

BCMWC 2015 Watershed Management Plan

Executive Summary

Contents

Executive Summary..... ES-1

Section 1 – Introduction ES-1

Section 2 – Land and Water Resource Inventory..... ES-2

Section 3 – Assessment of Issues and Opportunities ES-4

Section 4 – Goals and Policies..... ES-4

Section 5 – Implementation Program ES-8

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Executive Summary

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

Stewardship of water resources to protect and enhance our communities

This BCWMC *Watershed Management Plan* (Plan) sets the guidelines for managing the water resources within the boundaries of the BCWMC to achieve the organization's vision. This Plan provides data and other background information, outlines the applicable regulations, assesses watershed-wide and resource-specific issues, sets goals and policies for the BCWMC and its members, and lists implementation tasks to achieve the goals. This Plan is organized into five major sections. The general content and highlights of each section follows.

Section 1 – Introduction

Section 1 of this Plan summarizes the BCWMC's location and history, and lists the general authorities of watershed management organizations (WMOs) like the BCWMC. The BCWMC is a local unit of government (LGU) that manages water resources within the Bassett Creek watershed per authorities given in Minnesota Statutes 103B and Minnesota Rules 8410. The Bassett Creek watershed is located in Hennepin County, in the northwestern portion of the Twin Cities. The watershed of Bassett Creek and its three branches cross nine cities: Plymouth, Medicine Lake, Golden Valley, Robbinsdale, Crystal, New Hope, Minnetonka, St. Louis Park, and Minneapolis.

The Metropolitan Surface Water Management Act (Minnesota Statutes 103B.201 – 103B.255) states these purposes of watershed management organization:

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

The BCWMC was originally created in 1968 as the Bassett Creek Flood Control Commission to address flooding concerns within the watershed through a joint powers agreement (JPA) among the nine member cities. In 1984, in accordance with provisions of the 1982 Metropolitan Surface Water Management Act, the Bassett Creek Flood Control Commission revised its JPA and created the Bassett Creek Watershed Management Commission (BCWMC).

The BCWMC is governed by an appointed Board of Commissioners (Board). Each of the nine member cities in the BCWMC appoints one commissioner and one alternate commissioner to the Board. The Board has duties and powers granted through the JPA which, include adopting a watershed management plan that sets policies and standards, accumulating and disbursing funds, setting an annual budget, implementing projects and programs that benefit the watershed, and overseeing staff and contractors. Each member city also appoints a member (typically a city staff person) to the BCWMC Technical Advisory Committee (TAC). This committee works closely with the Board to implement the goals and policies of the BCWMC.

Section 2 – Land and Water Resource Inventory

Section 2 of this Plan contains information on land use and public utilities, climate and precipitation, topography, soils, geology and groundwater resources, surface water resource information, flood control systems, natural communities and rare species, and pollutant sources in the BCWMC. This important information describes the condition of the watershed and affects decisions about infrastructure, development, and ecological preservation. By way of summary, some of the most notable information in Section 2 follows:

Land use: Almost all of the land in the BCWMC is now fully developed with just small parcels vacant for development in some areas. Low density residential is the major land use found in the Bassett Creek watershed (49%) followed by parks, recreational, and natural areas (11%), industrial land uses (8%), and open water (6%). Additional land use found in the watershed includes undeveloped areas, institutional, major highways, retail/commercial, office space, medium density residential, and limited amounts of agriculture.

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. Average weather imposes little strain on the typical drainage system, however extremes of precipitation and snowmelt are important for design of flood control systems. The National Oceanic and Atmospheric Administration (NOAA) published data on extreme precipitation events that can be used to aid in the design of flood control systems, now called Atlas 14. This data indicates increased precipitation depths for more extreme storm events relative to previously published values.

Topography and soils: The topographic relief of the Bassett Creek watershed is modest. The land slopes generally from higher elevations in the west to lower elevations in the east with only a net loss of 210 feet. Hydrologic soil groups are identified for 53% of the watershed, with the remaining 47% unknown or not rated or unavailable. Of the 53% of the watershed with available soil information, the majority 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. With only a small portion of the watershed consisting of soils with higher infiltration rates, the Bassett Creek watershed has the potential to produce high volumes of runoff.

Geology and groundwater: The City of Minneapolis and the cities where it supplies water (Golden Valley, Crystal, and New Hope) obtain their water supply from the Mississippi River. The cities of Plymouth, Robbinsdale, Minnetonka, St. Louis Park, and Medicine Lake obtain their water supplies from groundwater aquifers. The Bassett Creek watershed is underlain by four major bedrock aquifers - the St. Peter Sandstone, the Prairie du Chien-Jordan, the Wonewoc (formerly known as the Iron-ton-Galesville) Sandstone, and the Mt. Simon-Hinckley Sandstone. In addition, there are numerous aquifers in the glacial drift. Some groundwater from the glacial drift and the St. Peter aquifer discharges into Bassett Creek. The remaining aquifers discharge into the Minnesota and Mississippi rivers; movement of groundwater within these aquifers is complicated by the intersecting buried bedrock valleys.

