors could engage with commissioners, staff, and/or TAC members about the topic. Relevant materials were available on each topic along with discussion prompts to help engage with visitors. "Table topics" included:

- Water Quality & Pollution (with map of impaired waters and highly impervious land uses)
- Flooding/Water Levels and Climate Resiliency (with map of 100-year flood inundation areas)
- Equity/Inclusion/Outreach
- Natural Habitats & Stream/Lake Shorelines (with map of wetlands, parks, and areas of biodiversity)
- BCWMC Roles & Responsibilities (Who, How, $$)

Before leaving the open house visitors were asked to:

- Rank the importance of the topics listed above according to how much effort and resources BCWMC should use in addressing or improving the issue
- List anything missing from the issues and opportunities presented
- Relay the most important thing the BCWMC could do to improve waters in their community.

Open House Feedback Gathered

It was clear that many participants learned new things about water resources, the BWCMC, and the BCWMC's work and activities at the event. There were many good discussions and engagement with residents, partners, and stakeholders. Actual comments recorded included (by topic):

Natural Habitats and Stream/Lake Shorelines

- Suggestion to create and distribute new homeowners packet of information for new lakeshore and streambank homeowners so they know how lakes and streams "work" and why restored shorelines and streambanks are important, etc.
- Need more access to the creek for nearby residents in the Bassett Creek Valley

Water Quality and Pollution:

- Too much trash including tennis balls and plastic in Parkers Lake
- Need new/stronger stormwater requirements for street projects (Plymouth resident)

Equity/Inclusion/Outreach

- Consider hosting more "drop in" events like this – especially at libraries; have open houses or workshops in diverse communities. Consider spaces for outreach like Y's, community centers, churches, Three Rivers Park District parks
- Can be difficult to address diversity issues as some populations are transient
- Might reach new audiences with text messages
- Difficult for some community members to worry about surface water issues when more pressing and immediate needs are present (like food security, housing, public safety)

General Education Ideas:

- Need to communicate how everyday contaminants damage the water
- Combine efforts and share resources, events, and information with other cities
- Adopt a Drain Program is valuable and effective – especially when neighbors have signs at the storm drain indicating that it drains to a water body
- Bassett Creek Watershed sign at Westwood Nature Center is effective
- Need residents to identify Bassett Creek as being "THEIR creek" - develop a stronger sense of identity with water
- New homeowners guides for lawn care, shoreline care
- Youth education at elementary schools

Where People Get Their News:

- U of M, BCWMC website, Department of Natural Resources, Educational Fair, Minnesota Public Radio, Clean Water Action, newspapers, talking with neighbors, Washington Post, blogs, Sun Sailor, daily paper, city hall, summer picnic held by city, 10:00 news, Minnehaha Creek Watershed website

Ideas for Updating Watershed Map (green paper/folded map):

- Areas of focus or concern
- Population density
- Biking and walking trails
- Add QR code for more information
- Name the minor watersheds (rather than enumerating)

BCWMC Roles & Responsibilities:

- BCWMC should work more with the West Metro Water Alliance (WMWA) (education activities)
- Fully fund WMWA's educator position to full time
- More collaboration

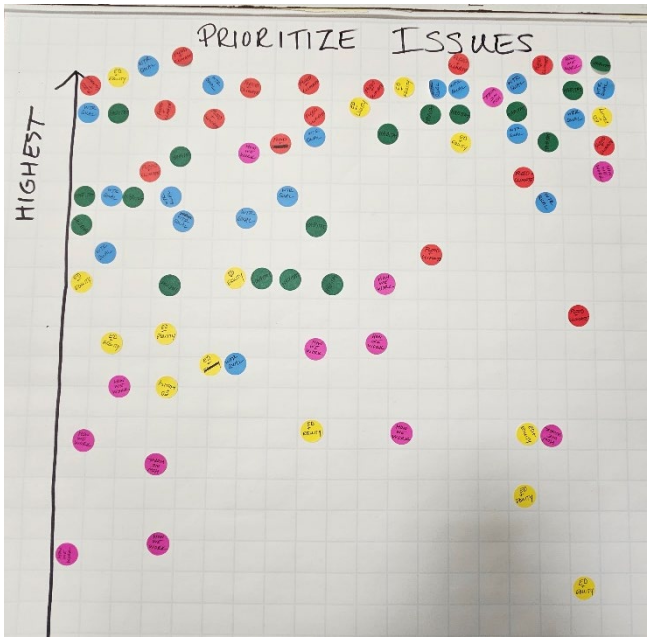
Final Prompts:

Did we miss any issues or opportunities important to you?

- Work with school to educate kids and summer camps
- Education around dredging
- Monitor/regulate wake boating (this comment also received an “awesome” from another person)
- #1 invasive species like starry stonewort

What is the ONE most important thing BCWMC can do to improve waters in your community?

- Make Medicine Lake cleaner and the entire watershed will be better and cleaner!
- Help on salt reduction
- Use small amounts of chlorine to kill the carp
- Educate property owners on how to improve banks (shorelines/streambanks)
- Educate homeowners on best practices (mulching, composting, less fertilizers)
- Educate homeowners on the benefits of buffers and encourage planting through education and helping to source plants



Participants ranked the issues from lowest (bottom of paper) to highest (top of paper) according to the amount of effort and resources BCWMC should use in addressing or improving the issue. Flooding/water levels and climate resiliency were generally grouped as a high priority, followed by water quality and pollution; and natural habitats and lake/creek shorelines. Education, outreach and equity appear to rank lower, followed by BCWMC work (who, how, funding).

