North Cannon River Watershed Management Organization

4th Generation Watershed Management Plan

November 2022 | Draft

NORTH CANNON RIVER
WATERSHED MANAGEMENT ORGANIZATION

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Thank you and Acknowledgments

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- Greg Langer, Greenvale Township
- Dan Peine, Hampton Township
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Acronyms

AC	Advisory Committee
BALMM	Basin Alliance for the Lower Mississippi in Minnesota
BMP	Best Management Practices
BWSR	(Minnesota) Board of Water and Soil Resources
CFS	Cubic Feet per Second
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FNAP	Farmland and Natural Areas Program
GIS	Geographic Information System
HEL	Highly Erodible Land
IBI	Index of Biotic Integrity
LBIA	Lake Byllesby Improvement Association
LGU	Local Government Unit
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MNDNR	Minnesota Department of Natural Resources
MNDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MSHA	Minnesota Stream Habitat Assessment
MUSA	Metropolitan Urban Service Area
NCRWMO	North Cannon River Watershed Management Organization
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
O&E	Outreach and Education
OHWL	Ordinary High-Water Level
SSTS	Subsurface Sewage Treatment System
SWCD	Soil and Water Conservation District
TC	Technical Committee
TMDL	Total Maximum Daily Load
USDA	U.S. Department of Agriculture
WCA	Wetland Conservation Act
WOMP	Watershed Outlet Monitoring Program

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1.0 Executive Summary

Watershed Location

The North Cannon River Watershed (Watershed) drains approximately 150 square miles in the southern third of Dakota County (planning area) in eastern Minnesota (Figure 1-1). Dakota County lies at the southern edge of the Twin Cities metropolitan area and is considered a metropolitan county, although the Watershed is south of the Metropolitan Urban Service Area (MUSA) and is rural in nature with agriculture as the predominant land cover. The Watershed lies at the northern edge of the Cannon River watershed, which drains a total of 1,470 square miles in six southeastern Minnesota counties (Figure 1-1). However, approximately 90% of the Watershed drains directly to the Cannon River within Dakota County without crossing into a neighboring county.

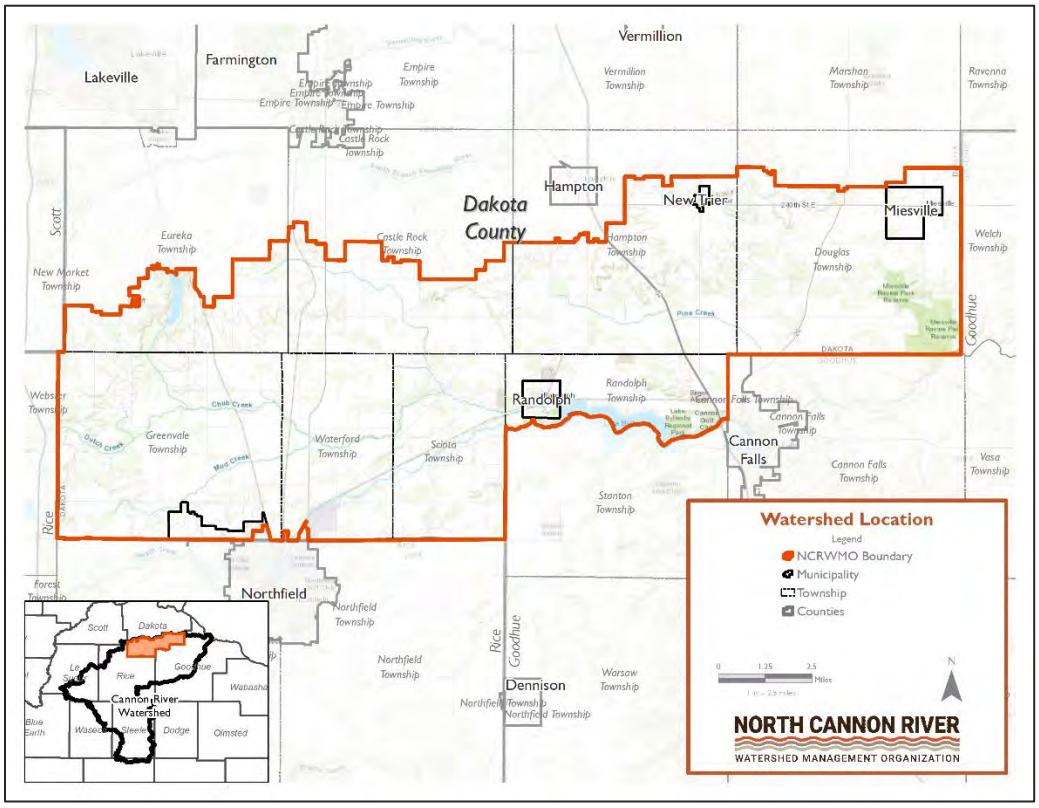

Figure 1-1: Watershed Location

NCRWMO Background

The North Cannon River Watershed Management Organization (NCRWMO) is a local government unit formed through a joint powers agreement (Appendix A) signed by eight townships and three small cities in southern Dakota County. The NCRWMO's Board of Managers is comprised of one representative appointed from each of the 11 communities that are within the Watershed. The Watershed includes the subwatersheds of Chub Creek, Trout Brook, and Pine Creek, and the Cannon River from Northfield to Lake Byllesby. The Watershed has an approximate population of 5,624 (2022), with a population expected to slightly decline to an estimated 5,590 in 2027. The jurisdictional boundary covers approximately 150 square miles, which includes all or part of the following communities (Figure 1-1):

- Castle Rock Township
- Douglas Township
- Eureka Township
- Greenvale Township
- Hampton Township
- Randolph Township
- Sciota Township
- Waterford Township
- City of Miesville
- City of New Trier
- City of Randolph

A small portion of the City of Northfield that extends into southern Dakota County is not included within the NCRWMO boundary due to a formal exemption contained in the Metropolitan Surface Water Management Act; Minnesota Statute 473.121, subdivision 2.

The NCRWMO was created in 1983 as a result of the State of Minnesota's Surface Water Management Act. Minnesota Statute 103B.201 states that the purposes of a Water Management Organization shall be to:

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

In the past 10 years, the NCRWMO participated in, or accomplished the following tasks (additional detail on achievements through the 3rd generation plan can be found in the North Cannon Performance Review and Assistance Program (PRAP) completed in January 2022):

- Worked with Dakota County to install stream signs on County roads
- Assisted with improved cooperation for Trout Brook Habitat Management
- Advocated with Dakota County throughout their planning process to continue land conservation programs
- Collaborated with communities to help identify buffer priorities
- Re-examined possible buffer requirements for all watercourses
- Advocated with Dakota County to fund buffers on watercourses upstream from Minnesota Department of Natural Resources (MNDNR) streams
- Continued water quality monitoring efforts
- Provided education and disseminated information to partners and the public
- Provided funding for landowner technical assistance and project cost share through Dakota County SWCD Cost Share Program

Watershed Management Vision and Framework

While developing the 4th Generation Watershed Management Plan (Plan), the NCRWMO Board of Managers continued under the organization's existing mission statement, which served as a guide throughout the plan development process.
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NCRWMO Mission Statement

"Managing groundwater and surface water to prevent property damage, maintain hydrologic balance, and protect water quality for the safety and enjoyment of citizens and the preservation and enhancement of wildlife habitat through collaboration among member communities."
- Adopted July 18, 2012

This mission statement was adopted to reflect the goals the NCRWMO has been working on since its inception, often in cooperation and collaboration with others. This Plan is an adaptive plan and is part of an on-going campaign to improve water resources in the watershed. It is not a static document aimed at fixing all water quality issues within the next 10 years. Rather, this Plan is a framework for continuing the advancement of improvements in land use and conservation practices for the restoration and protection of water resources.

Watershed Management Priority Issues

Concerns in the watershed focus on poor surface water quality in creeks, the Cannon River, lakes, and increased water quantity from drainage activities. For example, poor water quality and increased water quantity impact the quality of fish and wildlife habitat, aesthetics, and aquatic recreation. Groundwater quality, specifically nitrates and drinking water conditions, and quantity, especially related to water use for purposes such as irrigation, are also areas of concern within the watershed. Additionally, the balance between landowners' rights and necessary protection of water resources within the watershed through policy and regulation is a concern. Further details on the primary watershed concerns as well as the NCRWMO's plan for addressing those concerns are described in the following chapters of this Plan.

To determine how to allocate limited staff capacity and funds, the watershed concerns were categorized into issues. These issues were then ranked based on priority and ordered into two tiers. In addition to ranking the watershed issues, surface water resources and their drainage areas were ranked separately and prioritized. These rankings

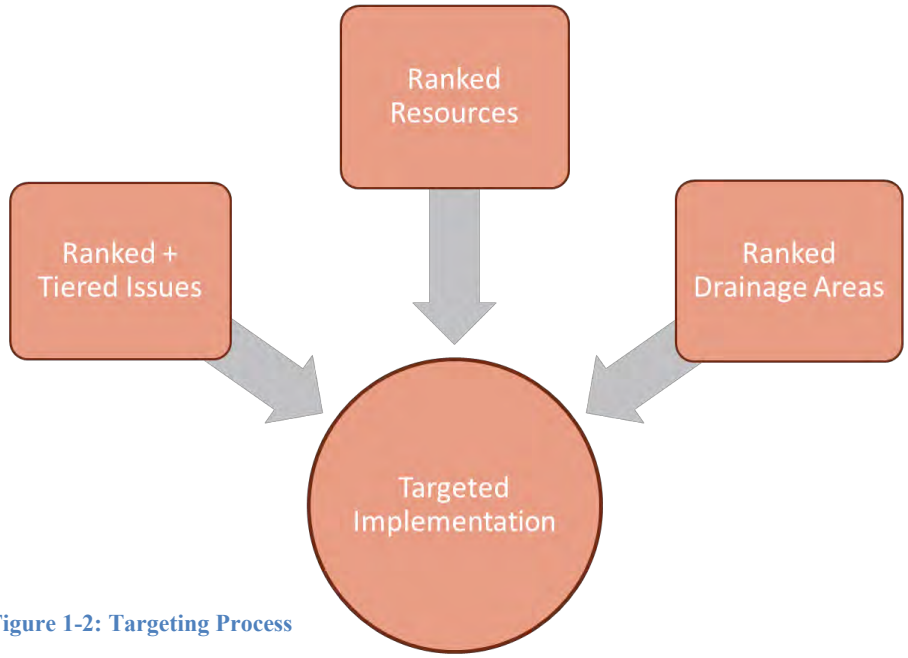


Figure 1-2: Targeting Process

were used in the development of this plan to develop targeted implementation actions that align with the priorities of the NCRWMO. A summary of these issues is below, with details on this process presented later in this plan.

Tier 1

Surface Water
Issues related to water quality and quantity for surface water resources and implementing Best Management Practices (BMPs) that improve priority surface water resources.

Groundwater
Issues related to quality and quantity for groundwater and implementing BMPs in targeted areas that protect vulnerable resources.

Policy and Regulation
Issues related to policy and decision makers and improving consistency of regulation and communication between WMO members and the public.

Outreach and Education
Issues related to informing the public on how their actions impact natural resources, financial opportunities to adopt conservation practices, and participation opportunities.

Tier 2

Habitat
Issues include native species habitat quantity, quality, and connectivity for both terrestrial and aquatic habitats.

Data and Studies
Issues related to knowledge, or lack thereof, of local resources, along with what steps can be taken to protect and restore them.

Emerging Issues
Issues that may change how resources are managed in the future and include issues such as chloride pollution and climate change.

Plan Development Process

This 4th Generation Watershed Management Plan was developed by I&S Group Inc (ISG), who assisted the NCRWMO with coordinating the planning effort, preparing meetings, and drafting plan content. Partners of the NCRWMO participated in the planning process and are acknowledged at the beginning of this plan.

To initiate the planning process, a 60-day comment period was provided to allow state and local agencies to provide recommendations and concerns for the NCRWMO to keep in mind throughout the planning process. These comments were incorporated into the plan document as appropriate based on conversations with the Technical Committee, the NCRWMO Board, and NCRWMO staff.

The Technical Committee (TC), which consisted of representatives from local, regional, and state agencies, provided detailed feedback and input throughout the planning process to guide plan content development. This committee met monthly throughout the process and meetings were facilitated by ISG and the NCRWMO staff.

Figure 1-3: Virtual Open House

The Advisory Committee (AC) consisted of interested community members along with several representatives from various conservation. The AC was convened at key points throughout the planning process to provide feedback and high-level oversight of plan content as it was developed.

The NCRWMO Board was also involved in the planning process, providing review and approval of plan content at key points throughout the planning process.

The planning process took place from July 2021 through October 2022. As required per Minnesota Statute 8410, a 60-day public comment period was held from November 17th 2022 to to January 15th, 2023, followed by a public hearing held XXXX, prior to submitting the plan to BWSR for final approval. After the plan was approved by the BWSR Board, it was officially adopted by the NCRWMO Board.

2.0 Land and Water Resource Inventory

Much of the content in this section has been adopted from the 3rd generation plan and has been updated as needed and is noted with current references.

Cultural History and Socio-Economic Summary

Cultural History

Prior to explorers and European settlers making a home in the North Cannon River Watershed, Native Americans inhabited the area. It is estimated that they began residing in the area approximately 10,000 years ago. The Wahpekute tribe, a subtribe of the Dakota people, thrived along the Cannon River, which they called, In-Yan Bo-Sda-TA Wa-Kpa, meaning The Standing Rock River. This name was based on the landscape near Castle Rock, where tall, white, sandstone rock formations tower near the river. Years later, when the U.S. government surveyed the area, the river was renamed La Riviere Aux Canots (meaning River of Canoes) due to the large number of Native American canoes the surveyor witnessed during his exploration. From there, the name shifted again to its present name, the Cannon River. (Rice 2040)

Socio-Economic Summary

The NCRWMO has a population of 5,624 as of 2022, with an anticipated 2027 population of 5,590. The median household income in the watershed is $106,326 with the median age being 43.4 years old. Most of the population is white, with a combination of other backgrounds such as African American, Asian, and Hispanic, making up the remaining 6.49% of the population. The average family within the NCRWMO has three people. Over the last year, roughly 83% of the watershed's population participated in public activity, however, only 3% participated in an environmental group or cause. (ESRI August 2022)

2022 Population
5,624

Median Household Income
$106,326

Median Age
43.4 Years Old

Topography, Geology, Soils, Precipitation, and Climate

Topography

The topography of the NCRWMO is a result of several glacial advances. In general, the topography consists of rolling to steeply rolling hills in portions of the watershed, with large expanses of flat land in other areas (Figure 2-1). The NCRWMO has a maximum elevation of 1,211 feet above sea level in Section 31 of Eureka Township, and a minimum elevation of 460 feet above sea level in the lower reaches of Trout Brook. Most of the topographic relief in the watershed is found around Chub Lake and along Trout Brook. Steep hills, bluffs, and rocky outcroppings exist in the Miesville Ravine Park Reserve along the lower sections of Trout Brook. The northern tier of the watershed has rolling hills and a bluff that drops to a large expanse of flat land in the mid sections of the watershed. More rolling hills lay in the southwest portion of the watershed.