Surface water resources and water quality: Surface waters in the Bassett Creek watershed include not only the Main Stem of Bassett Creek but many tributaries, lakes, ponds and wetlands. The BCWMC has classified several lakes as Priority 1 deep lakes (see Section 2.7.2.2) including Medicine, Parkers, Sweeney, Twin, and Wirth Lakes. Northwood Lake and Westwood Lake are classified by the BCWMC as Priority 1 shallow lakes while Crane Lake, Lost Lake and Cavanaugh (Sunset Hill) Pond are classified as Priority 2 shallow lakes. The Main Stem of Bassett Creek, North Branch Bassett Creek, Sweeney Branch Bassett Creek and Plymouth Creek are classified as Priority 1 streams by the BCWMC. Classification as priority waterbodies is relevant to BCWMC monitoring, application of water quality standards, and eligibility for water quality improvement projects. Waterbodies within the BCWMC not classified as priority waterbodies may still be eligible for BMCWC capital projects, and will be managed in accordance with the policies established in this Plan.

For BCWMC priority waterbodies, the BCWMC adopted water quality standards that are the same as those established by the Minnesota Pollution Control Agency (MPCA). Waterbodies that do not meet these standards are considered impaired. There are currently six lakes and three streams in the Bassett Creek watershed that are on the MPCA's draft 2014 Impaired Waters List (Table 2-5). Waterbodies impaired for chlorides include: Parkers, Spring, Sweeney, and Wirth Lakes, Main Stem Bassett Creek, and Plymouth Creek. Waterbodies impaired for excess nutrients include: Medicine, Northwood, and Sweeney Lakes. Plymouth Creek, the Main Stem of Bassett Creek, and the North Branch of Bassett Creek are impaired for bacteria.

The BCWMC monitors its priority waterbodies for chemical, physical, and biological parameters on a rotating schedule according to the BCWMC Monitoring Plan (see Appendix A) and cooperates with many other entities that are also monitoring water resources in the watershed.

Water quantity and flooding: From 1987 to 1996, the U.S. Army Corps of Engineers (USACE) in cooperation with the BCWMC, BCWMC member cities, the Minnesota Department of Transportation (MnDOT) and the Minnesota Department of Natural Resources (MDNR) constructed the Bassett Creek

Flood Control Project. This \$40 million project controls flooding in several BCWMC cities. The principal feature of the Flood Control Project is the new 1.7-mile tunnel through downtown Minneapolis, which replaced the century-old Bassett Creek tunnel. The BCWMC inspects the Flood Control Project features and ensures adequate maintenance of the structures by member cities. The roles, responsibilities and funding mechanisms for rehabilitation and replacement of the Flood Control Project structures will be studied by the BCWMC during the life of this Plan.

The BCWMC monitors water levels on various lakes, along with stream flow on Bassett Creek near the tunnel entrance. The BCWMC also cooperates with member cities to ensure accurate and updated floodplain delineations and flood insurance studies.

Natural communities and rare species: Prior to settlement, the Bassett Creek watershed was covered by oak forests interrupted by tall grass prairie and vast areas of marshland. Although parks and open areas remain, agriculture and then urbanization altered the native vegetation, wetlands, and wildlife communities that once covered these areas. Remaining wetland areas are concentrated in the western part of the watershed. Surveys indicate the presence of a tamarack swamp in Theodore Wirth Park and five occurrences of federally- or state-listed rare animal species in the watershed. Game fish are present in several BCWMC lakes including Medicine, Parkers, and Sweeney Lakes.

Pollutant sources: The sources of pollution impacting water resources in the BCWMC are many and varied. While there are point sources of pollution that are regulated under State permits, the vast majority of pollution reaching the BCWMC waters comes from non-point source – those which cannot be traced back 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. These pollutants include nutrients, bacteria, sediment, chlorides, pesticides, solvents, and chemicals.

Section 3 – Assessment of Issues and Opportunities

Development of this Plan relied heavily on the assessment of issues and the identification of opportunities. The BCWMC performed a gaps analysis (see Appendix D) along with a rigorous public participation process called the Watershed Assessment and Visioning Exercise (WAVE). The WAVE included an online survey with 174 respondents, small group discussions in each member city, a Watershed Summit event where the public prioritized issues, and a prioritization of issues by the Commission, TAC members, and technical partners (see Appendix E for WAVE results).