[Color coding: Red = Flooding/water levels/climate resiliency; Blue = water quality/pollution; Green = natural habitats/streambanks/shorelines; Yellow = education, outreach, equity; Pink = BCWMC work (who, how, funding)]

JOINT POWERS AGREEMENT FOR THE ESTABLISHMENT AND CONTINUED OPERATION OF THE BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

THIS JOINT POWERS AGREEMENT ("**Agreement**") is made and entered into by and among the cities of Crystal, Golden Valley, Medicine Lake, Minneapolis, Minnetonka, New Hope, Plymouth, Robbinsdale, and St. Louis Park, all Minnesota municipal corporations. The member cities may hereafter be referred to individually as a "**Member**" or collectively as the "**Members**."

RECITALS

A. In 1968, the Members, all of which have lands which drain surface water into Bassett Creek, and all of which have power to construct, reconstruct, extend and maintain storm water management facilities, elected to exercise their authority to adopt a joint powers agreement to establish the Bassett Creek Flood Control Commission to cooperatively manage and plan for the management of surface water within the Bassett Creek watershed ("**Watershed**").

B. In 1982, the Minnesota legislature passed the Metropolitan Area Surface Water Management Act requiring local government units in the metropolitan area to plan for and manage surface water through watershed management (Minnesota Statutes, section 103B.201 to 103B.255) ("**Act**").

C. Under the Act, one of the options available to local government units to satisfy the requirements of the Act is to enter into a joint powers agreement pursuant to Minnesota Statutes, section 471.59 to establish a watershed management organization to jointly plan for and manage surface water within a watershed.

D. In compliance with the Act, the original Bassett Creek Flood Control Commission amended its joint powers agreement and became the Bassett Creek Watershed Management Commission ("**Commission**"). Over time, the joint powers agreement has been updated and amended, and the terms and conditions of the current joint powers agreement expire on January 1, 2025.

E. The Members previously established the board of commissioners of the Commission ("**Board**") and desire for said Board to be reaffirmed as the entity charged with the authority and responsibility to manage the Commission.

F. The Board has previously acted to adopt a watershed management plan ("**Watershed Management Plan**") for the watershed and has regularly updated and carried out said Watershed Management Plan in accordance with the Act.

G. The Members desire to enter into this Agreement to reaffirm the Commission and the Board in furtherance of its efforts to continue working cooperatively to prepare and administer a surface water management plan to manage surface water within the Watershed, in accordance with the Act and Minnesota Rules, chapter 8410, and to carry out all additional functions and responsibilities described herein.

AGREEMENT

In consideration of the mutual promises and agreements contained herein, the Members mutually agree as follows:

SECTION I
ESTABLISHMENT, GENERAL PURPOSE, AND DEFINITIONS

1.1 Reaffirming the Establishment. The Members hereby reaffirm and continue the establishment of the "Bassett Creek Watershed Management Commission" pursuant to their authority under the Act and Minnesota Statutes, section 471.59. The Commission will continue to operate as a duly formed joint powers watershed management organization in accordance with said laws, applicable rules, and this Agreement.

1.2 General Purpose. The general purpose of this Agreement is to continue the Commission and the Board, which the Members previously established, to jointly and cooperatively adopt, administer, and update, as necessary, the Watershed Management Plan, and to carry out the following express purposes:

(a) serve as the watershed management organization for the Watershed and carry out all of the duties and responsibilities outlined in the Act;

(b) investigate, study, plan and control the construction of facilities to drain or pond storm waters to alleviate damage by flood waters;

(c) protect, preserve, and use natural surface water and groundwater storage and retention systems;

(d) minimize public capital expenditures needed to correct flooding and water quality problems;

(e) identify and plan for means to effectively protect and improve surface water and groundwater quality;

(f) establish more uniform local policies and official controls for surface water and groundwater management;

(g) prevent erosion of soil into surface water systems;

(h) promote groundwater recharge;

(i) improve the creek channel for drainage;

(j) assist in planning for land use;

(k) protect and enhance fish and wildlife habitat and water recreational facilities;

(l) repair, improve, relocate, modify, consolidate or abandon, in whole or in part, drainage systems within the Watershed;

(m) secure the other benefits associated with the proper management of surface water and groundwater;

(n) assist in water conservation and the abatement of surface water and groundwater contamination and water pollution;

(o) assist the Members in the preservation and use of natural water storage and retention systems;

(p) promote and encourage cooperation among member cities in coordinating local surface water and groundwater plans and to be aware of their neighbors' problems and to protect the public health, safety, and general welfare; and

(q) continue the work of the Bassett Creek Water Management Commission and to carry out the plans, policies and programs developed by the Commission over time. All existing policies will remain in effect and may be amended by the Commission, as it determines may be necessary to achieve its purposes and objectives.

The plan and programs will operate within the boundaries of the Watershed as identified in the official map filed with the Minnesota Board of Soil and Water Resources, as it may be amended from time to time, which is incorporated into this Agreement as if fully set forth herein. The boundaries of the Watershed are subject to change utilizing the procedures set out in the Act, which may be necessary to better reflect the hydrological boundaries of the Watershed.