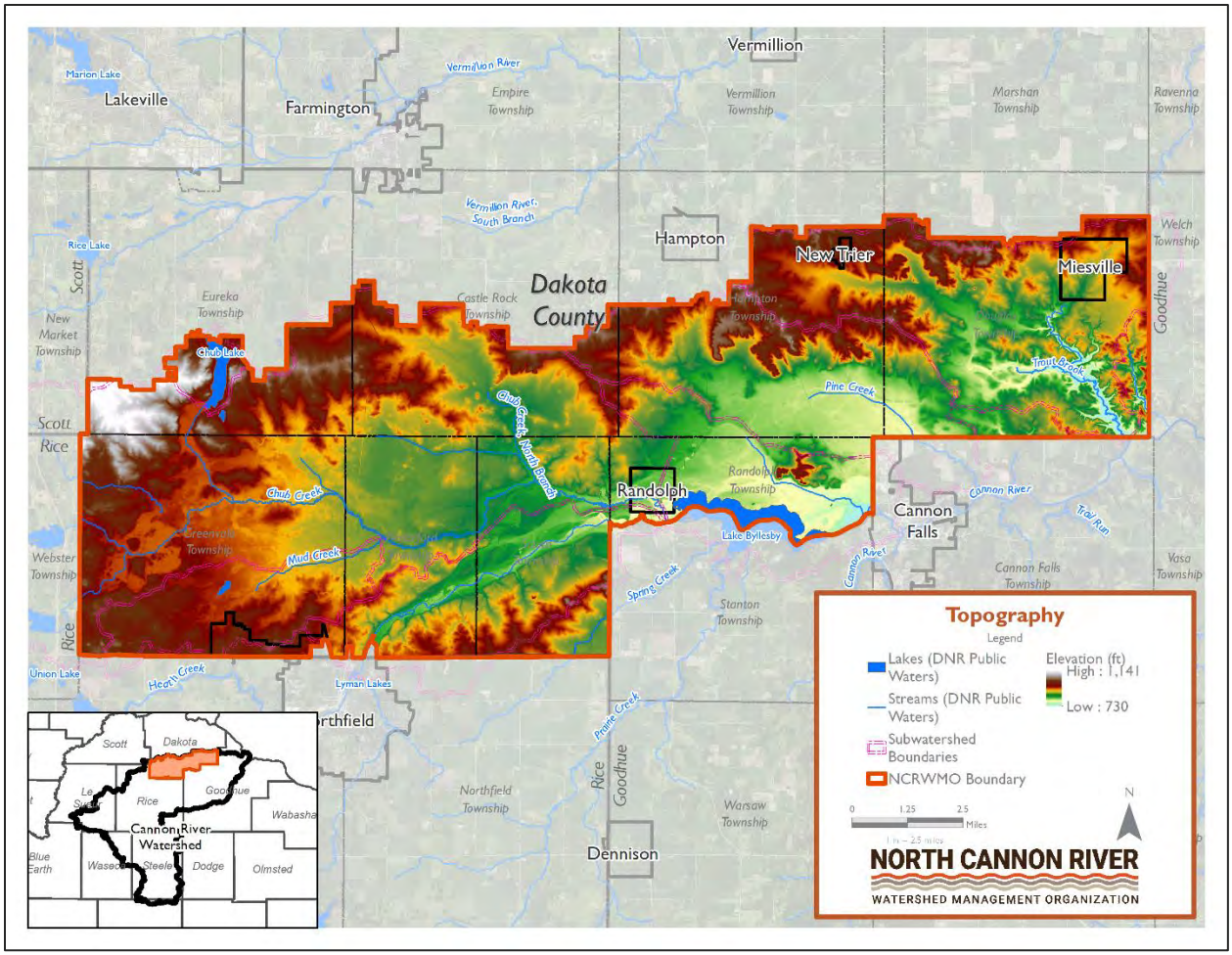


Figure 2-1: Topography

Geology

The geology of the NCRWMO can be described by two major units: surface geology and bedrock geology. The surface geology includes deposits above the bedrock formations: primarily glacial tills and outwash, alluvium (river deposits), and lacustrine (lake) deposits. Bedrock geology in the watershed consists of several layers of limestone, dolomite, sandstones, and shales associated with advances and regressions of ancient seas. As of 2022, the Minnesota Geological Survey and MNDNR are in the process of updating the Dakota County Geologic Atlas.

Surface Geology

Surface geology in the Watershed consists of materials deposited over the last two million years, including glacially derived or reworked materials and non-glacial deposits. Since much of the geologic record was eroded and buried during the last major glaciation, most of the surface deposits in Dakota County were laid down less than 75,000 years ago.

Glacial deposits consist of sand and gravel, till, and loess. Sand and gravel deposits are generally associated with glacial outwash, which refers to materials deposited beyond the terminal margin of the ice. Tills are unsorted and unstratified glacial deposits, with sediments ranging from clay particles to boulders. Outwash is usually well sorted and normally consists of rounded sand and gravels carried and reworked by streams and

channels formed from glacial melt water. Finer silts and clays generally settle out in glacial lakes or are carried completely out of the system.

The western third of the NCRW is underlain by a clay-rich material called the Des Moines lobe till, deposited by the most recent glacial activity in Minnesota about 14,000 years ago. Two geologically sourced (natural occurring) groundwater contaminants, manganese and arsenic, are associated with these glacial deposits. However, elevated manganese or arsenic have been found in private drinking water wells in a variety of geologic settings around the County, so all well owners should have their water tested for these at least once.

The well-sorted gravel deposits mined in Dakota County (the County) and the Watershed are mostly found in glacial outwash deposits. The coarse texture of these deposits allows for the formation of surface aquifers. Where the outwash is close to the surface, these aquifers are particularly susceptible to contamination leaching down from the surface.

Another deposit associated with glaciation is loess. Loess is usually classified as homogeneous, fine windblown silt winnowed from glacial outwash and laid down in blanket-like deposits. Loess is generally highly porous and contains significant amounts of sand (5-10%) and clay (5-30%). Loess deposits are found in portions of Hampton Township and throughout much of Douglas Township.

The non-glacial deposits include floodplain alluvium (river deposits), colluvium (materials deposited by gravity at the foot of a slope), and organic deposits. These deposits are associated with events that occurred in recent geologic history less than 12,000 years ago. In many instances, the physical processes that created these deposits continue to work today.

Floodplain alluvium is generally poorly bedded, moderately well-sorted sediments deposited by modern streams during flood stage. This consists mostly of sand in the valley of the Cannon River. Minor deposits of well-sorted sands have also been recorded in the Miesville Ravine along Trout Brook.

Colluvium is found in small deposits scattered throughout the watershed. Colluvium deposits are poorly sorted, localized deposits derived from eroding hill slopes. These deposits generally consist of native rock topped with loess.

Organic deposits, mostly peat and mucky soils, are found in parts of Castle Rock Township. Peats and muck have a high capacity to absorb and hold water. Where they have not been ditched or tiled, wetlands are usually found in these areas.

Figure 2-2 shows a cross section of the surface geology across Dakota County. The left end of the figure is at the northwest boundary of Lakeville and the right end of the figure is at the furthest southeast corner of the NCRWMO boundary at Goodhue County. This cross section starts to overlap the NCRWMO boundary just right of the U.S. 52 label in the Hampton moraine.

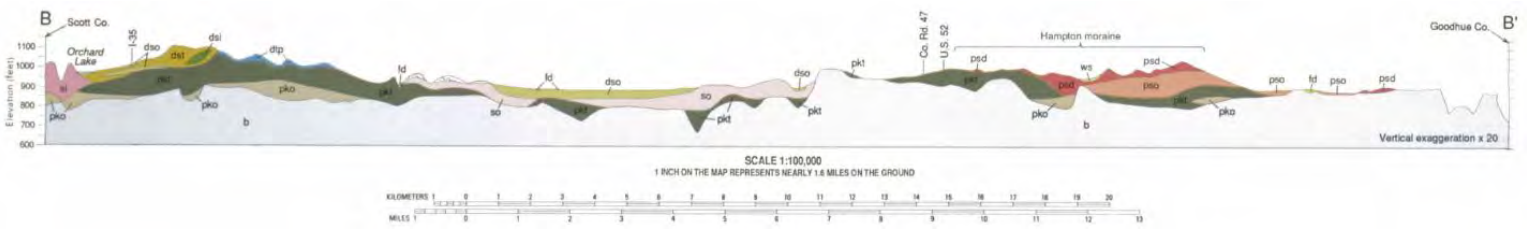


Figure 2-2: Dakota County Surficial Geology (1990, County Atlas Series C-6 Plate 3)

Bedrock Geology

The bedrock underlying the NCRWMO is part of the Twin Cities Basin that was formed during the Paleozoic Era (225-600 million years ago). All the bedrock formations in the watershed are marine sedimentary rock consisting of dolomite, limestone, sandstones, and shales associated with the advancing and receding of ancient seas in the area. Sand accumulated in near-shore bars, on beaches, and in sand dunes; silt and clay formed mud flats or settled out in quiet waters farther from shore; and carbonate derived from remains of invertebrate shells and algae accumulated in small banks and reefs and as layers on the sea floor. Over time, these sediments were compressed and hardened to form sandstone, shale, and dolomitic limestone.

The uplands of the Platteville and Glenwood Formations are distributed throughout much of the northern portion of the watershed. The Platteville Formation varies in thickness between 18 to 28 feet and is made up of a fine-grained dolostone and limestone. The Glenwood Formation varies between 2.5 to 10 feet thick and consists of green, sandy shale. Many of the flat-topped mesas in the southeastern part of the County are capped with the relatively resistant Platteville Formation. Located below the Glenwood Formation, the St. Peter Sandstone is a widely distributed formation with the upper one-half to two-thirds consisting of a poorly cemented homogenous quartzose sandstone. The lower parts of this formation contain multicolored beds of sandstone, siltstone, and shale interbedded with coarse-grained sandstone. This formation varies in thickness but is approximately 130 feet thick throughout the Watershed.

The Prairie du Chien Group that underlies the St. Peter Sandstone is a geologic unit made up of the Shakopee Dolomite, New Richmond Sandstone, and the Oneota Dolomite. The dolostone of the Shakopee formation forms the upper one-half to two-thirds of this unit. It is commonly thin bedded and sandy or oolitic (rounded pebbles generally with sandy center created in near-shore environments) and contains thin beds of sandstone and chert (silicate rock). The lower part of this unit, the Oneota Dolomite, is commonly thick and is generally not oolitic or sandy except in the transition zone just above the Jordan Sandstone. Dolostone in both formations is karst, and the upper part, where the overlying formation may have been eroded, is rubbly. The Prairie du Chien Group underlies almost all of Dakota County and ranges in thickness from 240 to 280 feet in the Watershed. The Jordan Sandstone occurs below the Prairie du Chien Group. This formation is a poorly cemented, cross-bedded,

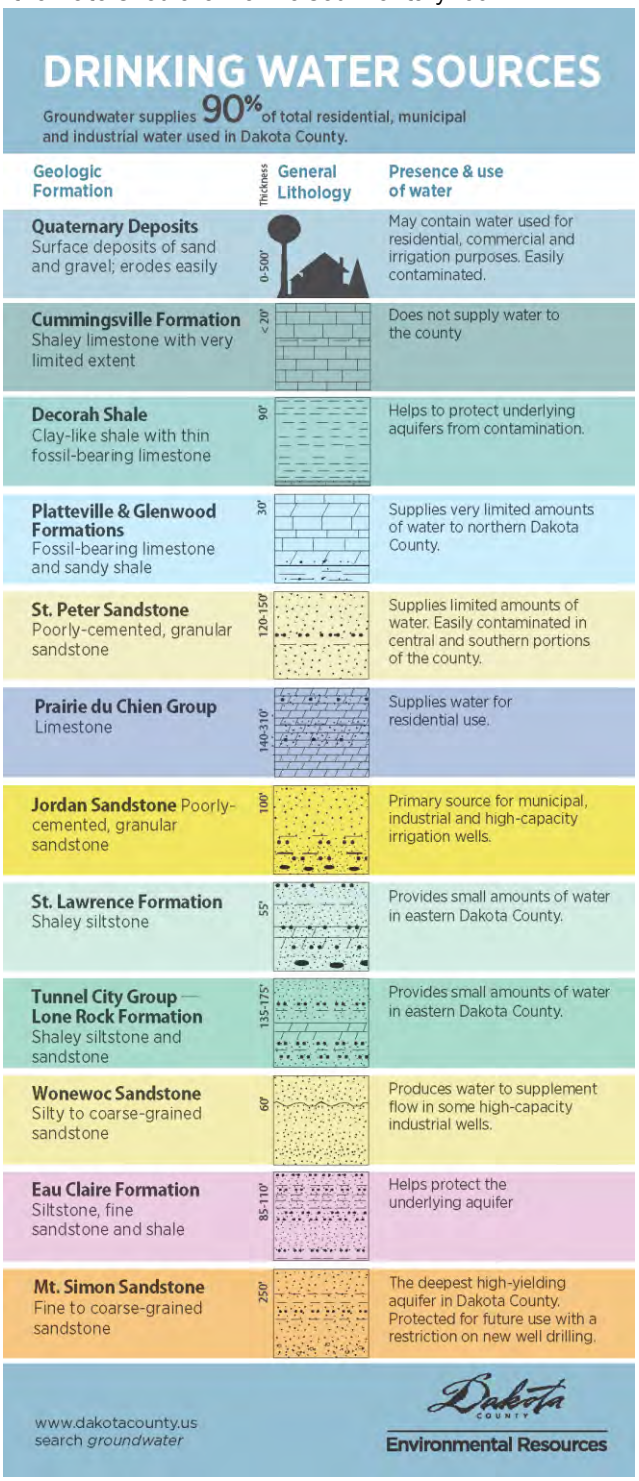


Figure 2-3: Geology & Drinking Water Sources

quartzose sandstone that is approximately 115 feet thick.

Soils

The soils of the Watershed can be summarized by dividing the watershed into three areas that share similar soils: the upper watershed, the central watershed, and the lower watershed (moving west to east across the watershed). The upper watershed includes the townships of Eureka, Greenvale, and Waterford. The central watershed includes Castle Rock, Sciota, and Randolph Township, and the southern half of Hampton Township. The lower watershed includes Douglas Township and the northern half of Hampton Township.

The upper watershed has well-drained to somewhat poorly drained soils formed in loam and silt sediments and loamy glacial till. The well-drained loam soils are typically found on gently sloping to moderately steep hills, while the somewhat poorly drained silty loam soils are typically found in the depressional areas between the slopes. The upper watershed has the largest concentration of hydric soils in the Watershed (Figure 2-4). The topography of Eureka and Greenvale Townships confine hydric soils to small, scattered depressional pockets, while the hydric soils in Waterford Township are found in expansive, level stretches of land. The soils of the upper watershed have a moderately high susceptibility to sheet and rill (channelized) erosion due to their texture, slope, and permeability. The relatively small amount of Highly Erodible Land (HEL) found in the upper watershed is primarily concentrated on the steep slopes adjacent to Chub Lake. The concentration of hydric soils along with opportunity for increased adoption of soil health BMPs lead to this area being a high priority for implementation.

The elevated portions of the central watershed have steep terraces of exposed bedrock. These terraces are surrounded by sloping, loamy farmland that drains downward toward expansive, nearly level, poorly drained silt loams. The soils in the central watershed have low available water capacity and high permeability; therefore, many of the crops in this area are irrigated with center pivot towers. Heavier loam soils within the Chub Creek floodplain bisect the central watershed. Soils in this area are affected by the seasonally high-water table and have low permeability rates. Hydric soils are found on the large, level, poorly drained outwash areas and along the narrow drainage floodplains. Highly erodible land (HEL) soils are sparsely scattered throughout the central watershed and are typically found on steep upland terraces.

The soils in the drainage systems found in the lower watershed are different from the rest of the Watershed. The lower watershed's long, steep slopes and well-drained loamy soils create significant potential for erosion. Most agricultural producers use conservation tillage and planting methods to control runoff and reduce erosion potential. Many crops in this area are irrigated. Hydric soils are limited to small, narrow drainage valleys and HEL soils are predominantly concentrated on the steep slopes and deep stream valleys adjacent to Trout Brook.

Hydric Soils: Hydric soils refer to a subsoil feature indicating that the soil is saturated with water long enough during the growing season to develop anerobic conditions. They are typically found where permeability is low and groundwater is at or near the surface.