Key issues identified through the gaps analysis and the WAVE process span several topics, including water quality, water quantity and flooding, erosion and sedimentation, streams, wetlands, (along with habitat and shoreland management), groundwater, education and outreach, and implementation responsibilities. For each of these topics, the gaps analysis identified issues and opportunities the BCWMC should consider in the development of this Plan. Additionally, the public weighed in on the importance of these and other topics through survey responses, small group discussions, and prioritization at the Watershed Summit. Many residents identified low water levels in Medicine Lake as a key issue (see Section 3.2). The results of the public input process were consulted during the development of this Plan.

Section 4 – Goals and Policies

Goals

The BCWMC established the following goals for this Plan (see Section 4.1):

- Manage the surface water resources of the watershed to meet or exceed state standards and BCWMC water quality goals for wetlands, lakes, and streams.
- Improve the quality of stormwater runoff reaching the Mississippi River by reducing nonpoint source pollution.
- Protect and enhance fish and wildlife habitat in the BCWMC.
- Consider aesthetics and recreational opportunities within the watershed when completing BCWMC projects.
- Reduce stormwater runoff volume for the purposes of improving water quality.
- Protect against flood risks along the Bassett Creek trunk system.
- Protect human life, property, and surface water systems that could be damaged by flood events.
- Reduce stormwater runoff rates and volumes to minimize flood problems, flood damages, and the future costs of stormwater management systems.
- Provide leadership and assist member cities with coordination of intercommunity stormwater runoff issues.
- Notwithstanding that which occurs from natural processes, minimize erosion and sedimentation to protect the BCWMC's water resources and health, safety and welfare.
- Maintain or improve shoreland integrity and implement stream restoration measures to maintain or enhance ecological functions as well as human health, safety, and welfare.
- Increase the quality and quantity of wetlands in the BCWMC.
- Protect the quantity and quality of groundwater resources.
- Manage public ditches in a manner that recognizes their current use as urban drainage systems and as altered natural waterways.
- Raise awareness of the BCWMC's existence and its role in protecting and improving water quality, minimizing flooding, and preserving the watershed's ecological functions and aesthetics.
- Strengthen public confidence in the BCWMC's expertise and enable meaningful public participation in the planning process and ongoing projects conducted by the BCWMC.

- Raise awareness of the impact that individuals, businesses, and organizations have upon water resources and motivate these audiences to change personal/corporate behavior that has a negative impact on the watershed.
- Minimize the spread and manage the adverse impacts of harmful aquatic invasive species.
- Develop a greater understanding of climate change and its impact on water resources, including stormwater infrastructure capacity and flooding, and develop strategies to appropriately manage future impacts.

Policies

The BCWMC developed a total of 122 policies to reach these goals. The policies are specific and measurable and include actions the BCWMC will take, along with required actions by member cities and requirements for development and redevelopment projects. Policies are included in Section 4.2 of this Plan. The most notable changes to the BCWMC policies from the 2004 Watershed Management Plan (2004 Plan) include the following:

Policy 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. If the MIDS performance goal is not feasible and/or is not allowed for a proposed project, then the project proposer must implement the MIDS flexible treatment options, as shown in the MIDS Design Sequence Flow Chart, or BCWMC-approved alternative.

Policy 32: The BCWMC requires the retention of on-site runoff from development and redevelopment projects consistent with the MPCA's Minimal Impact Design Standards (MIDS) performance goals. These include the retention of:

- 1.1 inches of runoff from impervious areas for new development creating more than 1 acre of new impervious area
- 1.1 inches of runoff from new or fully reconstructed impervious areas for redevelopment creating one or more acres of new or fully redeveloped impervious area
- 0.55 inches of runoff from new or fully reconstructed impervious areas for linear projects creating one or more acres of new or fully redeveloped impervious area (or 1.1 inches from the net increase in impervious area, whichever is greater)
- If an applicant is unable to achieve the performance goals due to site restrictions, the MIDS flexible treatment options approach shall be used, following the MIDS design sequence flow chart.

For all other projects, the BCWMC encourages the use of infiltration, filtration, or other abstraction of runoff from impervious areas for all development and redevelopment projects as a best practice to reduce stormwater runoff.

Policy 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.

Policy 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 10 feet or 25 percent of the distance between the ordinary high water level (i.e., the top of the bank of the channel) and the nearest existing structure, whichever is less. Member cities may allow exemptions for public recreational facilities parallel to the shoreline (e.g., trails) up to 20 feet in width, with that width being added to the required buffer width.

Policy 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, member cities shall implement standards for bounce, inundation, and runoff control that are similar to BWSR guidance; member cities are encouraged to apply standards for other wetland classifications.