1.3 Definitions. For the purposes of this Agreement, and in addition to any other terms expressly defined elsewhere throughout, the following terms have the meanings given them below.

(a) *Board*. The board of commissioners of the Commission, consisting of one Commissioner or one Alternate Commissioner from each Member, and which is the governing body of the Commission.

(b) *Commission*. The organization created by this Agreement, the full name of which is the "Bassett Creek Watershed Management Commission," a duly formed joint powers watershed management organization under Minnesota law.

(c) *Member*. A Minnesota municipal corporation which enters into this Agreement, each of which are expressly listed in section 2.1.

(d) *Voting Commissioner*. A Commissioner or Alternate Commissioner present during a Board meeting with voting rights. Pursuant to section 3.2(b) below, an Alternate

Commissioner only has voting rights in the event of absence or disability of their respective Commissioner. Each Voting Commissioner has one (1) vote on the Board.

(e) *Watershed*. The area contained within a line drawn around the extremities of all terrain whose surface drainage is tributary to Bassett Creek and within the mapped areas delineated on the map filed with the Minnesota Board of Water and Soil Resources ("**BWSR**") pursuant to the Act.

SECTION II
MEMBERSHIP

2.1 Members. The following nine municipal corporations and parties to this Agreement, each of which is either partially or entirely located within the Watershed, are Members of the Commission: Crystal, Golden Valley, Medicine Lake, Minneapolis, Minnetonka, New Hope, Plymouth, Robbinsdale, and St. Louis Park.

2.2 Change in Boundaries. No change in governmental boundaries, structure, or organizational status will affect the eligibility of any Member listed above to be represented on the Commission, so long as such local government unit continues to exist as a separate political subdivision.

SECTION III
BOARD OF COMMISSIONERS

3.1 Establishment. The Members hereby reaffirm the establishment and continued operation of the Board in accordance with the Act. The Board will carry out the purposes and have the powers as provided herein.

3.2 Board Appointments. The Commission is governed by the Board, which consists of representatives appointed by the nine Members in accordance with this section. More specifically, each Member to this Agreement must appoint one Commissioner and one Alternate Commissioner to the Board. Each Member's governing body will determine the eligibility and qualifications of its representatives on the Board.

(a) Commissioner. Each Member is responsible for appointing one person to serve as its primary representative ("**Commissioner**") on the Board. Each Member is responsible for publishing a notice of a vacancy, whether resulting from expiration of its Commissioner position or otherwise, as required in Minnesota Statutes, section 103B.227, subdivision 2.

(b) Alternate Commissioner. Each Member may also appoint one alternate representative ("**Alternate Commissioner**") to the Board in the same manner required to appoint a Commissioner. A Member's Alternate Commissioner may only vote on a matter before the Commission in the event of either absence or disability of the appointing Member's Commissioner (in either event, the Alternate Commissioner is considered a Voting Commissioner). If the absent or disabled Commissioner is also an officer of the Board, the Alternate Commissioner will not be entitled to serve as such officer. If necessary,

the Board may select a current Commissioner to temporarily undertake the duties of the absent officer.

(c) Term. All Commissioners and Alternate Commissioners will serve until their successors are selected and otherwise qualify, unless they resign or are removed earlier as provided herein. All Commissioners and Alternate Commissioners will serve three-year terms, and said terms will be staggered with expiration dates for those presently appointed remaining as follows:

(1) The terms of the existing representatives appointed by the cities of Minneapolis, Minnetonka, and New Hope will expire on February 1, 2025.

(2) The terms of the existing representatives appointed by the cities of Plymouth, Robbinsdale, and St. Louis Park will expire on February 1, 2026.

(3) The terms of the existing representatives appointed by the cities of Crystal, Golden Valley, and Medicine Lake will expire on February 1, 2027.

(d) Notices. A Member will provide the Commission written notice of its appointments, including the resolution making the appointments or a copy of the minutes for the meeting at which the appointments were made. The Commission will notify BWSR of appointments and vacancies within 30 days after receiving notice from the Member. Members must fill all vacancies within 90 days after the vacancy occurs.

(e) Vacancies. A Member will notify the Commission in writing within 10 days of the occurrence of a vacancy in its Commissioner or Alternate Commissioner positions. The Commission will notify BWSR of the vacancy within 30 days of receiving the notice of a vacancy as required by Minn. Stat. § 103B.227, subd. 1. The Member will publish notice of any vacancy, whether by expiration of term or for any other reason, in accordance with Minn. Stat. § 103B.227, subd. 2, as it may be amended. The notices must state that those interested in being appointed to serve on the Commission may submit their names to the Member for consideration. The notice must be published at least 15 days before the Member's governing body acts to fill the vacancy. The governing body must make the appointment within 90 days from the occurrence of the vacancy. The Member will promptly notify the Commission of the appointment in writing. The appointed person will serve the unexpired term of the position.