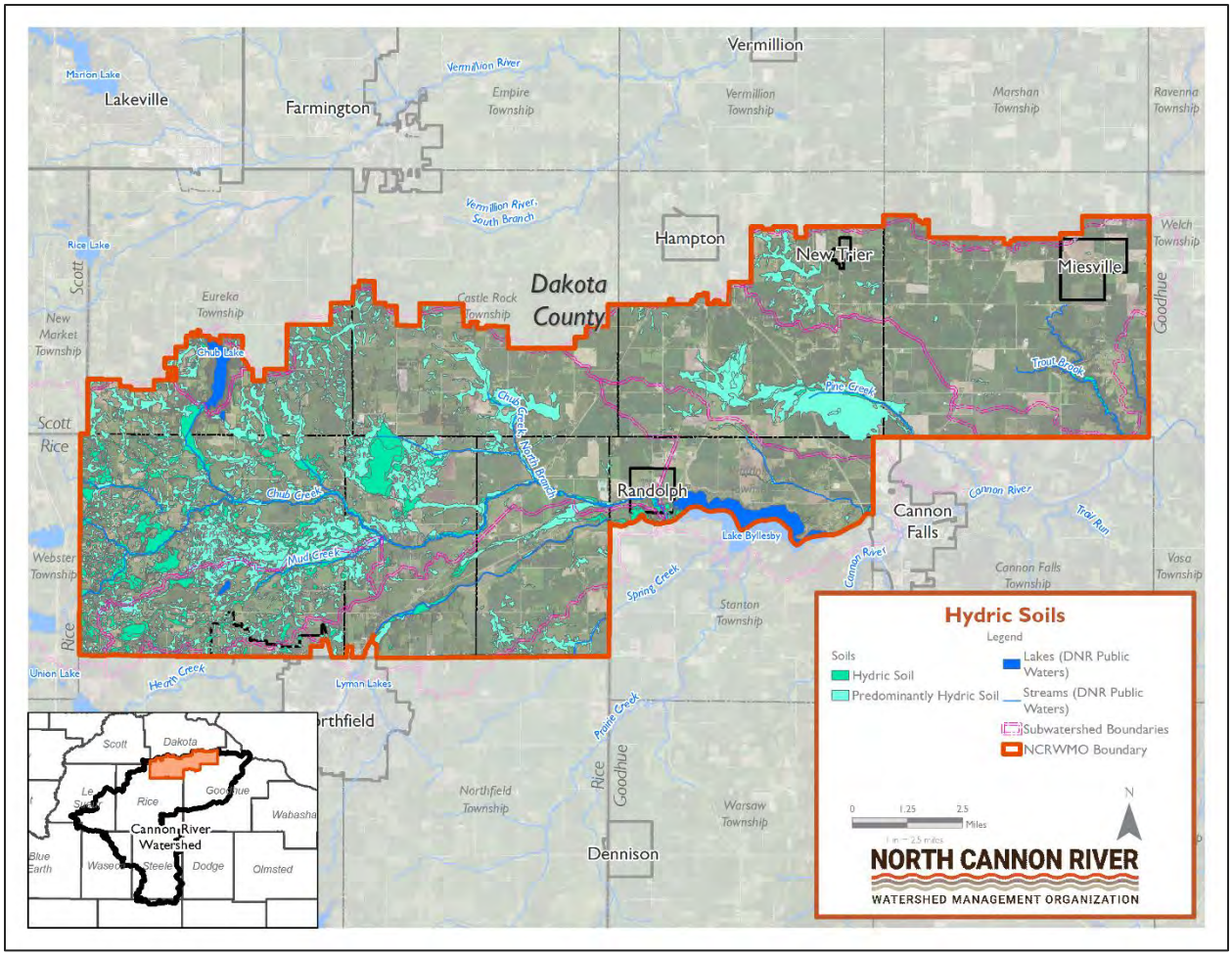


Figure 2-4: Hydric Soils

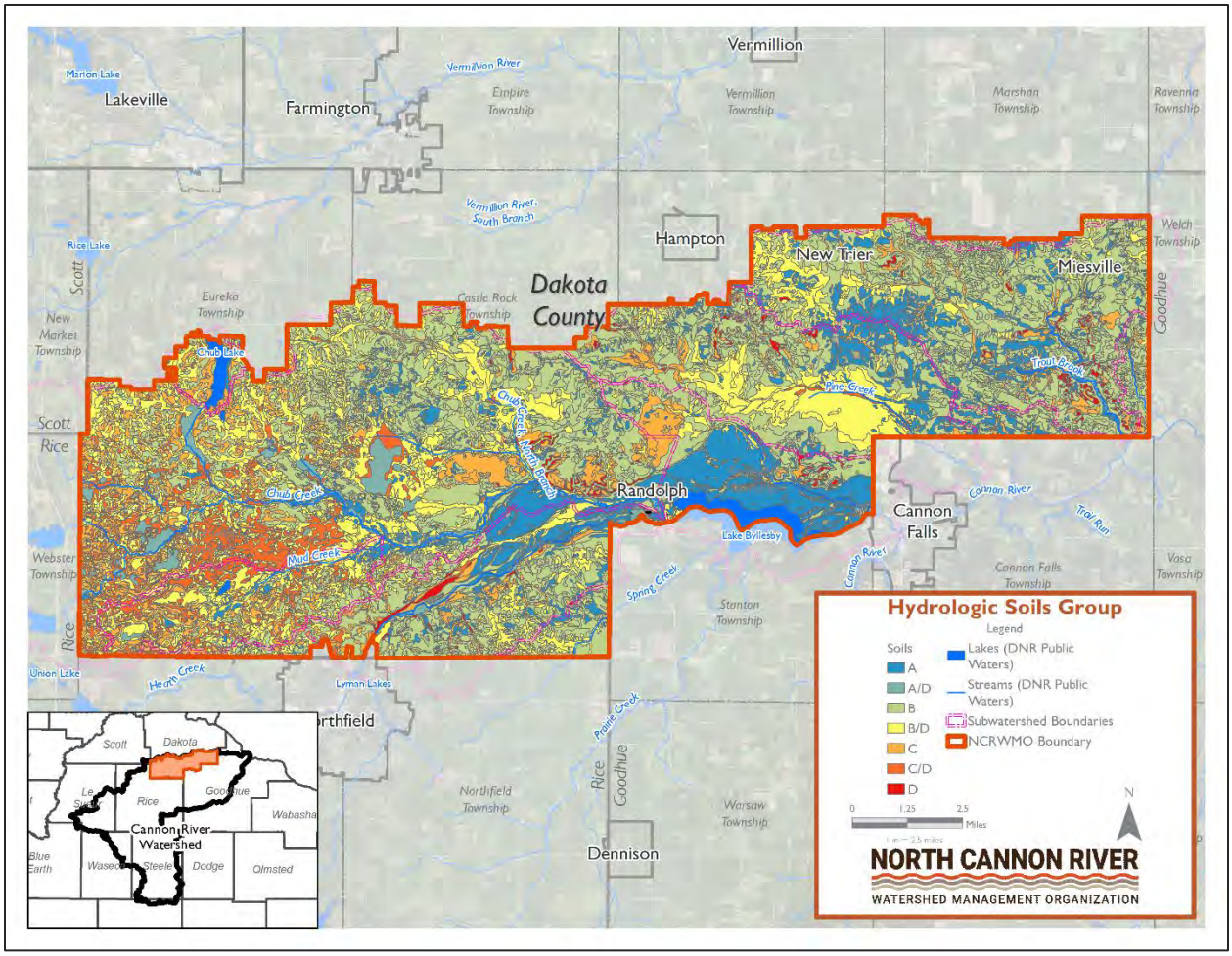


Figure 2-5: Hydrologic Soils Group

Precipitation and Climate

Most of the historical climate and precipitation data for the Watershed originates from the National Weather Service monitoring sub-station in Farmington, Minnesota. However, in 1999, the Metropolitan Council installed an automated rain gauge at its Watershed Outlet Monitoring Program (WOMP) site in Welch, Minnesota. While these stations provided localized daily climate data their period of record has a nine-year gap (Farmington monitoring station) or no longer tracks data (Welch rain gauge). To assess more current data the MNDNR's climate summary for the Cannon River Watershed (http://files.dnr.state.mn.us/natural_resources/water/watersheds/tool/watersheds/climate_summary_major_39.pdf) was used. The information analyzed within this document compares the most recent (through 2018) 30-year data averages with the overall historical data period of record, which is 120 years. Data from the Global Historical Climatology Network Daily (GHCN-D) nClimGrid was used to calculate the averages.

The climate in the Watershed is predominantly continental, characterized by cold, dry winters and warm, sub-humid summers. Following the statewide trend of increasing temperatures, the Watershed has experienced slightly warmer winters and an increase in overnight temperatures during the summer months. Overall, temperatures in the Cannon River Watershed are about 1.6° warmer than the historical average, with an annual average temperature of 44.9°. (Climate, 2019)

Like other watersheds within southeastern Minnesota, rain events within the North Cannon River Watershed are becoming more intense and concentrated. Since the year 2000, rainfall events of six or more inches per

day have been two to three times higher than in the 20th century within the state of Minnesota. The consequences of these heavy rainfalls include increased erosion and flooding. It is projected that the annual average precipitation amounts will continue to increase. Increases in precipitation are most likely to occur during the winter and spring seasons. Between 1985 and 2020, the average annual precipitation in Minnesota increased by 3.4 inches. Additionally, central and southern Minnesota are seeing an increase in excessive heat events. (NOAA, 2022)

The amount of time lakes remain frozen during Minnesota winters is also changing as the average temperatures continue to warm. According to an article published by the Minnesota Pollution Control Agency (MPCA) and MNDNR in December 2021, lakes within the state are losing an average of 10-14 days of lake ice per year. That average was calculated for the past 50 years. Some lakes lose as much as three weeks of ice time per year, while others lose only several days. The shortened ice time may impact fish populations, lake health, and winter recreational opportunities. (MPCA, MNDNR 2021)

Hydrology

There are several significant surface waterbodies in the Watershed. Chub Creek begins at Chub Lake, the creek and its tributaries outlet into Lake Byllesby. Pine Creek and Trout Brook outlet directly to the Cannon River, of which a section runs through the Watershed (Figure 2.2).

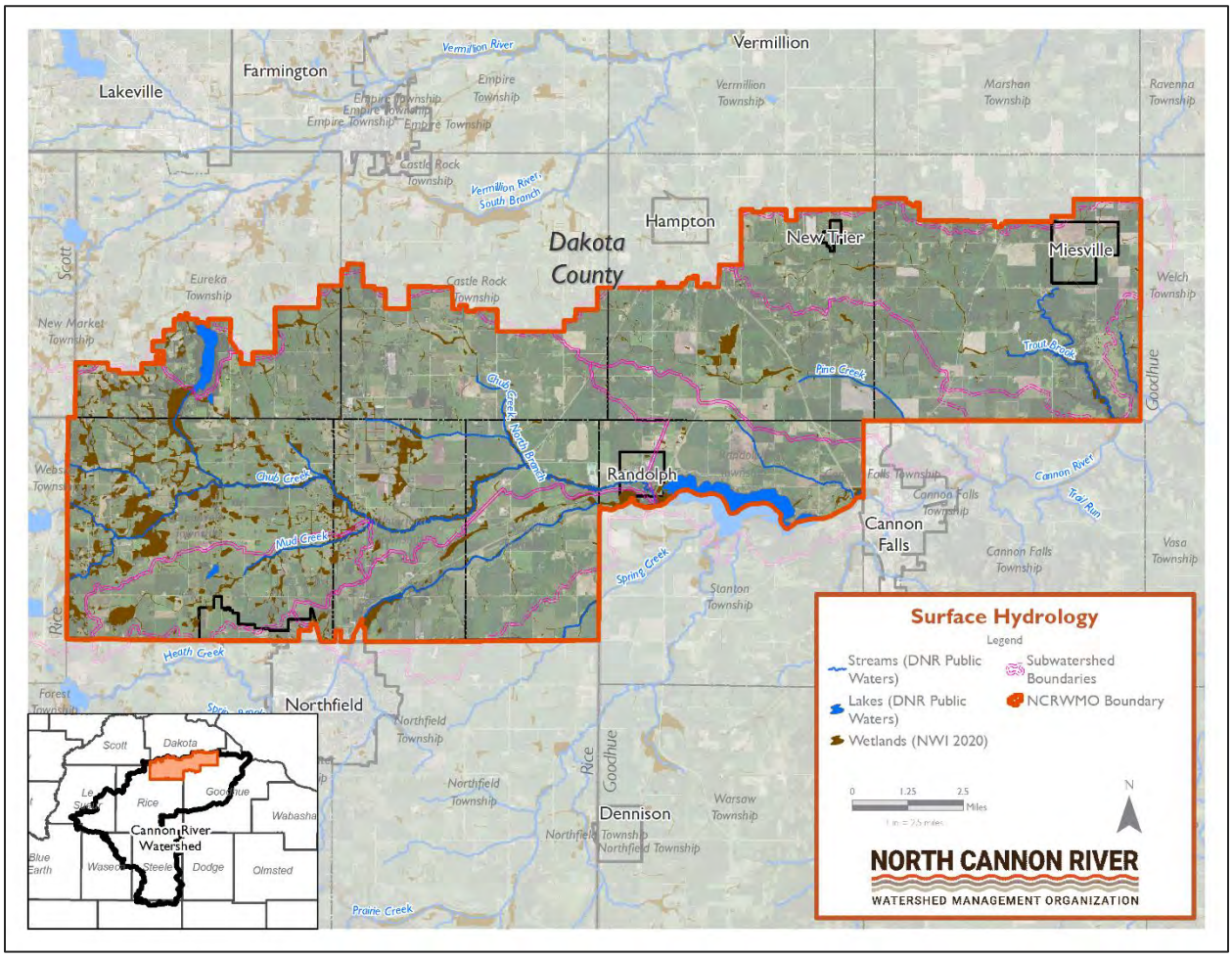


Figure 2-6: Surface Hydrology

Chub Creek

Chub Creek originates in Chub Lake, a natural 228-acre lake with a maximum depth of 10 feet and a large adjacent wetland. The Chub Creek subwatershed drains 67.6 square miles in Dakota County, with additional drainage area in western Rice County. Chub Creek is 22.7 miles in length and the major tributaries to Chub Creek are Dutch Creek (9.3 miles long), Mud Creek (7.0 miles long), and the North Branch of Chub Creek (8.6 miles long). Many other small tributaries and ditches, both perennial (constantly flowing) and intermittent (not always flowing), also flow into Chub Creek for a total of 169 miles of stream channels in the subwatershed (Figure 2-6). The subwatershed is generally flat, with streams that meander slowly through the landscape.

The hydrology of the Chub Creek subwatershed has changed substantially since pioneers began settling the area. It is estimated that a significant portion of the historic wetlands have been lost due to draining or filling, primarily for agricultural use. Historically, many natural streams were straightened, and many new ditches were created to drain wetlands and promote agricultural production. These changes impact the streams by forcing them to carry more water faster than nature intended, thereby carrying more pollutants, causing streambank

erosion and sedimentation, and increasing flooding potential. Much of the North Branch of Chub Creek is one of two jurisdictional ditches in the portion of Dakota County within the Watershed.

Another example of altered hydrology within the watershed is at the outlet of Chub Creek, where water historically flowed into Lake Byllesby. The Creek now empties into the Cannon River at Highway 56, just upstream of Lake Byllesby. The Creek's channel was altered when Highway 56 was built in the 1950s. The wetlands and backwaters that were once associated with the outlet of Chub Creek were excellent spawning grounds for northern pike and other gamefish. The dike placed to redirect the Creek's flow has been eroding away for decades as the Creek tries to reclaim its original channel.

Figure 2-7: Chub Creek

Chub Lake

Chub Lake is a natural, 228-acre lake with a maximum depth of 10 feet. Located in Dakota County, Chub Lake is subject to low water clarity and excessive algae cause by the shallow depths and presence of nutrients, such as phosphorus, within the water. As a result, Chub Lake is classified as eutrophic on the Trophic State Index and is often not considered suitable for aquatic recreation. Chub Lake is the headwaters of Chub Creek.

Pine Creek

Pine Creek flows 5.8 miles, mostly through southern Hampton Township in the eastern half of the watershed. The Pine Creek subwatershed drains approximately 21 square miles of flat, agricultural land. Most of the Creek's length was ditched and straightened to create County Ditch #1 in 1960 (Figure 2-9). Many additional

intermittent streams and ditches enter Pine Creek. With few meanders and a medium slope, the creek flows quickly along its length. The Creek is designated by the MNDNR as a trout stream downstream of Highway 52 (Minnesota State Rules Chapter 6264.0050; www.revisor.mn.gov/rules/?id=6264.0050).

Trout Brook

Trout Brook runs through southern Douglas Township in the far southeastern corner of the Watershed. Although the Trout Brook subwatershed drains over 26 square miles, there are only 8.8 stream miles that contain water year-round (perennial) (Figure 2-9). Most of the drainageways fill with water only during snowmelt and storm events creating intermittent streams. Trout Brook has the highest slope of all the streams within the Watershed, and the uppermost portions of the subwatershed contain rolling hills of cropped land. It flows quickly through the Miesville Ravine Park Reserve and into the Cannon River. Most land in this subwatershed is agricultural, although the lower portion in the park is bordered by steep, forested hills and rocky outcroppings. The perennial portions of Trout Brook are primarily spring-fed. When rain or snowmelt run off the upper parts of the subwatershed, Trout Brook rises quickly and becomes extremely turbid or cloudy. These runoff events also subside quickly, creating what is known as a flashy stream. The lower sections are MNDNR designated trout streams (Minnesota Rules Chapter 6264.0050; www.revisor.mn.gov/rules/?id=6264.0050), and efforts to improve the trout habitat within Trout Brook are identified within the implementation table.