Policy 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):

- An average of 75 feet and minimum of 50 feet from the edge of wetlands classified as Preserve
- An average of 50 feet and minimum of 30 feet from the edge of wetlands classified as Manage 1
- An average of 25 feet and minimum of 15 feet from the edge of wetlands classified as Manage 2 or 3

Allowable land uses and vegetative criteria for buffers are specified in the BCWMC's *Requirements for Development and Redevelopment* (as amended). Member cities may allow exemptions for public recreational facilities parallel to the shoreline (e.g., trails) up to 20 feet in width, with that width being added to the required buffer width.

Policy 110: The BCWMC will consider including projects in the CIP that meet one or more of the following "gatekeeper" criteria:

- Project is part of the BCWMC trunk system (see Section 2.8.1, Figure 2-14 and Figure 2-15).
- Project improves or protects water quality in a priority waterbody.
- Project addresses an approved TMDL or watershed restoration and protection strategy (WRAPS).
- Project addresses flooding concern.

The BCWMC will use the following criteria, in addition to those listed above, to aid in the prioritization of projects:

- Project protects or restores previous Commission investments in infrastructure.
- Project addresses intercommunity drainage issues.
- Project addresses erosion and sedimentation issues.
- Project will address multiple Commission goals (e.g., water quality, runoff volume, aesthetics, wildlife habitat, recreation, etc.).
- Subwatershed draining to project includes more than one community.
- Addresses significant infrastructure or property damage concerns.

The BCWMC will place a higher priority on projects that incorporate multiple benefits, and will seek opportunities to incorporate multiple benefits into BCWMC projects, as opportunities allow.

Section 5 – Implementation Program

Section 5 of this Plan describes the responsibilities of the BCWMC and the responsibilities the BCWMC has delegated to its member cities. Many agencies have jurisdiction within the BCWMC; Section 5 also discusses the roles and responsibilities of those agencies relevant to the management of water resources. The section presents the BCWMC implementation program, including its capital improvement program and other implementation responsibilities.

Responsibilities

The BCWMC has many specific responsibilities including: reviewing improvements and developments, managing the BCWMC trunk system and BCWMC Flood Control Project, implementing the BCWMC capital improvement program (CIP), reviewing and assisting with intercommunity planning and design, dispute resolution, reporting and evaluation, monitoring, and total maximum daily load (TMDL) implementation.

The BCWMC does not have a permit program. The BCWMC Plan and the BCWMC *Requirements for Improvements and Development Proposals* (as amended, see Appendix H of this Plan) establish goals, standards, and requirements that the member cities must incorporate into their official controls (e.g., ordinances). The BCWMC relies on its member cities to review improvement (e.g., street reconstruction projects), redevelopment, and development proposals for compliance with BCWMC requirements, when applicable, and to issue permits only after compliance has been determined.

Additional responsibilities of BCWMC member cities include:

- Appointing commissioners and alternate commissioners to the Commission.
- Appointing technical advisory committee members.

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- Incorporating the BCWMC’s requirements into its official controls and implementing BCWMC policies at the time of development and redevelopment.
 - Preparing a local water management plan that conforms to this Plan.
 - Updating its ordinances (or official controls) to conform to and implement the requirements of this Plan.
 - Implementing the capital improvement projects list in Table 5-3 of this Plan.
 - Acquiring the necessary easements or right-of-way or interest in land upon order of the BCWMC.
 - Contributing annually to the BCWMC general fund.

Section 5 in this Plan provides a brief description of the responsibilities of other units of government, including the Minnesota Department of Natural Resources (MDNR), the Minnesota Board of Water and Soil Resources (BWSR), the Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Health (MDH), the Minnesota Environmental Quality Board (EQB), the Minnesota Department of Transportation (MnDOT) , the U.S. Army Corps of Engineers (USACE), and the Metropolitan Council Environmental Services (MCES).

Implementation Program

This Plan includes comprehensive lists of the projects, programs, and official controls that comprise the BCWMC implementation program. Table 5-3 is the BCWMC’s 10-year capital improvement program (10-year CIP) that will be financed through an ad valorem tax levied by Hennepin County (per Minnesota Statutes 103B.251) along with grant funding and city contributions, when available. Table 5-4 lists the BCWMC’s annual water quality and flood control programs, administrative actions, and education actions (i.e., non-capital projects) that will be financed through the BCWMC general fund. Table 5-5 lists the past accomplishments of the BCWMC.

Plan Amendments

This Plan remains in effect for ten (10) years from the date it was adopted by the Board of Water and Soil Resources, unless it is superseded by approval and adoption of a succeeding Plan. All amendments to this Plan must follow the procedures set forth in this Plan, or as required by revised laws and rules. The BCWMC will follow the plan amendment process (for either minor or general amendments) as described in Minnesota Statutes 103B.231, Subd. 11 and in Minnesota Rules 8410.