(f) Removal. The governing body of any Member may remove its respective Commissioner for just cause as provided in Minn. Stat. § 103B.227, subd. 3 and in accordance with Minn. R., part 8410.0040. If a Commissioner is an elected official, said governing body may remove the Commissioner if the Commissioner is not reelected. The governing body of any Member may remove its Alternate Commissioner with or without cause. The Member will notify the Board of any such removal in writing within 10 days of acting to remove the Commissioner or Alternate Commissioner, as the case may be. The Commission will notify BWSR of the vacancy

within 30 days of receiving such notice. The Member must act to fill the vacancy created by the removal within 90 days, as provided in this Agreement.

(g) Suspension of Authority. The authority of a Commissioner or Alternate Commissioner to vote will be suspended if the appointing Member is more than 60 days delinquent in making any payments due to the Commission as provided by this Agreement. The voting authority will be reinstated once the Member pays all past due amounts.

3.3 Compensation and Expenses. Commissioners shall serve without compensation from the Commission, although Commission funds may be used to reimburse Commissioners and Alternate Commissioners for expenses incurred in performing Commission business if authorized by the Board. Nothing in this section 3.3 prevents a Member from providing compensation for its Commissioner or Alternate Commissioner for serving on the Board, if such compensation is authorized by such Member's governmental unit and by law.

3.4 Board Officers; Duties. At its first regular meeting on or after February 1 of each year, the Board will elect from its Commissioners a Chair, Vice Chair, Secretary, and Treasurer. All such officers will hold office for a term of one (1) year and until their successors have been qualified and duly elected by the Board. An officer may serve only while a member of the Board. A vacancy in an officer position will be filled from the Commissioner membership by Board selection for the remainder of the unexpired term of such office. The officers will have the duties provided in the Commission bylaws.

3.5 Quorum. A majority of Voting Commissioners from the nine Member cities, i.e. representation of five Members, constitutes a quorum. Less than a quorum may adjourn a scheduled meeting. A simple majority of the quorum is required for the Board to act unless a higher number of votes is required by this Agreement or by law. If more than one Member has either a Board vacancy (both Commission and Alternate Commissioner) or its voting rights suspended, as provided herein, the number of Voting Commissioners required for a quorum will be reduced until the vacancy is filled or suspension lifted, as the case may be.

3.6 Meetings. The Board will conduct meetings in accordance with the Minnesota Open Meeting Law (Minn. Stat., chap. 13D) and this section.

(a) Regular Meetings. The Board will develop a schedule of its regular meetings. The Board will post the schedule on the Commission's website and provide a copy to each Member. The Secretary will maintain a copy of the schedule of regular meetings. The Chair and Vice Chair may cancel a meeting due to a lack of business items. The Secretary will make a good faith effort to notify Commissioners and Alternate Commissioners of a meeting cancellation.

(b) Special Meetings. The Board may hold such special meetings as it may determine are necessary to conduct the business of the Commission. A special meeting may be called by the Chair or by any two Commissioners. In addition to the notice requirements provided in the Minnesota Open Meeting Law, the Secretary will provide notice of special meetings to the Commissioners and Alternate Commissioners.

(c) Annual Organizational Meeting. The first regular meeting on or after February 1 of each year will constitute the annual organizational meeting of the Commission.

(d) Rules of Procedure. The Board will conduct its meetings generally in accordance with the procedures set out in the most current version of Robert's Rules of Order without requiring strict conformance to its requirements. The Board may modify such rules as it determines is appropriate to facilitate the conducting of its business or adopt a different set of rules for its meetings. The Board may amend its rules from time to time as it determines is appropriate upon a majority vote of all Voting Commissioners. The Board may also waive one or more specific rules as it determines are necessary to facilitate the conducting of its business, except that statutory requirements may not be waived and voting authority provided hereunder may not be abrogated.

SECTION IV
POWERS AND DUTIES OF THE BOARD

4.1 Powers. The Board is authorized to exercise the powers in this section to carry out the purposes of the Commission.

(a) Powers Granted.

(1) It may contract with or employ such persons or entities as it deems necessary to accomplish its duties and powers. Any employee may be on a full-time, part-time, or consulting basis, as the Board determines.

(2) It may contract for facilities, materials, supplies, and services to carry on its activities.

(3) It may acquire necessary personal property to carry out its powers and its duties.

(4) It will prepare, adopt, and implement a watershed management plan and capital improvement program that fulfills the requirements of Minn. Stat. § 103B.231 and all other applicable laws and rules. In preparing said plan, the Board may consult with the engineering and planning staff of each Member and the Metropolitan Council and other public and private bodies to obtain and consider projections of land use, population growth, and other factors which are relevant to the protection and improvement of waters in the Watershed and mitigation of flood risk.

(5) It will make necessary surveys or utilize other reliable surveys and data and develop projects to accomplish the purposes for which it is organized.

(6) It may cooperate or contract with the State of Minnesota, or any subdivision thereof, any federal agency, or any public or private organization to accomplish the purposes for which it is organized.

(7) It may order any Member or Members 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 the Watershed.

(8) It may order any Member or Members to acquire, operate, construct, or maintain dams, dikes, reservoirs and appurtenant works or other improvements necessary to implement the overall plan.

(9) It will regulate, conserve, and control the use and management of storm and surface water and groundwater within the Watershed.

(10) It may contract for or purchase such insurance as the Board deems necessary for the protection of the Commission.

(11) It may establish and maintain devices acquiring and recording hydrological and water quality data within the Watershed.