Lake Byllesby

The Byllesby Reservoir, or Lake Byllesby, was formed when the Byllesby hydroelectric dam was constructed on the Cannon River near Cannon Falls in 1910 (Figure 2-8). The lake is divided by Dakota and Goodhue counties and lies between the cities of Randolph and Cannon Falls at the southern edge of the NCRWMO. Lake Byllesby covers 1,435 acres with a mean depth of 11.6 feet and a maximum depth of 50 feet. It has a contributing subwatershed area of 1,116 square miles, comprised of over 700,000 acres. The flow through the Byllesby dam is highly regulated and used for generating hydroelectric power. The Byllesby Dam is owned and operated by Dakota County, and regulated by the Federal Energy Regulatory Commission and the MNDNR. The facility is categorized as a high-hazard dam due to its size and proximity to Cannon Falls. The dam itself is more than 1,100 feet long and higher than 60 feet, with nearly 400 feet of spillway. The crest of the spillway is 854 feet above sea level. Within the powerhouse, there are County-owned and operated turbines that produce electricity. The original turbines are currently being replaced with larger turbines that will nearly double the facility's electric output capacity. The project is scheduled to be completed in the spring of 2023.

Get more information on Lake Byllesby Dam (https://bit.ly/3BKkOn6)

Dakota County maintains the Lake Byllesby Reservoir winter and summer water levels. A permit from the MNDNR establishes the summer and winter elevation requirements. The summer elevation is 856.7 feet from May 15 to October 1. The winter elevation is 853.7 feet from October 1 to May 15. The fall drawdown gradually lowers the water by three feet to just below the sill of the Byllesby Dam. This lowers adjacent groundwater levels accommodating local agricultural needs. Annual refilling of the reservoir begins on May 15.

Figure 2-8: Lake Byllesby Dam

Unnamed Stream

One unnamed stream, locally known as Dorden Glen Creek, almost four miles in length, is a tributary to the Cannon River just downstream from Lake Byllesby at Highway 52. There is no known data regarding the water quality or quantity of this stream.

Cannon River

Although the Cannon River upstream of Lake Byllesby drains over 1,000 square miles of land from six counties, the Cannon River subwatershed within the Watershed includes only 18.4 square miles of land in southern Dakota County.

A small section of the Cannon River, 8.6 miles, runs through a corner of Dakota County in Waterford and Sciota Townships before entering Lake Byllesby in Randolph Township. The Cannon River is one of seven designated Wild and Scenic Rivers in Minnesota. The Wild and Scenic River Act provides protection for a designated river or segment by limiting the licensing of dams, reservoirs, and other water projects that are on the river segment or which may adversely affect the river segment. The recreation designation is from Faribault to Cannon Falls, while the scenic designation is from Cannon Falls to the Mississippi River. The Cannon River from Faribault to the Mississippi River is also designated by the MNDNR as an Outstanding Resource Value Water.

Public Ditches

There are two ditches under public jurisdiction within the Watershed (Figure 2-9). Dakota County serves as the drainage authority for both public drainage systems, however, the Dakota County Soil and Water Conservation District (SWCD) completed the most recent inspections and corresponding drainage report. County Ditch #1 is in Hampton and Douglas Townships and includes much of Pine Creek. County Ditch #2 is in Waterford and Sciota Townships and includes much of the North Branch of Chub Creek. The most recent ditch report was completed in February 2022, and updated reports are required at least once every five years. The inspection focused on several key components that were reviewed and documented. Detailed findings on each of the categories are included in the drainage report.

Routine Inspection Categories

- Buffer Condition
- Culvert Size, Condition, and Location
- Encroachment
- Erosion
- Flow Obstruction
- Illegal and Unauthorized Use
- Private Inlets
- Sediment
- Spoil Piles
- Stagnant Flow
- Trees/Shrubs
- Unauthorized Drainage

In addition to the public ditches there are also a number of altered channels that have been straightened in the watershed which are shown in Figure 2-10.

Shoreland and Floodplain

Activities within the shoreland and floodplain in Dakota County townships are regulated by the County through the Shoreland and Floodplain Management Ordinance 50. In these areas (Figure 2-9) the County must approve land use decisions in shoreland areas and the landward extent of the floodplain. Although cities with MNDNR public waters and/or floodplain are required to adopt MNDNR-approved shoreland ordinances, the MNDNR has delegated the authority to Dakota County in the 13 unincorporated townships.

The County completed a countywide floodplain restudy, including flood-prone regions within the Watershed. This study was adopted by the Dakota County Board of Commissioners on November 15, 2011, and by the Federal Emergency Management Agency (FEMA) on December 2, 2011. Floodplain maps are available for review at the Dakota County Environmental Resources Department, at township halls, and on FEMAs website at https://msc.fema.gov/portal/home . As of August 2022, no updates have been made to this information.

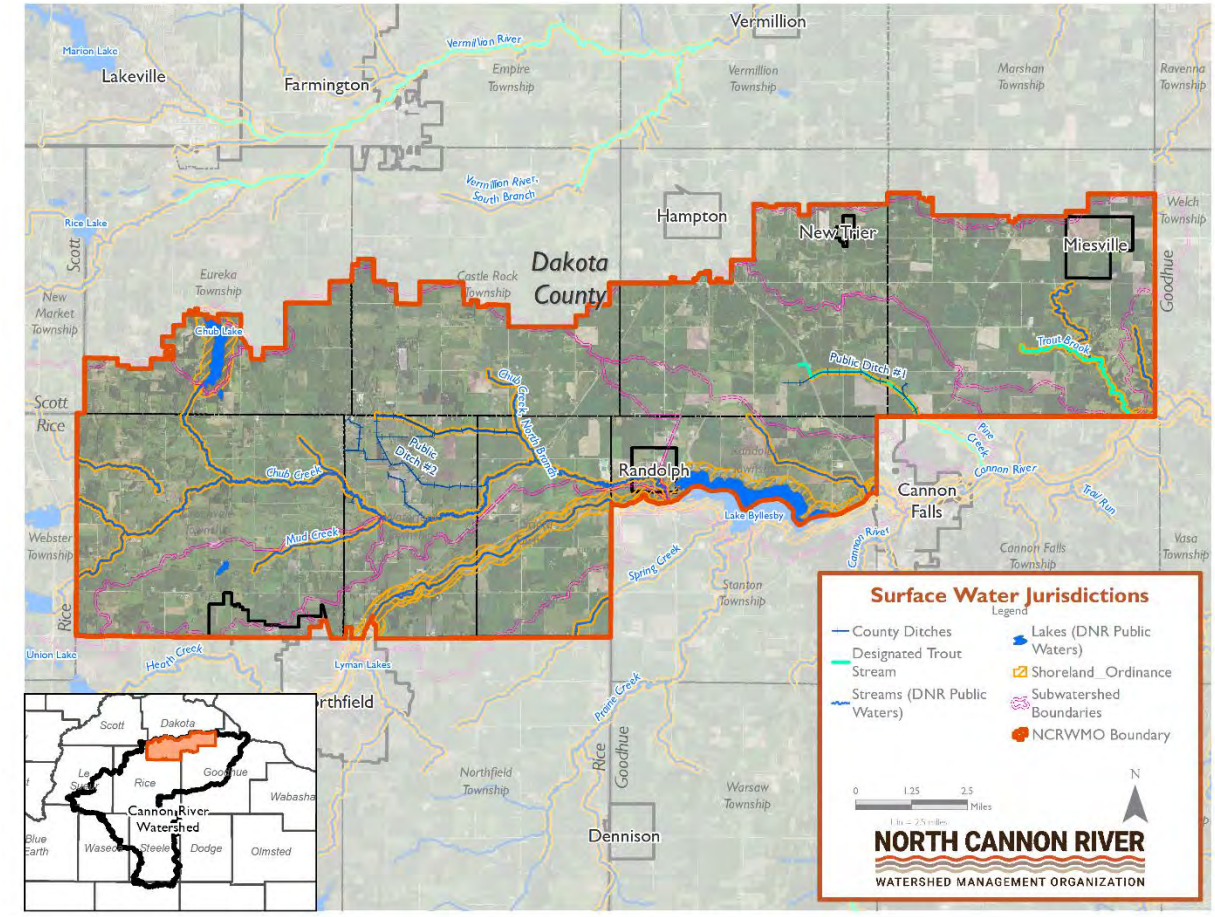


Figure 2-9: Surface Water Jurisdictions

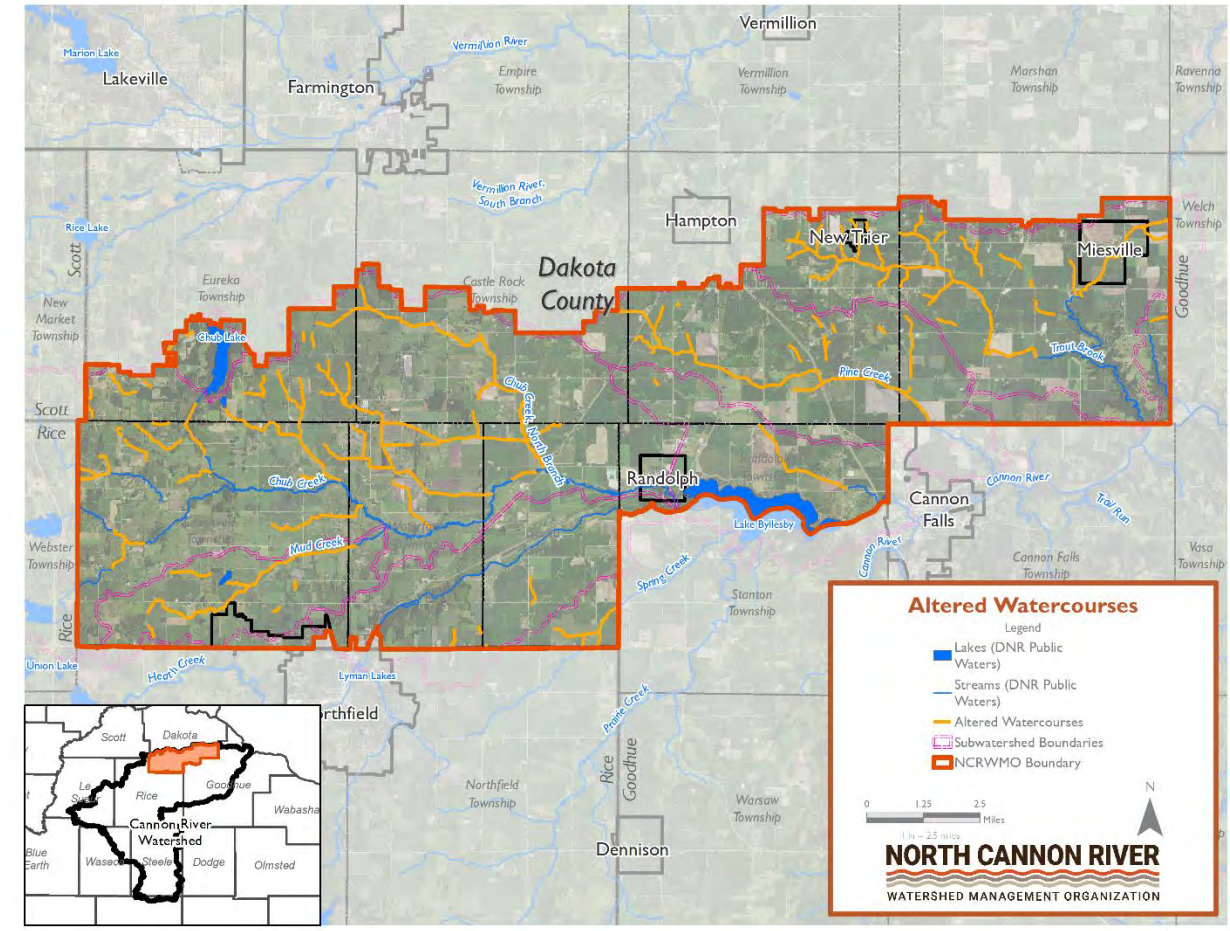


Figure 2-10: Altered Watercourses in the NCRWMO

Wetlands

Wetlands are areas where the frequent and prolonged presence of water at or near the surface drives the types of soils that form and plants that grow. Wetlands clean the water, recharge water supplies, reduce flood risks, and provide fish and wildlife habitat. Wetlands are most abundant in the Chub Creek drainage area, though ditching occurs throughout the wetland. Wetlands are also scattered throughout the Watershed, many of which are filled with invasive species. Several inventories have been completed to identify wetlands through current and historical aerial imagery, including the National Wetland Inventory mapping (2001 and 2011) and a Wetland and Watercourse Inventory and Assessment (WWIA) completed by the Dakota County SWCD in 2008. Due to the age of these inventories it is expected that there have been changes but the may still be useful references for tracking wetland inventory changes over time. The Minnesota Land Cover Classification System (MLCCS) is another tool that can be used to identify land cover such as plant types and soil hydrology. The MLCCS was first completed in 2002, and has been updated periodically by the Dakota County SWCD as changes in land cover occur and funding becomes available. Each of the wetland resource inventories primarily involve off-site and desktop evaluations. Actual wetland boundaries or evaluating opportunities to restore wetland conditions requires a field review. It is estimated that the Watershed has 6,412 acres of wetlands based on the current MLCCS inventory from August 2022.

Figure 2-11: Wetland Vegetation Diversity

Groundwater Resources

The Prairie du Chien Dolostone Aquifer, Jordan Sandstone Aquifer, and St. Peter Sandstone Aquifer are the primary water supplies for domestic and high-capacity irrigation wells in the Watershed. The unconsolidated sediments aquifer (UCS), also known as the Quaternary Aquifer, also provides water for many private drinking water wells. Groundwater levels are monitored by MNDNR and there are established processes in place to limit uses of groundwater as needed.

Groundwater quality is discussed in greater detail below. Nitrate contamination is a significant issue in rural Dakota County. Geologically sourced (naturally occurring) manganese and arsenic are also problems in drinking water wells, especially in Eureka and Greenvale townships.

Aquifers

The Platteville Limestone and St. Peter Sandstone formations are present in isolated areas and are not important aquifers in the Watershed. The lower strata of the St. Peter formation have confining features, is a cave-forming unit, and provides some protection to the Prairie du Chien formation.

Unconsolidated sediments, forming a connected aquifer unit that is unconfined above, typically overlie the Prairie du Chien Formation, and are not hydrologically separated from it. Fractures (karst) are common in the limestone and are its most important source of hydraulic conductivity; as a result, it is difficult to accurately predict flow paths in this aquifer. The Prairie du Chien Aquifer is prohibited for new potable water supply wells in most of the area east of Waterford Township because it lacks fifty feet of cover within a one-mile radius, although many older domestic wells use that aquifer.

The Jordan Aquifer is separated from the Prairie du Chien Aquifer by the Oneota Formation, the lower member of the Prairie du Chien. This confinement is sufficient to produce artesian conditions in the Jordan Aquifer along the Cannon River.

Aquifers deeper than the Jordan are rarely used here, and information about them is extrapolated from areas to the north. In general, these lower aquifers are thought to have limited interaction with the upper aquifers because of the strong separation provided by the St. Lawrence formation. The Tunnel City Group (formerly named Franconia Formation) – Wonewoc Sandstone (formerly named Ironton and Galesville Sandstone) Aquifer lies below the St. Lawrence. The City of New Trier has a municipal well completed in the Tunnel City Group. The Mt. Simon Sandstone Aquifer is separated from the Wonewoc by the Eau Claire formation and has special protections which are described in more detail in the Groundwater Appropriations section below.