(12) It may enter upon lands to make surveys and investigations to accomplish the purposes of the Commission. The Commission shall be liable for actual damages resulting therefrom but every person who claims damages shall serve the chair or secretary of the Board with a notice of claim as required by Minn. Stat. § 466.05.

(13) It will provide any Member with technical data or any other information of which the Commission has knowledge which will assist the governmental unit in preparing land use classifications or local water management plans within the Watershed.

(14) It may provide legal and technical assistance in connection with litigation or other proceedings between one or more of its Members and any other political subdivision, commission, board or agency relating to the planning or construction of facilities to drain or pond storm waters or relating to water quality within the Watershed. The use of Commission funds for litigation will be only upon a favorable vote of a majority of Voting Commissioners.

(15) It may accumulate reserve funds for the purposes herein mentioned and may invest funds of the Commission not currently needed for its operations, in the manner and subject to the laws of Minnesota applicable to statutory cities.

(16) It may collect monies, subject to the provisions of this Agreement, from its Members, Hennepin County, and from any other source approved by a majority of its Board.

(17) It may make contracts, incur expenses and make expenditures necessary and incidental to the effectuation of these purposes and powers and may disburse therefor in the manner hereinafter provided.

(18) It will cause to be made an annual audit of the books and accounts of the Commission by a certified public accountant or the State Auditor, and will transmit a copy of the annual audit to BWSR and, on request, a Member. Its books, reports, and records will be available for and open to inspection by the Members at all reasonable times.

(19) It will make and file a report to its Members at least once annually containing, at minimum, the following information: (i) the approved budget; (ii) a reporting of revenues; (iii) a reporting of expenditures; (iv) a financial audit report that includes a balance sheet, a classifications of revenues and expenditures, an analysis of changes in the final balances, and any additional statements considered necessary for full financial disclosure; (v) the status of all Commission projects and work within the Watershed; and (vi) the business transacted by the Commission and other matters which affect the interests of the Commission.

(20) It may recommend changes in this Agreement to the Members.

(21) It may exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth herein and as outlined and authorized by Minn. Stat. §§ 103B.201 through 103B.251.

(22) It will cooperate with the State of Minnesota, the Commissioner of Natural Resources and the Director of the Division of Waters, Soils and Minerals of the Department of Natural Resources in complying with the requirements of Minn. Stat., chap. 103G.

(23) It will establish a procedure for establishing citizen or technical advisory committees and to provide other means for public participation.

(b) Powers Reserved. The Board does not have any of the powers identified in this subsection (b). Expressly identifying specific powers reserved is not intended to expand, by negative implication, the powers granted above to the Board.

(1) Eminent Domain. The Commission does not have the power of eminent domain. Any easements or other interests in land necessary for any Board-ordered project will be acquired as provided below.

(2) Real Property. The Commission may not own any interest in real property. All such interests, if necessary for any Board-ordered project, will be held in the name of a Member wherein said lands are located or another public or private entity, as the case may be.

(3) Bonding. The Commission does not have the power to issue certificates, warrants or bonds.

(4) Special Assessments. The Commission does not have the power to levy a special assessment upon any privately or publicly owned land. All such assessments, if deemed necessary as part of a Board-ordered project, will be levied by the Member wherein said lands are located and in accordance with Minnesota Statutes, chapter 429. The Commission does, however, have the power to require any Member to contribute the costs allocated or assessed according to other provisions of this Agreement.

(c) Members. For the avoidance of doubt, each Member reserves the right to conduct separate or concurrent studies on any matter under study by the Commission.

4.2 Collection or Diversion of Waters. Each Member agrees that it will not directly or indirectly allow the collection or diversion of any additional surface water to the Mississippi River or its tributaries without adherence to all Commission rules and requirements.

4.3 Projects.

(a) The Board may undertake projects, including those provided in its capital improvement program, in accordance with the Watershed Management Plan. Prior to ordering any project or otherwise holding a public hearing as may be required under section 103B.251, the Commission will secure from its engineers or some other competent person a report advising as to whether the proposed improvement is feasible, whether it will best be made as proposed or in connection with some other improvement, the estimated cost of the improvement, and the proposed allocation of costs, including whether one or more Members will incur any such costs. A resolution setting forth the order for any capital improvement project requires a favorable vote by two-thirds of Voting Commissioners. When ordering any project, the Commission resolution will further include an allocation of costs for the project and a designation of which Member(s) or entity will contract for and fund the project. Such resolution may also designate the engineers to prepare plans and specifications.

Any Member aggrieved by the determination of the Board as to the allocation of the costs of a project has 30 days after the Commission resolution ordering the same to appeal said determination. Said appeal must be in writing and directed to the Board asking for arbitration. The determination of the Member's appeal will be referred to a Board of Arbitration. The Board of Arbitration will consist of three persons; one to be appointed by the Commission's Board, one to be appointed by the appealing Member, and the third to be appointed by the two persons so selected. In the event the two persons so selected do not appoint the third person within 15 days after their appointment, then the Chief Judge of the District Court of Hennepin County will have jurisdiction to appoint, upon application of either or both of the two earlier selected, the third person to the Board of Arbitration. The third person selected must not be a resident of any Member city and if appointed by the Chief Judge said person must be a registered professional engineer. The arbitrators' expenses and fees, together with the other expenses, not including counsel fees, incurred in the conduct of the arbitration will be divided equally between the Commission and the appealing Member.

Arbitration will be conducted in accordance with the Uniform Arbitration Act, Chapter 572B of Minnesota Statutes.

(b) Projects Implemented by Members and Others. For any project that will be constructed by one or more Members on behalf of the Commission and reimbursed in whole or part by the Commission, to the extent authorized by the Commission, the Member(s) responsible for implementing the project and the Commission will enter into a cooperative agreement providing for all Commission-required terms and conditions related to the project and any such reimbursement. The Commission may also implement a project with a non-Member public or private entity in the same manner, if construction by such entities is deemed appropriate by the Commission.

(c) Commission Projects. The Board may also undertake and contract for projects in the Commission's name, in accordance with the Watershed Management Plan and all applicable laws and regulations related to public procurement. Approval of Commission contracts for a capital improvement requires a favorable vote by two-thirds of Voting Commissioners.

(d) County Funding. If the Commission proposes to certify all or any part of the cost of a capital improvement project for payment by Hennepin County via its levy or bonding authority, as set forth in Minn. Stat. § 103B.251, all proceedings will be carried out in accordance with the provisions set forth in said section 103B.251, as amended.

(e) Contracts for Improvements. All contracts which are to be let as a result of the Commission's ordering of a project must comply with the requirements of laws applicable to contracts let by the respective party making such contract. The Commission does not have the authority to contract in its own name for any work for which a special assessment will be levied against any private or public property under the provisions of Minnesota Statutes, chapter 429 or any city charter, and such contracts must be awarded by action of the governing body of a Member and must be in the name of said Member. This subsection does not preclude the Commission from proceeding under Minnesota Statutes, Section 103B.251 or from otherwise proceeding under subsection 4.3(c) for projects that will not be specially assessed under chapter 429.

All improvement contracts will be duly supervised by the party awarding said contract, provided, however, that the Commission is authorized to observe and review the work in progress and the Members agree to cooperate with the Commission staff in accomplishing the purposes of this Commission. Representatives of the Commission also have the right to enter upon the place or places where any improvement work is in progress for the purpose of making reasonable tests and inspections. Commission staff will report, advise and recommend to the Board on the progress of said work.

(f) Land Acquisition. Because the Commission does not have the power to acquire real property, the Members agree that any and all easements or interests in land which are necessary for any project will be negotiated or condemned in accordance with all applicable laws by the Member wherein said lands are located, and each Member

agrees to acquire the necessary easements or interests in such land upon order of the Commission to accomplish the purposes of this Agreement. All reasonable costs of said acquisition will be considered as a cost of the respective improvement. If a Member determines it is in the best interests of that Member to acquire additional lands in conjunction with the acquisition of lands for the Commission-ordered improvement, for some other purpose, the costs of said acquisition will not be included in the improvement costs of the ordered project and the Commission will not reimburse such costs. The Board in determining the allocation of the improvement costs may take into consideration the land use for which said additional lands are being acquired and may credit the acquiring Member for said land acquisition to the extent that it benefits the other Members of this Agreement. Any credits may be applied to the cost allocation of the improvement project under construction or the Board, if feasible and necessary, may defer said credits to a future project.

If any Member refuses to negotiate or condemn lands as ordered by the Board, any other Member may negotiate or condemn outside of its corporate limits in accordance with applicable laws. All Members agree that they will not condemn or negotiate for land acquisition to pond or drain storm and surface waters within the corporate boundaries of another Member except upon order of the Board. The Commission has authority to establish land acquisition policies as a part of the overall Watershed Management Plan. The policies must be designed to equalize costs of land throughout the Watershed.

4.4 Emergency Projects. The Commission may perform emergency projects in accordance with Minn. Stat. § 103B.252.

4.5 Local Water Management Plans.

(a) Development. Each Member agrees to develop and maintain a local water management plan, capital improvement program, and official controls as necessary to bring local water management into conformance with the Watershed Management Plan. The development and implementation of local water management plans will conform with all requirements of the Act, including Minn. Stat. § 103B.235 and Minn. R., part 8410.0160, as amended. In accordance with the Act, the Board will approve or disapprove each local plan or any parts of each plan. Every effort will be made by the Commission and all Members to coordinate local plans with the Watershed's overall plan, including planning for local plans at the same time the Watershed's overall plan is being developed.

(b) Review. Each Member will submit its proposed local water management plan to the Metropolitan Council and the Board for review as required by Minn. Stat. § 103B.235. The Board will consider any comments on local water management plans received from the Metropolitan Council and thereafter act on said plans in accordance with the Act.

4.6 Pollution Control and Water Quality. The Commission has the authority and responsibility to protect and improve water quality in the Watershed as this is one of the main purposes set forth

in the Act. All Members agree that they will refuse to allow the drainage of sanitary sewage or industrial wastes onto any land or into any watercourse or storm sewer draining into Bassett Creek. The Board may investigate on its own initiative and will investigate upon petition of any Member all complaints relating to pollution of surface water or groundwater draining into or affecting Bassett Creek or its tributaries. Upon a finding that the creek or surface waters or groundwater are being polluted, the Board may order the Member to abate this nuisance and each Member agrees that it will take all reasonable action available to it under the law to alleviate the pollution and to assist in protecting and improving the water quality of surface water and groundwater in the Watershed.