Sensitivity to Contamination in Groundwater

Figure 2-12 depicts general areas in the Watershed that have varying degrees of susceptibility to pollution in the Prairie du Chien – Jordan aquifers. While the western portions of the Watershed are rated low-moderate to high-moderate in susceptibility, central and eastern portions of the Watershed are rated high to very high in susceptibility. These ratings are based on characteristics of rock and sediment known to overlie the aquifer and the estimated travel time for water-soluble, geologically inert contaminants released at the surface to reach the Prairie du Chien-Jordan aquifer. These ratings are not contaminant specific as different substances move through the groundwater in different ways (Minnesota Geologic Atlas, 1990). However, it indicates that the vertical seepage of pollutants from the surface of the land to groundwater can significantly contribute pollution to streams like Trout Brook that are largely groundwater fed.

Improperly constructed or abandoned, unsealed wells can create direct conduits for contaminants to enter aquifers and degrade or impact ground water quality.

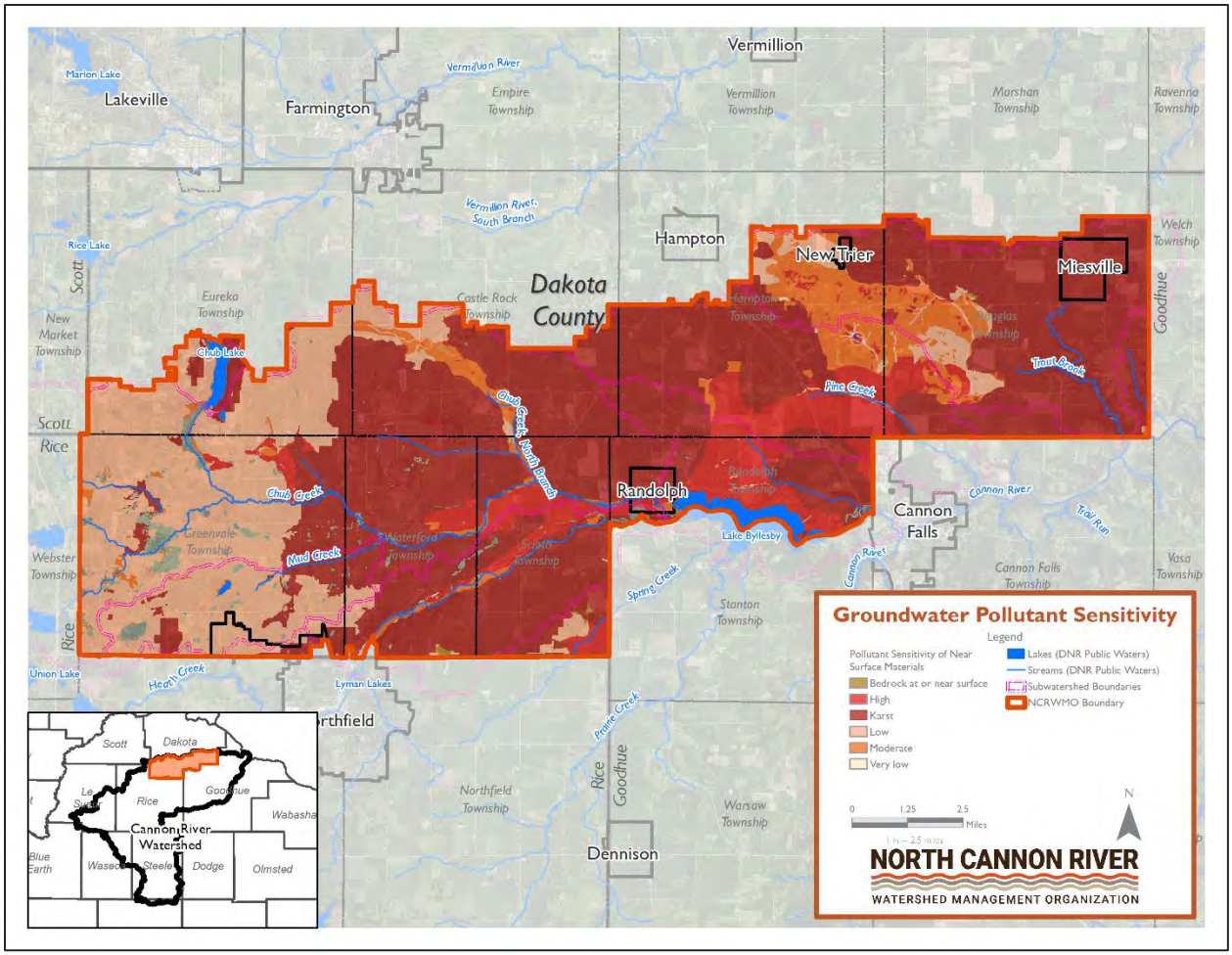


Figure 2-12: Groundwater Sensitivity

Groundwater – Surface Water Connections

The map in Figure shows all known springs, seepages, and sinkholes in the Watershed. Springs are locations where groundwater discharges out of the ground's surface. Seepages are places where the surface is saturated with groundwater. Sinkholes occur where the surface is underlain by carbonate bedrock that is dissolved by mildly acidic groundwater to form circular to elliptical depressions. These depressions range in size from less than three feet to more than 50 feet in diameter and from one to 50 feet deep.

According to the interactive Minnesota Spring Inventory Map, there are several known springs across the northern tier of the Watershed in Eureka, Castle Rock, and Hampton townships. Additionally, there are many springs along the Cannon River in Sciota Township and along Trout Brook in Douglas Township. The only mapped seepage occurs along a tributary to Pine Creek in eastern Hampton Township. A few known sinkholes are scattered throughout the middle of the Watershed, and a cluster of several sinkholes are in eastern Douglas Township (Figure). Perennial tiles and ditches may be considered a form of seep or spring and may mask natural seeps or springs.

A 2012 investigation of the karst hydrogeology in the Trout Brook subwatershed by the University of Minnesota found that only 30-40% of the total flow in Trout Brook is from discrete springs, and the rest appears to be from distributed groundwater discharge directly into the stream. Both the discrete springs and the distributed recharge occur along reaches of Trout Brook that drain the significant high transmissivity zone near the bottom of the regionally important Shakopee Aquifer (Groten 2013).

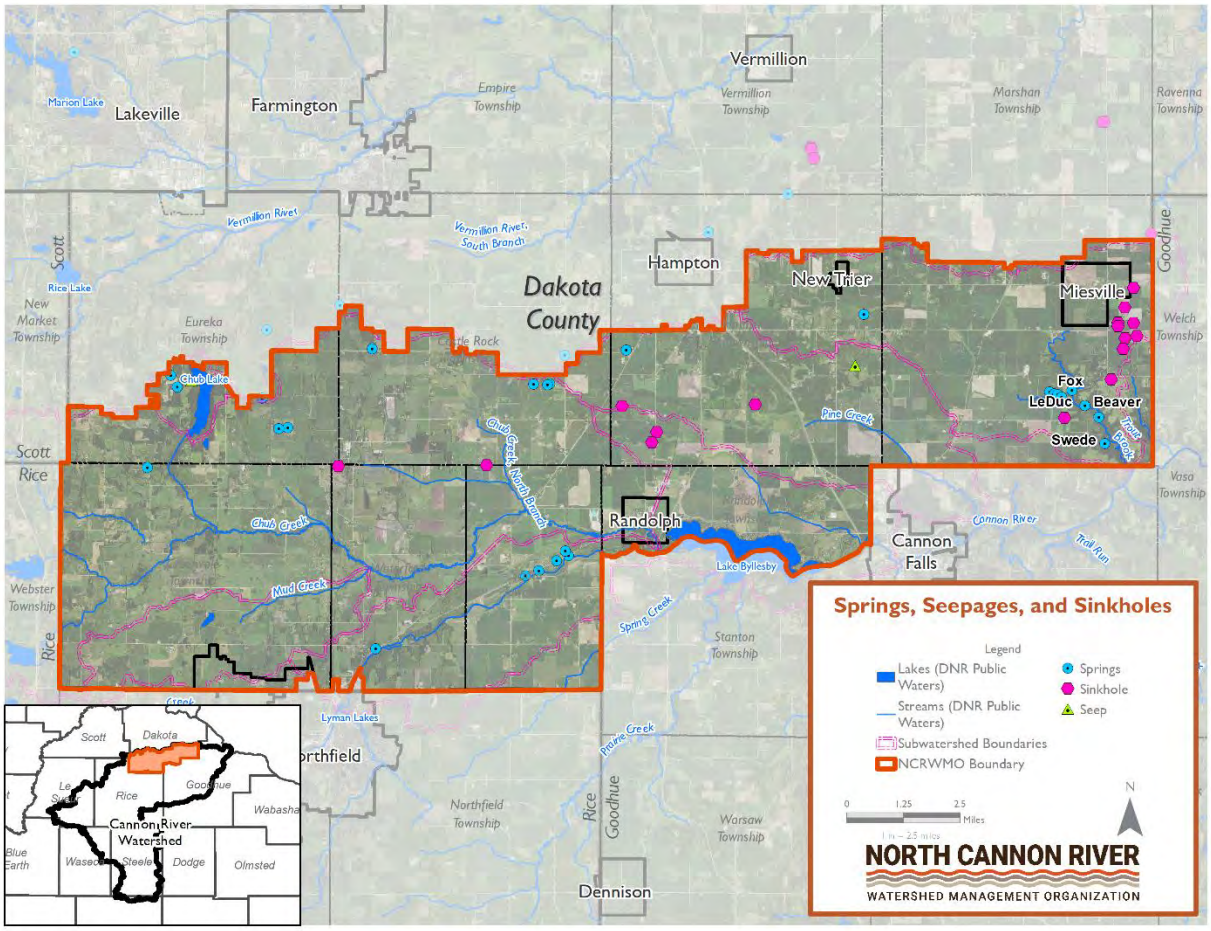


Figure 2-13: Location of Groundwater to Surface Water Connections (Dakota County)

Land Cover, Public Utilities, and Recreation

Land Cover and Public Utilities

Land cover and zoning authority within the Watershed is regulated by townships and cities, except for shoreland areas within townships, which are regulated by the County.

Although prairies, wet prairies, oak openings, and barrens dominated the Watershed before settlers arrived, most of the Watershed is now used for agriculture. Based on NLCD 2019, roughly 84% of the land was used for agriculture, with most of those acres in row crops. Another 11% of the land cover is grasses, shrubs, trees, wetlands and open water, and 6% is developed (Table , Figure 2-14).

Table 2-1: Land Cover in acres in the Watershed (NLCD 2019)

Cover Type	Watershed	% of Watershed
Developed (residential, commercial, roads)	5,587	5.9%
Row Crop Agriculture	69,927	74.0%
Other Agriculture (Hayfields and Pastures)	9,008	9.5%
Other Lands (Grasslands, Shrublands, Wetlands, Woodlands)	9,934	10.5%
Total Acres	94,455	100%

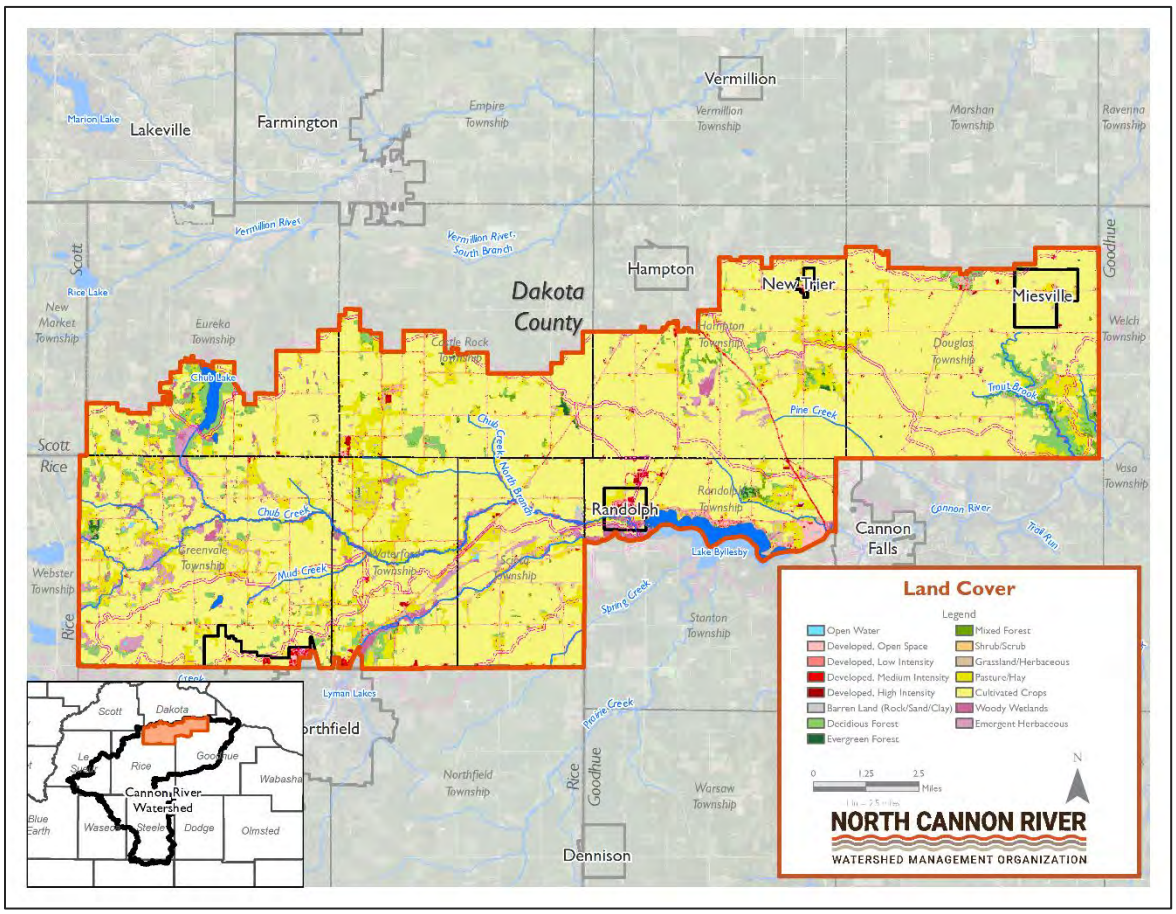


Figure 2-14: NLCD 2019 Land Cover

The Metropolitan Urban Service Area (MUSA) (i.e., the area with current or future urban services such as sanitary sewer service) does not currently extend into the NCRWMO boundary and there are no plans for the MUSA line to extend in the Watershed. Within the Watershed, Dakota County regulates septic systems within the designated Shoreland/Floodplain Areas, Randolph City and Township, New Trier, and Waterford Township. Otherwise, each township or city is responsible for septic system regulation. Although the City of Northfield is not a member of the NCRWMO, the City's wastewater treatment plant is located on the main stem of the Cannon River. Between 2018 and 2019, there were two instances where untreated sewage/wastewater was released into the river from the Northfield wastewater treatment plant. Though these releases were not intentional, the impact they have on water quality is significant. The NCRWMO will provide educational resources and support to the City regarding wastewater treatment and mitigation of future wastewater accidents that may impact the river.

The City of Randolph is in the process of installing a city sanitary sewer system, which will include the installation of the sanitary sewer system, the replacement of the road above the system, extending services to the right-of-way, and construction of sanitary holding ponds. During the writing of this plan, the City was working with landowners to begin the process of project approval and installation.

Due to the lack of urban areas in the Watershed, stormwater infrastructure such as treatment ponds and underground stormwater pipes is limited. The City of Northfield, however, is experiencing further development in the portions of the City within Dakota County. While these developments are occurring, the City is working to incorporate stormwater management practices into all new developments. Though the NCRWMO is not likely to be a financial contributor of these activities; it will support the City by publishing informational materials on their website upon request.

Groundwater Appropriations

A Water Use (appropriations) permit is required from MNDNR for all users withdrawing more than 10,000 gallons of groundwater per day or one million gallons per year.

Crop irrigation is a significant use of groundwater in the Watershed. When irrigation levels exceed the MNDNR requirements, a permit is required. MNDNR's internal permit system tracks this information and notifies the necessary entities, including the NCRWMO, during the comment period before permits are issued.

Under MN Statute 103G.271, Subdivision 4a, the Commissioner of the DNR may not issue new water-use permits that will appropriate water from the Mt. Simon-Hinckley aquifer unless the appropriation is for potable water use, there are no feasible or practical alternatives to this source, and a water conservation plan is incorporated with the permit. Previously, this restriction applied only to metropolitan counties but in 2021 the Legislature removed this limitation so now use of the Mt. Simon-Hinckley aquifer is restricted throughout the state.