4.7 Boundary Changes. Any changes to the boundaries of the watershed must be undertaken in accordance with Minn. Stat. § 103B.215, as it may be amended.

SECTION V
FINANCES

5.1 Generally.

(a) Authority. Commission funds may be expended by the Board in accordance with this Agreement and in accordance with the procedures as established by law and in the manner as may be determined by the Board. In no event will there be a disbursement of Commission funds without the signature of at least two Board members, one of whom must be the Treasurer or the Treasurer's Authorized Deputy Treasurer, except to the extent the Commission delegates general or specific authority to the Commission administrator to disburse Commission funds. The Treasurer is required to file with the Secretary of the Board a bond in the sum of at least $10,000 or such higher amount as determined by the Board. The Commission will pay the premium on said bond.

(b) Depository. The Board will designate one or more national or state bank or trust companies, as authorized under Minnesota law, to receive deposits of public moneys and to act as depositories for the Commission funds.

5.2 Member Contributions. Each Member agrees to contribute each year to a fund to be used for general administration purposes including, but not limited to: salaries, rent, supplies, development of the Watershed Management Plan, engineering and legal expenses, insurance, and bonds, and to purchase and maintain any personal property deemed necessary by the Commission in furtherance of its purposes and powers as articulated in this Agreement. Said funds may also be used for normal maintenance of any facilities, but any extraordinary maintenance or repair expense will be treated as an improvement cost and processed in accordance with section 5.3 of this Agreement. Fifty percent (50%) of the annual budget for this general administration fund shall be allocated among the Members based upon the net tax capacity of all property within each Member's respective boundaries compared to the net tax capacity of all property within the Watershed, and the remaining fifty percent (50%) shall be allocated among the Members based on the total area within each Member's jurisdictional boundary that lies within the boundary of the Watershed compared to the total area of all property within the Watershed. In no event will any

assessment hereunder require a contribution to exceed one-half of one percent of the net tax capacity within the Watershed.

5.3 Capital Project Funding.

(a) Project Funding; Commission Contributions. In addition to any amount to be contributed by any Member or other private or public entity, as the case may be and as specified in the Board's resolution ordering the project, the Commission may, by a two-thirds vote of Voting Commissioners, proceed to fund all or any part of the cost of a capital improvement contained in the Watershed Management Plan pursuant to the authority and subject to the provisions set forth in Minn. Stat. § 103B.251.

(b) Maintenance Levy. The Commission may establish a maintenance fund to be used for normal and routine maintenance of a work of improvement constructed in whole or part with money provided by Hennepin County. As provided in Minn. Stat. § 103B.251, subd. 9, the Board may impose, with the county's consent, an ad valorem levy on all property located within the territory of the Watershed or a subwatershed unit. The levy will be certified, levied, collected, and distributed as provided in sections 103D.915 and 103D.921, as amended, and will be in addition to any other money levied and distributed by the county to the Commission. Mailed notice of any hearing required under the aforementioned statutes will be sent to the clerk of each Member municipality at least 30 days prior to the hearing. The proceeds of said maintenance levy will be deposited in a separate maintenance and repair account to be used only for the purpose for which the levy was made.

5.4 Budget; Member Assessments.

(a) Adoption. On or before July 1 of each year, the Board will adopt a detailed budget for the ensuing year and decide upon the total amount necessary for the general fund. Budget approval requires a favorable vote by a majority of Voting Commissioners. The budget must not in any event require any Member to contribute annually in excess of one-half of one percent of the net tax capacity of all taxable property within the Watershed and within said Member's corporate boundaries.

(b) Certification to Members. The secretary of the Board will certify the budget on or before July 1 to the clerk of each Member together with a statement of the proportion of the budget to be provided by each Member.

(c) Member Review. The governing body of each Member agrees to review the budget, and the Board will upon written notice from any Member received prior to August 1, hear objections to the budget, and may, upon notice to all Members and after a hearing, modify or amend the budget, and then give notice to the Members of any and all modifications or amendments. Modifications or amendments to the original budget require a favorable vote by a majority of Voting Commissioners.

(d) Member Assessments. Each Member agrees to provide the funds required by the approved budget and contemplated under section 5.2. If no objections are submitted to the Board, each Member agrees to provide the funds approved by the Board after the Board has conducted the process required in this Agreement. The schedule of payments by the Members will be determined by the Board in such a manner as to provide for an orderly collection of the funds needed.

(e) Supplemental Budget. Upon notice and hearing, the Board by a favorable vote of a majority of Voting Commissioners may adopt a supplemental budget requiring additional payments by the Members within 60 days of its adoption but in no event will the budget require any Member to contribute in excess of one-half of one percent of the net tax capacity of all taxable property within the Watershed or within the Member's corporate boundaries in any one calendar year.

5.5 Cost Allocation for Capital Projects. All capital costs incurred by the Commission will be apportioned to the respective Members on any of the following bases:

(a) County Levy. If the project is constructed and financed pursuant to Minn. Stat. § 103B.251, the Members understand and agree that said costs will be levied on all taxable property in the Watershed as set forth in said statute.

(b) Negotiated Amount. Members who have lands in the subdistrict that is responsible for the capital improvement may negotiate an amount to be contributed by each Member thereof.

(c) Tax Capacity and/or Total Area.

(1) Fifty percent of all capital costs or the financing thereof will be apportioned to each Member on the basis of the net tax capacity of each Member within the boundaries of the Watershed each year to the total net tax capacity in the Watershed.

(2) Fifty percent of all capital costs or the financing thereof will be apportioned to each Member on the basis of the total area of each Member within the boundaries of the Watershed each year to the total area in the Watershed.

(3) Capital costs allocated under the 50% area/50% net tax capacity formula set forth above may be varied by a two-thirds vote of Voting Commissioners if:

(i) any Member community receives a direct benefit from the capital improvement which benefit can be defined as a lateral as well as a trunk benefit, or

(ii) the capital improvement provides a direct benefit to one or more Members which benefit is so disproportionate as to require in a sense of fairness a modification in the 50/50 formula.

(4) Credits to any Member for lands acquired by said Member to pond or store storm and surface water will be allowed against costs set forth in subsections (c)(1), (c)(2) and (c)(3) of this section.

SECTION VI
MISCELLANEOUS PROVISIONS

6.1 Term. This Agreement is effective as of January 1, 2025 and will remain in effect until January 1, 2033 unless terminated earlier as provided herein. The Members may agree to continue this Agreement as the preferred method for addressing their obligation to address surface water issues under law.

6.2 Liability. For the avoidance of doubt, the Commission is considered a single governmental unit for purposes of total liability for damages pursuant to Minn. Stat. § 471.59, subd. 1a(b).

6.3 Termination. This Agreement may be terminated prior to January 1, 2033, by the unanimous consent of the Members. If the Agreement is to be so terminated, a notice of the intent to dissolve the Commission must be sent to BWSR and Hennepin County at least 90 days prior to the date of dissolution.

6.4 Dissolution. In addition to the manner provided in section 6.3 for terminating this Agreement, any Member may petition the Board to dissolve the Agreement. Following such petition, and upon 90 days' notice in writing to the clerk of each Member and to BWSR and Hennepin County, the Board will hold a public hearing and upon a favorable vote by a majority of Voting Commissioners, the Board may by resolution recommend that the Commission be dissolved. Said resolution will then be submitted to each Member and if ratified by three-fourths of the governing bodies of all Members within 60 days, said Board must dissolve the Commission, allowing a reasonable time to complete work in progress and to dispose of personal property owned by the Commission.

6.5 Distribution of Assets. If this Agreement is terminated and not replaced with a new agreement providing for the continued operation of the Commission, or if the Commission is dissolved, all property of the Commission will be sold and the proceeds thereof, together with monies on hand, will be distributed to the Members of the Commission. Such distribution of Commission assets will be made in proportion to the total contribution to the Commission as required by the last annual budget.

[signature pages to follow]

IN WITNESS WHEREOF, the Members have entered into this Agreement by action of their respective governing bodies effective as of January 1, 2025.

CITY OF CRYSTAL

By: _____

Its: Mayor Pro Tem

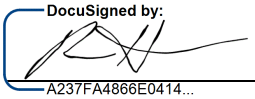
By: _____

Its: CITY MANAGER

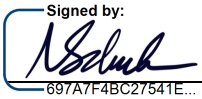
Date: 10/15/24

Docusign Envelope ID: F3BADE94-6F99-4076-9FBA-59169E82F770

CITY OF GOLDEN VALLEY

By: 

Roslyn Harmon, Mayor

By: 

Noah Schuchman, City Manager

Date: November 6, 2024

CITY OF MEDICINE LAKE

By: _____ Chris Heim

Its: mayor

By: Therese Pokorny

Its: City Clerk

Date: October 7, 2024

Docusign Envelope ID: EE2A5E06-A2CE-4743-80A8-3BA920DB0668

CITY OF MINNEAPOLIS

Approved as to Form

By: DocuSigned by: Tiffany Spoor B6218DD938A548C...

Its: Assistant City Attorney

By: Signed by: Pam Fernandez 02E06E87C1584F0...

Its: Finance Officer or Designee/Purchasing Agent

By: DocuSigned by: Angella Craft DA3A2B816892447...

Its: Department Head (or Designee) Authorized to Sign this Contract and/or Responsible for Administering and Monitoring Contract

Date: 12/10/2024

Docusign Envelope ID: F096F248-22C7-4883-91D1-FC70A21FEEE1

CITY OF MINNETONKA

By: DocuSigned by: 21AA42DB33F7415...

Its: Mayor

By: DocuSigned by: 8BC1C45C701E4A7...

Its: City Manager

Date: 12/23/2024

CITY OF NEW HOPE

By: Kathi Hemken

Its: Mayor

By: Reed Scott

Its: City Manager

Date: 11/1/2024

CITY OF PLYMOUTH

By: Dave Callister

Its: City Manager

By: Jeffry C. Wosje (Nov 19, 2024 19:00 CST)

Its: Mayor

Date: 11/19/2024

CITY OF ROBBINSDALE

By: _____

Its: Mayor

By: _____

Its: City Manager

Date: 10/2/24

Docusign Envelope ID: AAA97CB6-B7B8-41B3-AC7B-DAF379340B46

CITY OF ST. LOUIS PARK

By: Signed by: Nadia Mohamed
191196414E494C0...

Its: President

By: Signed by: kim keller
C3DC83277EE04DD...

Its: City Manager

Date: 10/21/2024