Also in 2021, the Legislature enacted restrictions to prevent large exports of water from the state, in MN Statute 103G.271, Subdivision 4b. "…The commissioner may not issue a new water-use permit to appropriate water in excess of one million gallons per year for bulk transport or sale of water for consumptive use to a location more than 50 miles from the point of the proposed appropriation." There is a limited exception for public water supplies.

To prevent potential large exports of groundwater from Dakota County, in 2021 the County Board amended County Ordinance 114, Well and Water Supply Management, to prohibit the construction of new wells estimated to use a water volume greater than 50,000,000 gallons per year for the water use type defined by the Department of Natural Resources (DNR) as commercial/institutional water supply. Dakota County has the authority to regulate well construction and sealing under a delegation agreement with the Minnesota Department of Health.

Surface Water Appropriations

A surface water appropriation permit is required from the MNDNR for water withdrawals over 10,000 gallons of surface water per day or one million gallons per year. Surface water appropriation uses within the NRCW include irrigation for agriculture, golf courses, and orchards as well as industrial use for sand and gravel washing.

Recreation

Lakes, rivers, and creeks in the Watershed provide a variety of recreational opportunities. There are two Dakota County Regional Parks in the Watershed, both centered around water. The Lake Byllesby Regional Park was established in 1970 and is 620 acres, with 366 acres on the western shore of Lake Byllesby and 254 acres on the eastern shore of the lake. Park landscapes include floodplain forests, lakeshore, river terraces, and prairie. The eastern park includes an operating hydropower dam constructed in 1910, known as the Lake Byllesby Dam. Current recreational opportunities in the park include swimming, hiking, picnicking, bird watching, RV and tent camping, and boating. Lake Byllesby is the largest recreational lake in the southern Twin Cities metro area, and the park serves as a primary public access point for the lake. Within the long-term plan for the park, improvements include a variety of restoration areas (prairie, savannah, native plantings), natural surface trails, and nature play areas. The park's vision statement is to be, "the natural-resources based park where people can explore the Cannon River Valley. Individuals, families, and groups from around the region visit the park to enjoy the lake, river, and regional trails; to play outdoors and participate in educational activities; to gather with others; and to support the stewardship of the area's wealth of natural resources".

Figure 2-15: Lake Byllesby Beach

The Miesville Ravine Park Reserve, also owned by Dakota County, covers approximately 1,700 acres centered around Trout Brook, a MNDNR-designated trout stream. In 2016 and 2017 trout habitat and stream restoration projects were a focus on Trout Brook, which included abutment removal, stabilization work, and a partnership with the Conservation Corp Minnesota (CCM) program, Trout Unlimited, and Dakota County Transportation to complete the projects. These projects were completed separately, with each organization focusing their efforts on the particular components of interest for restoring Trout Brook. Trout Unlimited managed the trout habitat components of the projects, whereas CCM was largely responsible for the vegetation management and bank stabilization. The park provides over two miles of streamside public access to anglers. The 2005 Master Plan for this park includes the vision: "A pristine trout stream ecosystem with little

sign of human intervention and sparse, primitive facilities for human use. Viewsheds and the surrounding park landscape are protected from development and agricultural impacts, to preserve the quality of the Trout Brook and to convey the notion of wilderness."

Figure 2-16: Trout Brook, Photo Courtesy of Dakota County

Pine Creek is another MNDNR-designated trout stream for much of its length, although there is neither streamside public land nor easements for fishing access, making access more challenging for anglers. Access to the creek can only be gained with landowner permission or by entering the water from a public road right-of-way.

Chub Creek, while not a trout stream, offers some game fish for anglers. Northern pike and largemouth bass have been found to inhabit portions of the creek and its tributaries. The riparian areas of Chub Creek also offer wildlife habitat and thus wildlife watching, hunting, and trapping. The only streamside public land is a few hundred feet owned by Dakota County (as part of the Lake Byllesby Regional Park) at the outlet of the creek.

Chub Lake offers limited recreational opportunity. Public access is limited to a MNDNR Wildlife Management Area (WMA) on its southern shores, and a road that crosses the lake's outlet. There is neither a boat launch nor swimming beach. It has a maximum depth of only 10 feet and is on the impaired waters list for excess nutrients. The lake offers an area for canoeing, duck hunting, trapping, and fishing for non-game species,

though the most recent lake water quality summary from the Metropolitan Council, published in 2018, indicates that the water quality in Chub Lake is poor at best.

The WMA at the southern end of Chub Lake includes 203 acres of hardwoods, wetlands, and grasslands. It is open to hunting, including waterfowl, during normal hunting seasons. Hikers, birders, and others can also use this public land for recreation. There is currently no written plan by the MNDNR for this WMA, but a future plan would include topics such as habitat and facility development, and expansion. Some planning ideas for the area include turkey vulture nesting areas, tree planting to expand the lake buffer, parking lot expansion, controlled burns, and exotic species control. A 40-acre parcel within the WMA was planted with native grasses.

The 2008 Dakota County Park System Plan includes a regional greenway corridor and possible trail connecting the Vermillion River with Chub Lake, Chub Creek, and the Cannon River. This corridor is viewed as a long-range prospect.

The Cannon River from Faribault to its confluence with the Mississippi River is designated a Wild and Scenic River and is considered desirable for canoeing, kayaking, and inner tubing. There are several "carry-in" access points, including two in Northfield and one below the Lake Byllesby dam.

Water Quality and Quantity

Surface Water Quality

The federal Clean Water Act requires states to adopt water quality standards to protect lakes, streams, and wetlands from pollution. The standards define how much of a pollutant (bacteria, nutrients, turbidity, mercury, etc.) can be in the water and still meet designated uses, such as drinking water, fishing, and swimming. A water body is "impaired" if it fails to meet one or more water quality standards.

To identify and restore impaired waters, Section 303(d) of the Clean Water Act requires states to:

- Assess all waters of the state to determine if they meet water quality standards.
- List waters that do not meet standards (also known as the 303d list or the impaired waters list) and update the list every even-numbered year.
- Conduct TMDL (total maximum daily load) studies to set pollutant reduction goals needed to restore waters.

Federal and state regulations and programs also require implementation of restoration measures to meet TMDLs.

The Minnesota Pollution Control Agency (MPCA) is charged with enforcing the Clean Water Act in Minnesota. MPCA responsibilities include monitoring and assessing water quality, listing impaired waters, and conducting TMDLs. The agency coordinates closely with other state and local agencies on these efforts, as well as on restoration activities. To best align resources, the MPCA is following the Intensive Watershed Monitoring approach for both monitoring and assessments.

The Clean Water Legacy Act, passed in June 2006, allocates funding to accelerate water monitoring, TMDL development, and restoration activities throughout the state. The Clean Water Council was established by the Legacy Act to provide recommendations on the administration and implementation of the Act.

The MPCA's watershed approach includes four steps: 1) monitor waterbodies and collect data, 2) assess data, 3) develop strategies to restore and protect the watershed's waterbodies, and 4) conduct restoration and protection projects in the watershed. Step 3 includes the completion of a watershed restoration and protection strategy (WRAPS) and report which:

- summarizes scientific studies of the watershed, including the physical, chemical, and biological assessment of the water quality of the watershed

- identifies impairments and water bodies in need of protection
- identifies biotic stressors and sources of pollution (both point and nonpoint)
- scientific analysis for impairments (TMDLs) that determines the sources of pollution and the reductions needed to meet water quality standards
- includes an implementation table which contains strategies and actions designed to achieve and maintain water quality standards and goals

Figure 2-17: MPCA's Watershed Approach Process

The NCRWMO has been monitoring the water quality and quantity of major creeks in the Watershed since 1999 and these monitoring efforts have been crucial to identifying water quality issues. Monitoring takes place on Chub Creek, Pine Creek, Trout Brook, the Cannon River, and multiple groundwater springs within the Watershed. Monitoring parameters include phosphorus, nitrates, total suspended solids, chlorophyll-a, *E.coli,* conductivity, dissolved oxygen, pH, and temperature. Nitrate is also collected from sentinel springs and surface water sites within the Trout Brook subwatershed. Water level and temperature equipment is installed at most of the monitoring stations to collect continuous water level readings. Dakota County Parks operates one of these dataloggers, while the others are owned and operated by the MNDNR.

The NCRWMO monitoring goals have transitioned from an assessment/impairment focus, where watershed-wide monitoring occurred on a four-year rotational basis, to a program dedicated to measuring long-term water quality trends at select locations most representative of the Watershed. This strategy also allows for more targeted monitoring to identify stressors in the Watershed. Future monitoring will seek to further identify pollutant sources and ultimately monitor long term water quality improvements

To date, water monitoring and assessments have documented a number of impairments in the Watershed (Table 2-2, Figure 2-18, and Figure 2-19). As impaired waters, these waterbodies are not meeting State water quality standards as defined by the federal Clean Water Act for conventional pollutants (DO, pH, temperature, sediment, and eutrophication), aquatic recreation (bacteria), aquatic consumption and drinking water (nitrates, Mercury, and PCBs), and aquatic life (fish and macroinvertebrate communities).

Table 2-2: Impaired Waters in the Watershed as found on the Federal 303(d) Impaired Waters List as of 2022

Impaired Waterbodies	Nutrients	Bacteria	Turbidity	Nitrates	Mercury and PCBs	Benthic Macroinvertebrates Bioassessments	Fish Bioassessments
Cannon River		X	X		X	X	X
Chub Creek		X				X	X
Chub Creek (North Branch)		X					
Chub Lake	X						
Dutch Creek						X	X
Lake Byllesby	X				X		
Mud Creek		X					
Pine Creek				X			
Trout Brook (Unnamed Creek)				X		X	

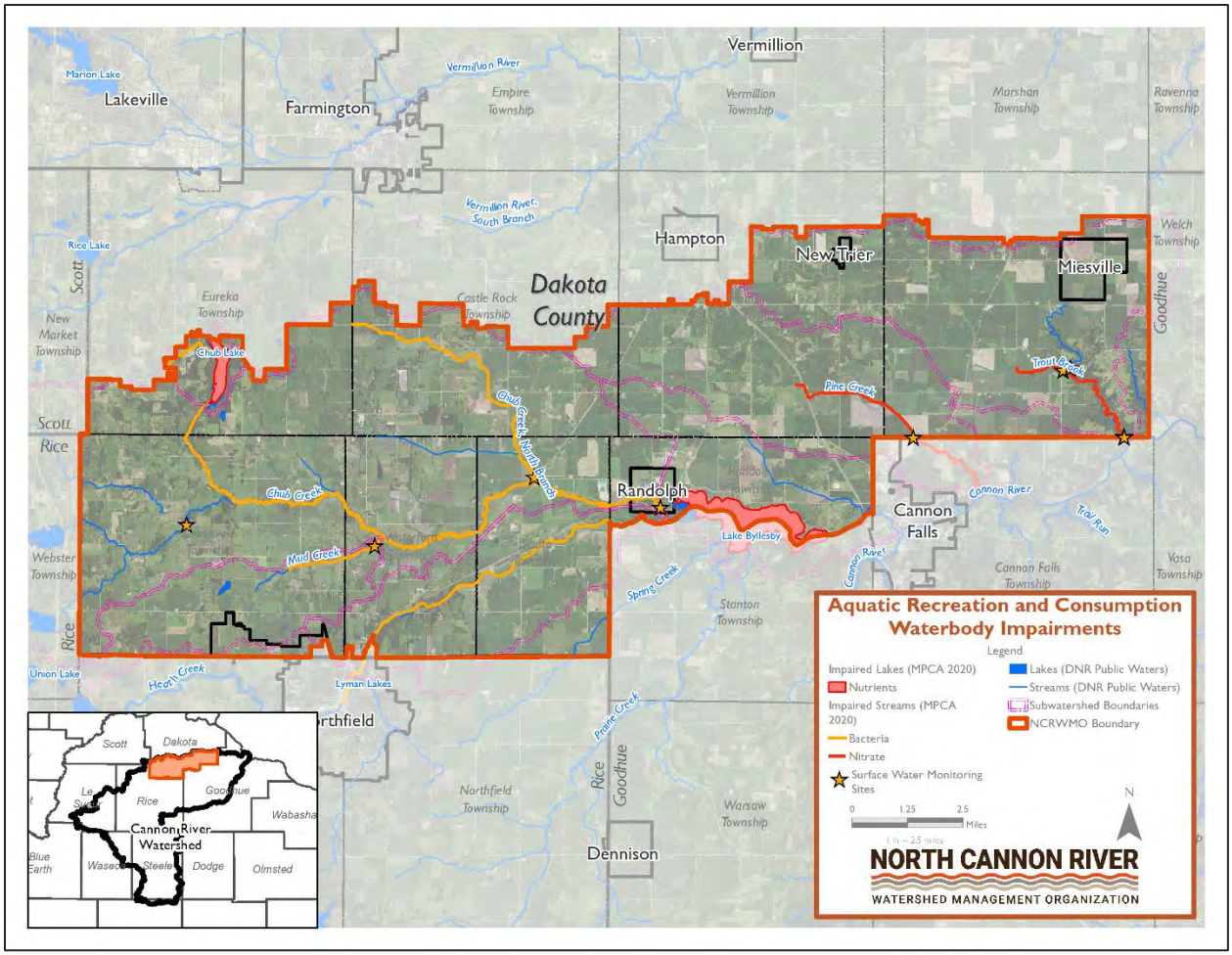


Figure 2-18: Aquatic Recreation and Consumption Waterbody Impairments

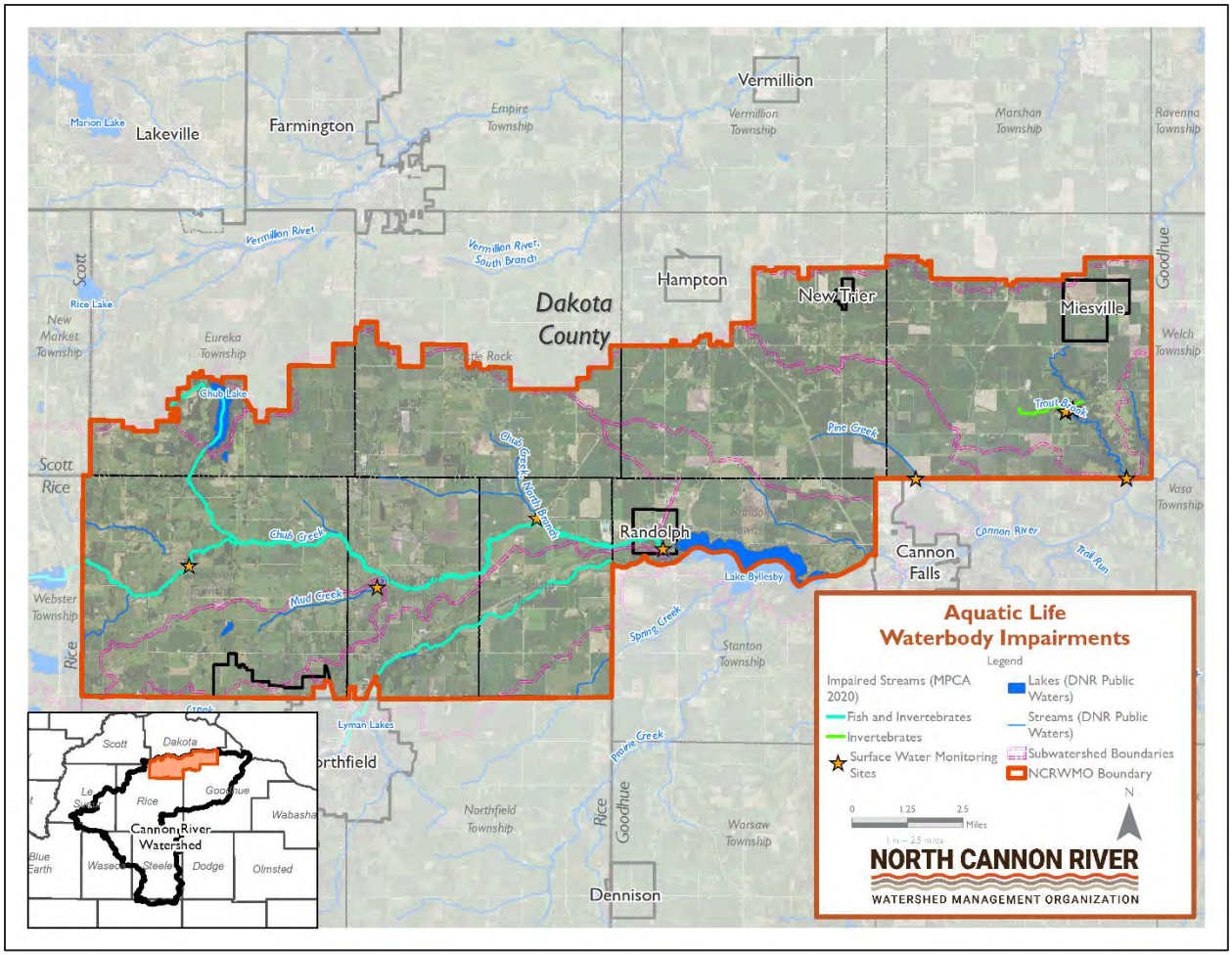


Figure 2-19: Aquatic Life Waterbody Impairments

Total Phosphorus

Total phosphorus (TP) is an important parameter monitored within the Watershed. Though some level of phosphorus is required for living things, elevated levels of TP can lead to harmful algae blooms that may cause reduced levels of dissolved oxygen and fish kills. Phosphorus is found as a naturally occurring nutrient, but levels are elevated through phosphorus that is also found in human made substances and systems such as fertilizers, stormwater runoff, soil erosion, andseptic systems. Waterbodies regularly sampled for total phosphorus in recent years include Lake Byllesby, the Cannon River, Chub Creek, North Branch of Chub Creek, Dutch Creek, Mud Creek, Pine Creek, and Trout Brook. Of those, Trout Brook and Pine Creek usually meet the state water quality standard for TP. Chub Creek meets state standards 50% of the time or more, and the other waterbodies (Lake Byllesby, the Cannon River, Dutch Creek, and Mud Creek exceed the TP standard more than 50% of the time, with some years having sample results that exceed the standard 100% of the time (Dutch Creek 2018, Mud Creek 2018). These statements are based on high-level data analysis. Detailed analysis of the water chemistry data and incorporation of flow conditions may change how this information is presented.

Total Suspended Solids (TSS)

Total suspended solids is a measure of water clarity and is affected by the amount of suspended particles in the water column. Much of Trout Brook is impaired for total suspended solids, also referred to as turbidity, (Table 2.5). Common total suspended solids sources include agricultural runoff, in-stream erosion, and algae. Waterbodies regularly sampled for TSS in recent years include the Cannon River, Chub Creek, North Branch of

Chub Creek, Mud Creek, Prairie Creek, and Trout Brook. Of those, the North Branch of Chub Creek, Mud Creek, and Prairie Creek usually meet the state water quality standard for TSS. Chub Creek and Trout Brook meet the standard about 25-30% of the time, and the Cannon River meets the standard about 50% of the time, with some years, such as 2018, with only 18% of samples meeting the standard.

Nitrate

Nitrate is an inorganic molecule common in surface water and can be problematic for both humans and wildlife in high concentrations. Nitrate concentrations in surface waters of the NCRWMO exceed state water quality standards, and portions of Trout Brook and Pine Creek are impaired for nitrates.

Potential nitrate sources include fertilizer use, failing septic systems, wastewater treatment plant effluent, feedlot and manure runoff and industrial waste (EPA, 2012 http://water.epa.gov/type/rsl/monitoring/vms57.cfm).

As part of Minnesota's Nutrient Reduction Strategy, the Minnesota Pollution Control Agency (MPCA) and University of Minnesota have calculated the relative contributions of various sources of nitrogen in the Mississippi River basin in the state, which includes the Cannon River watershed. (MPCA, Nutrient Reduction Strategy, 2014). Table below describes each nutrient source and its average contribution to surface waters in Minnesota.

Waterbodies usually monitored for nitrates in recent years include Lake Byllesby, Chub Creek, North Branch of Chub Creek, Dutch Creek, Pine Creek, Mud Creek, Prairie Creek, and Trout Brook. The North Branch of Chub Creek, Pine Creek, and Trout Brook all have annual averages from 2018-2020 greater than 10mg/L. Trout Brook averages for that time frame range from about 16-17mg/L.

In addition to monitoring for nitrates in surface water monitoring is also done for wells and springs which is described further in the Groundwater Quality section below.

Table 2-3: Sources of Nitrogen in the Mississippi River basin, Minnesota

Nutrient Source Average Contribution to Surface Waters*	Percentage from Source
Agricultural tile drainage	43%
Cropland leaching into groundwater	31%
NPDES permitted wastewater discharges (WWTP)	9%
Atmospheric deposition	6%
Cropland surface runoff	5%
Forest runoff	4%
Individual sewage treatment (septic) systems	2%
Urban runoff and leaching	1%

**Total is greater than 100% due to rounding.*

The primary source of nitrates within the Watershed is thought to be agricultural fertilizers seeping into groundwater and resurfacing in springs and seeps. In 2010 the MPCA studied the relationship between row crop land cover and nitrate-nitrogen concentration in baseflow for 100 trout stream watersheds in the karstlands of southeast Minnesota. Results indicate that nitrate-nitrogen concentrations are directly related to the percentage of row crop in the Watershed (r-squared = 0.68). A linear regression showed a slope of 0.16, suggesting that the average baseflow nitrate-nitrogen concentration in the trout stream watersheds of southeast Minnesota can be approximated by multiplying a watershed's row crop percentage by 0.16. The strong correlation between nitrate-nitrogen concentrations in streams and watershed row crop percentage suggests that nitrogen application over a span of decades has impacted the condition of the underlying aquifers that are the source of these streams' baseflow. Additionally, Dakota County research in the Vermillion outwash plain has shown that pumping from deep aquifers drives nitrogen contamination deeper.

Bacteria

Monitoring within the NCRWMO has identified several locations where bacteria concentrations are exceeding state water quality standards.

Potential bacteria sources include failing septic systems, runoff from agricultural fields and feedlots, livestock in streams, and wildlife. Due to high bacteria levels in widespread areas of southeastern Minnesota, the Watershed was included in a region-wide bacteria Total Maximum Daily Load (TMDL) study in 2006. This and the subsequent implementation plan identified probable bacteria sources and possible practices to alleviate that pollution throughout southeast Minnesota. https://www.pca.state.mn.us/business-with-us/lower-mississippi-river-regional-fecal-coliform-tmdl

Due to the complexity of addressing elevated bacteria levels and a lack of detailed source assessment information in the Watershed, reducing bacteria was not made a priority of this plan. Reduced levels of bacteria may be observed as a multiple benefit component of projects identified in this plan. For additional details on bacteria and E.*coli* sampling analysis, please see the NCRWMO's annual monitoring reports.

Other Water Quality Concerns

In addition to phosphorus, total suspended solids, nitrates, and bacteria described above, water monitoring results suggest other water quality issues may exist, but data is not currently sufficient to determine if conditions meet water quality standards. Dissolved oxygen concentrations are frequently near water quality standards at many locations in the Watershed, with several sites having exceedances throughout the summer. Dissolved oxygen levels may drop below levels needed to sustain aquatic life during periods of low flow and high summertime temperatures. Early morning dissolved oxygen measurements are needed across the Watershed to determine if a dissolved oxygen impairment exists. Additionally, MPCA macroinvertebrate and fish bioassessments indicate impairments in the Cannon River, Chub Creek, Dutch Creek, and Lake Byllesby, with Trout Brook also having a macroinvertebrate impairment.

The 2018 Metropolitan Council Lake Water Quality Summary Report uses water quality sample results for total phosphorus, chlorophyll-a, and secchi disc readings to come up with a grade for lakes monitored by the Council. Chub Lake was graded as an F in 2018, matches grades previously received through the Metropolitan Council's monitoring program. The criteria for receiving an F grade include extreme exceedances of the total phosphorus state standard, as well as the chlorophyll-a state standard. Water clarity (secchi disc readings) were less than the state minimum for meeting water quality standards. (Metropolitan Council, 2018).

Water Quantity

Since 2008, water quality and quantity monitoring has occurred on an annual basis at the permanent monitoring station on Chub Creek (Chub PMS), located in Randolph, MN. Stage and temperature are measured every 15 minutes using automated equipment installed in the streambed (downloaded monthly).

Stage measurements are converted to flow data using a rating curve, derived from 3-4 individual in-stream flow measurements collected throughout the monitoring season. Streamflow conditions vary and are predominantly skewed towards low water or baseflow conditions due to safety concerns. All in-stream flow measurements are completed following U.S. Geological Survey and MDNR discharge measurement protocols.

Groundwater Flow and Quantity

The northern edge of the Watershed boundary in Dakota County is a surface water divide which roughly corresponds to a groundwater divide computed by the Dakota County Groundwater Model (Barr Engineering, 1996). Along this divide the upper aquifers have a higher head than the lower aquifers and the groundwater is forced downward to recharge the lower aquifers. Along the Cannon River itself, the Jordan Aquifer has a higher head than the aquifer above, and the groundwater is forced upward.

Groundwater is recharged by rainfall and infiltration from surface waters. Natural groundwater discharge occurs along the Cannon River, Trout Brook, and to a lesser extent, several other creeks and springs.

Groundwater quantity in the Watershed includes high water tables that have been a problem for agricultural activities in some areas, especially in the western portion of the Watershed, where most of the drainage activity takes place. The MNDNR conducts groundwater monitoring and manages processes for maintaining adequate levels of groundwater within the watershed.

Groundwater Quality

Groundwater quality is highly dependent upon aquifer geology and interactions with surface water or contaminant sources. Water from the Prairie du Chien and Jordan aquifers is generally low in dissolved solids, the total concentration of dissolved substances such as calcium, magnesium, sodium, iron, etc., although levels of iron, manganese, and total nitrates can be locally high and may exceed drinking water criteria. In general, drinking water quality, particularly the level of nitrate, is a function of the depth and the age of the well. Older wells are more likely to be shallow and not properly grouted around the well casing. Newer wells are more likely to be deeper and properly grouted around the well casing. As a result, older wells are more likely to draw in younger water, and younger water is more likely to be contaminated.

The unconsolidated sediments aquifer is primarily composed of alluvium and glacial drift. Groundwater samples from this aquifer have had high levels of dissolved solids, aluminum, iron, lead, and manganese in localized areas. Total nitrate may exceed the drinking water standard of 10 parts per million (ppm) or milligrams per liter (mg/L).

Dakota County's 1999-2019 Ambient Groundwater Quality Study, designed to track changes in groundwater quality through time, sampled several wells located within the Watershed in the Prairie du Chien and Jordan aquifers. According to the study, both naturally occurring and anthropogenic contaminants are widespread throughout the drinking water aquifers, with 62% of the tested wells exceeding the state's drinking water guidelines for one of more contaminants. The study provides recommendations for assistance for landowners and educating the community on the groundwater challenges the Watershed faces.(Ambient Groundwater, 2020)

In 2013-2014, the Minnesota Department of Agriculture (MDA) and Dakota County administered a private well testing program, called the Township Testing Program, with cooperation from the Soil and Water Conservation District. The MDA final Report for this project is available online at https://www.mda.state.mn.us/sites/default/files/inline-files/dakotaoverallfinal_1.pdf. In 2016-2017, MDA's Private Well Sampling Program (PWPS) followed up by offering pesticide sampling to households where the Township Testing program detected nitrate in the well water. Results are available online at https://www.mda.state.mn.us/private-well-pesticide-sampling-project-results-work-plans. In 2022, MDA is offering households in Dakota County that had detectable nitrates in their wells the opportunity to have their

water tested for cyanazine (and atrazine) breakdown products, which were not included in the earlier PWPS program.

While Dakota County administers a fee-based private well testing program the County started implementing a Community Focused Sampling Program in 2020. On a five-year rotation, the County is offering every household that uses a private drinking water well the opportunity to have their well tested, at no cost to the household, for contaminants such as nitrate, arsenic, manganese, lead, and chloride. Questions may also be directed to staff at 952.891.7000 or dcwatertestrequest@co.dakota.mn.us. The planned schedule for communities in the Watershed is:

2020
Douglas Township (DouglasMiesvillePrivateWellStudy.pdf (dakota.mn.us))
Miesville
New Trier (Hampton Private Well Sampling (dakota.mn.us))
Randolph (City)

2021
Hampton Township (Hampton Private Well Sampling (dakota.mn.us))
Waterford Township (Private Well Sampling (dakota.mn.us))

2022
Castle Rock Township
Randolph Township
Sciota Township

2023
Eureka Township
Greenvale Township

Figure 2-20: Well Water Testing Kit

In addition to the well testing described above, springs are sampled in the Trout Brook drainage area. The NCRWMO maintains four spring monitoring locations with the locations labeled in Figure 2-13. Sampling at these sights over time has shown a consistent increase in nitrate concentrations over time with values well above the 10 mg/L standard (Figure 2-21).

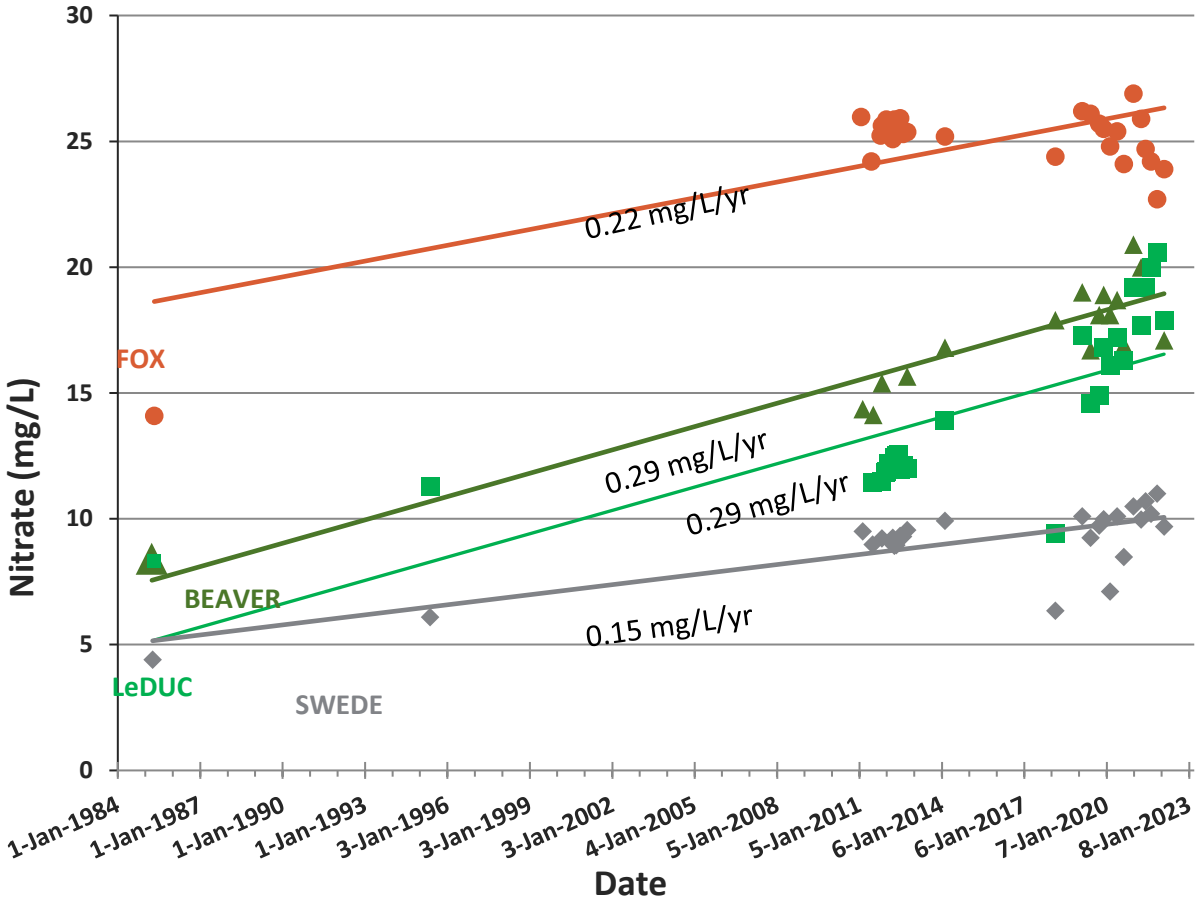


Figure 2-21: Spring Monitoring Results for Nitrates

Biological Features and Assessments

Pre-settlement vegetation in the Watershed was dominated by prairie, wetlands, oak openings, and barrens. Today, biological features in the Watershed include Chub Lake and its surrounding wetlands and woodlands, wetland complexes in Greenvale and Waterford Townships, and the steep wooded ravines and bedrock bluffs along the lower sections of Trout Brook. Some rare plants and animals have been documented in various areas of the Watershed. These include species that are listed as threatened, of special concern, and other rare species that are tracked by the MNDNR (Table 2-4).

Table 2-4: Rare plants and animals in the Watershed. Source: Natural Heritage Information System maintained by the MNDNR.

Common Name	Scientific Name	Type	Code
American Ginseng	Panax quinquefolius	Vascular Plant	SPC
Beach Heather	Hudsonia tomentosa	Vascular Plant	THR

Common Name	Scientific Name	Type	Code
Big Tick-trefoil	Desmodium cuspidatum var. longifolium	Vascular Plant	THR
Black Sandshell	Ligumia recta	Invertebrate Animal	SPC
Blanding's Turtle	Emydoidea blandingii	Vertebrate Animal	THR
Blunt-lobed Grapefern	Botrychium oneidense	Vascular Plant	THR
Creek Heelsplitter	Lasmigona compressa	Invertebrate Animal	SPC
Discoid Beggarticks	Bidens discoidea	Vascular Plant	SPC
Ebony Spleenwort	Asplenium platyneuron	Vascular Plant	SPC
Edible Valerian	Valeriana edulis var. ciliata	Vascular Plant	THR
Elktoe	Alasmidonta marginata	Invertebrate Animal	THR
Ellipse	Venustaconcha ellipsiformis	Invertebrate Animal	THR
Fluted-shell	Lasmigona costata	Invertebrate Animal	THR
Gray's Sedge	Carex grayi	Vascular Plant	SPC
Gopher Snake	Pituophis catenifer	Vertebrate Animal	SPC
Jointed Sedge	Carex conjuncta	Vascular Plant	THR
Kitten-tails	Besseya bullii	Vascular Plant	THR
Lark Sparrow	Chondestes grammacus	Vertebrate Animal	SPC
Loggerhead Shrike	Lanius ludovicianus	Vertebrate Animal	END
Mucket	Actinonaias ligamentina	Invertebrate Animal	THR
North American Racer	Coluber constrictor	Vertebrate Animal	SPC

Common Name	Scientific Name	Type	Code
One-flowered Broomrape	Orobanche uniflora	Vascular Plant	THR
Ovate-leaved Skullcap	Scutellaria ovata var. versicolor	Vascular Plant	THR
Ozark Minnow	Notropis nubilus	Vertebrate Animal	SPC
Paddlefish	Polyodon spathula	Vertebrate Animal	THR
Plains Wild Indigo	Baptisia bracteata var. leucophaea	Vascular Plant	SPC
Prairie Bush Clover	Lespedeza leptostachya	Vascular Plant	THR
Rattlesnake Master	Eryngium yuccifolium	Vascular Plant	SPC
Redside Dace	Clinostomus elongatus	Vertebrate Animal	SPC
Round Pigtoe	Pleurobema coccineum	Invertebrate Animal	SPC
Rusty-patched Bumble Bee	Bombus affinis	Invertebrate Animal	Watchlist
Sand-loving Laccaria	Laccaria trullisata	Fungus	SPC
Small White Lady's-slipper	Cypripedium candidum	Vascular Plant	SPC
Spike	Eurynia dilatate	Invertebrate Animal	THR
Water-willow	Decodon verticillatus	Vascular Plant	SPC
Western Harvest Mouse	Reithrodontomys megalotis	Vertebrate Animal	SPC
Wood Turtle	Glyptemys insculpta	Invertebrate Animal	THR

THR = Threatened species under State law
SPC = Species of Special Concern under State law
END = Endangered species under federal law
Watchlist = Species in danger of becoming endangered, may already be threatened or a species of concern

Fisheries and Invertebrates

There has not been new biological data collected since the previous plan, therefore the following information is unchanged.

Invasive Species

Lake Byllesby is the only waterbody identified by the MNDNR to have aquatic invasives present with flowering rush identified in 2016. Invasive terrestrial insects are also found in and around the watershed boundary with Emerald ash borer present throughout and trappings of spongy moths. For more information on these species and other invasives found in the watershed visit the MNDNR website https://www.dnr.state.mn.us/invasives/terrestrial/locations.html.

Chub Creek

The MNDNR classifies Chub Creek as Class II supporting warmwater gamefish from Highway 47 downstream to its confluence with the Cannon River. Upstream of Highway 47, the creek is classified as Class IV supporting roughfish and forage fish. Overall, the Chub Creek subwatershed supports a typical assemblage of warmwater fish species. Fish collected in surveys in the subwatershed in 2000 included game fish such as northern pike and largemouth bass. However, most of the fish were tolerant or somewhat tolerant to degraded water quality. Common carp, an invasive species, were also seined with regularity. In Chub Lake, the MNDNR completed a survey of the fishery in 1985. Species collected included green sunfish, black bullhead, and carp.

Biological sampling by the MPCA in 2011 indicated mixed results among the tributaries to Chub Creek and the mainstem of Chub Creek. Most tributaries were found to support fair to good populations of fish and macroinvertebrates. However, dissolved oxygen levels were often low in this part of the watershed, as they have been historically. The mainstem of Chub Creek from its headwaters to the Cannon River had areas with poor biota and other areas with fair biota. The MPCA classification of Dutch Creek is under consideration and may be reclassified as a wetland complex.

Figure 2-22: Dutch Creek

Trout Brook

The Trout Brook fishery is classified by the MNDNR as Class IA trout waters for its entire length. The stream contains naturally reproducing populations of both brook and brown trout. However, fish habitat in Trout Brook is generally only fair to poor with high amounts of shifting sands in the streambed and few deep pools with suitable cover. Other fish species collected in Trout Brook over the years include the blacknose and longnose dace, brook stickleback, white sucker, and green sunfish.

Trout Brook was sampled in September 2011 at one of the MNDNR's Long-Term Monitoring stations sampled annually to monitor temporal variations in trout abundance in southeast Minnesota streams. The estimate of adult brook trout was 3,841per mile, well above the long-term mean of 345 adults per mile in this station. Most of the fish were small age one fish from the strong 2010 year class. No brook trout ≥ 10 inches were sampled. The total brook trout biomass estimate was 247.8 pounds per acre, the highest recorded estimate for this station, and well above the mean of 64.2 pounds per acre. One brown trout fingerling was sampled for an estimate of 10 fingerlings per mile. No other species were sampled.

During the same sampling event, the Coldwater Stream Index of Biotic Integrity (IBI) and the Minnesota Stream Habitat Assessment (MSHA) were calculated in Trout Brook. The coldwater IBI score of 115 (maximum score = 120) received a qualitative rating of excellent and was similar to previous assessments. The high IBI scores are

influenced by a fish community comprised almost entirely of brook trout. The MSHA score was 61.1 (maximum score = 100) and has declined slightly in recent years. The biggest change has been lower scores for in-stream substrates, with more fine substrates present.

Also in 2011, the MPCA performed an assessment of the fish and macroinvertebrates in Trout Brook. In the lower section of Trout Brook (from the confluence with the Cannon River upstream three miles) the assessment found the stream to be supporting of coldwater aquatic life for fish and macroinvertebrates. The fish community was comprised mostly of Brook Trout and Brown Trout. Both species were well represented by different age classes indicating a naturally reproducing population. For aquatic macroinvertebrates, the community was comprised of a high number of mayflies, stoneflies, caddisflies, and other sensitive taxa.

Figure 2-23: Brook Trout caught in Miesville Ravine Park

The two branches of Trout Brook, upstream of Highway 91, were determined to be impaired for aquatic macroinvertebrates but supporting for a coldwater fishery. The fish communities at both stations were dominated by Brook Trout. At both stations the macroinvertebrate community lacked mayflies, stoneflies, caddisflies and other pollution sensitive taxa, and was dominated by tolerant taxa. Sampling images of the stream demonstrate nuisance algae conditions which may indicate a nutrient impairment. Given the presence of riffle habitat, the absence of mayflies, stoneflies, and caddisflies is unusual. High nitrates could be a stress to the macroinvertebrate community. Some dissolved oxygen measurements recorded were at or below the standard at both stations which could also indicate a stress to the biological communities.

A Stream Management Plan for Trout Brook was prepared in February 2002 by the MNDNR. Several stream surveys and fish population assessments have been conducted since 1977, giving the MNDNR an idea of the habitat and fish communities in Trout Brook. Goals in the management plan include maintaining water quality and quantity capable of supporting native brook trout fishery able to sustain moderate fishing pressure, continuing stream surveys every three years, encouraging watershed protection measures and best management practices, and implementing a stream improvement project utilizing woody debris to provide cover for brook trout.

Pine Creek

Pine Creek is classified as Class ID (trout waters) from its headwaters downstream to Highway 20. This is the stretch that is within Dakota County and within the Watershed. Downstream of Highway 20 to its confluence with the Cannon River, it is classified as Class IA trout waters (although this stretch lies outside the WMO boundaries). MNDNR stream surveys note that the stream above Highway 20 is channelized (ditched and straightened) and receives water from numerous tile lines. Habitat in this section of the stream is limited to in-stream vegetation (such as grasses) as there are few well-defined riffles and pools.

Figure 2-24: Streambank Restoration – Pine Creek

Pine Creek supports a naturally reproducing population of brown trout. Other fish species found in Pine Creek include blacknose and longnose dace, white sucker, and brook stickleback. A Stream Management Plan for Pine Creek was prepared by the MNDNR in 1998. Management goals include improving trout populations, continuing stream surveys every three years, and restoring the channelized section to a free-flowing stream corridor.

Pine Creek was sampled at two locations in September and October 2011. At the station downstream from the Watershed, MNDNR Fisheries personnel collected an estimated 599 adults and 7,019 recruits per mile. The estimates of larger brown trout were 104 per mile ≥ 12 inches and 42 per mile ≥ 14 inches. No fish ≥ 16 inches were sampled. Brown trout were the only species sampled.

At the station within the Watershed, the stream is noted as “a straight ditch and trout habitat is limited.” Because of the stream size and low fish numbers only one electrofishing pass was completed. The population estimate was calculated based on actual numbers captured in the first run. Only four adult brown trout were sampled. The estimate of adult brown trout was 47 per mile. The estimates of larger fish were 35 per mile ≥ 12 inches, 35 per mile ≥ 14 inches, and 12 per mile ≥ 16 inches, but this is based on a very small sample size. No other species were sampled.

The Coldwater Stream Index of Biotic Integrity (IBI) was not calculated for the Watershed station as too few fish were sampled. The Minnesota Stream Habitat Assessment score for this station was a low 36.5. This reach is mostly ditched and surrounded by row crop agriculture resulting in poor scores for surrounding land cover and channel morphology.

Also in 2011, the MPCA performed an assessment of the fish and macroinvertebrates in Pine Creek. Dissolved oxygen in the creek was measured as low as 1.3 mg/L near the upper portion and was determined to not meet 2A water quality standards. The fish community at all three monitoring stations was dominated by brown trout and rated good. For macroinvertebrates, the community ratings were more variable. At the upstream station macroinvertebrates were rated fair while at the downstream station the community was rated good. Habitat conditions on the lower portion of the reach (downstream of the Watershed) are very different than the upper portion. The lower portion is well-shaded and has coarse substrates and bedrock providing fast flowing riffle habitat. The upper portion of the stream is channelized and low-gradient with sand and gravel substrate and lack of riparian shading. Even though dissolved oxygen was not formally listed as an impairment during the 2011 assessment, additional monitoring is recommended to determine the cause since the low measurements observed indicate a potential stress to the coldwater communities.

Lakes

Lake Byllesby is considered a roughfish-gamefish community with a management classification of warm water gamefish, according to the MNDNR. In the past, fisheries management has centered on non-gamefish removal by commercial fishermen and subsequent gamefish stocking. Poor water quality and fish habitat, typical of many artificial reservoirs, allows less desirable species such as carp to thrive in these waters, further degrading the water quality and habitat. However, low numbers of northern pike, walleye, bass and panfish are present in the lake. Fish consumption advisories by the Minnesota Department of Health (MDH) for Lake Byllesby include black crappie, northern pike, channel catfish and walleye for mercury; and carp and channel catfish for PCBs.

7 DIFFERENT SPECIES OF GAME FISH

The stretch of the Cannon River between the City of Faribault and Lake Byllesby is classified as a warmwater gamefish community, Classes IIB and IIC, supporting walleye and northern pike. The river was sampled with electrofishing gear in May 2010 between Lake Byllesby and the Northfield dam to assess gamefish populations. All gamefish were collected, measured, and recorded on a 0.9 mile reach of river. A total of 92 gamefish, comprised of seven species, were collected. Channel catfish and smallmouth bass were the most abundant gamefish. Seven walleye were collected ranging in length from 9.4 to 12.7 inches. Two bluegill, one largemouth bass, one northern pike, and two white bass were also collected.

Pollution Sources

There are many different sources of pollution throughout the Watershed (Table 6). Most of these sources are non-point sources, or those that cannot be traced back to a single point. Most sources of pollution can affect surface waters by running directly into waterbodies, or by flowing overland to waterbodies during periods of rain or snowmelt. Additional pollutants can enter surface and groundwater through unsealed wells, subsurface drainage, sinkholes, cracks, and fissures in the bedrock (karst features), or by leaching through the soil.

Nitrogen Fertilizers

The largest source of nitrate pollution in Trout Brook and Pine Creek is most likely the leaching of nitrogen fertilizers into the groundwater and resurfacing in springs and seeps along these creeks. In karst areas like the Watershed, the underlying aquifer readily takes on the character of the land above. That character is expressed in the baseflow of the local streams. If the land is rich in nitrogen, the aquifer will be rich in nitrogen, and so will the stream. Much of the Trout Brook subwatershed has a very high sensitivity to groundwater contamination due to quick vertical seepage from land to groundwater.

The MPCA studied the relationship between row crop land cover and nitrate-nitrogen concentration in baseflow for 100 trout stream watersheds in the karstlands of southeast Minnesota. Results indicate that nitrate-nitrogen concentrations are directly related to the percentage of row crop in the Watershed (r-squared = 0.68). A linear regression showed a slope of 0.16, suggesting that the average baseflow nitrate-nitrogen concentration in the trout stream watersheds of southeast Minnesota can be approximated by multiplying a watershed's row crop percentage by 0.16. The strong correlation between nitrate-nitrogen concentrations in streams and watershed row crop percentage suggests that nitrogen application over a span of decades has impacted the condition of the underlying aquifers that are the source of these streams' baseflow.

MPCA's 2013 "Nitrogen in Minnesota Surface Water" report (https://bit.ly/3UXJ

Effects of Nitrates and other chemicals (https://bit.ly/3SnUDt

Another statewide MPCA study (published June 2013) found high nitrates in surface waters throughout the State, especially in the

southern Minnesota where cropland sources account for 89-95% of the nitrate load in several major rivers including the Lower Mississippi River.

Agricultural Drainage

Drainage can be a critical component of a successful farm operation, but can also result in nutrients, bacteria, and sediment entering groundwater and surface waters due to altered hydrology. Additionally, drainage structures can contribute to elevated flows that result in streambank erosion. These changes in flow and nutrient loading impact downstream landowners by altering downstream water quality and quantity. Changes in economics and land prices have the potential of increasing conversion of pasture and forage land to row crops, which in turn may lead to the installation of new drainage systems or drainage improvements to existing systems. New drainage and drainage improvements provide an opportunity to design and install systems in ways that help reduce nutrient losses into surface water and positively affect the timing and flows of drainage water into surface waters. These efforts combined with wetland restoration and water retention initiatives can have positive impacts upon water quality in agricultural landscapes. Within the Watershed, there are two public drainage systems: County Ditch 1 and County Ditch 2.

Minnesota Department of Agriculture Report on Agricultural Drainage, Wetlands and Water Retention (https://bit.ly/3LXYrzd)

Dakhue Sanitary Landfill

The Dakhue Sanitary Landfill in Hampton Township was operational from the time its first permit was received in 1971 until it closed in 1988. The landfill was privately owned and operated during that time, but has been under ownership of the State of Minnesota since 2011. The landfill contains approximately 1.5 million cubic yards of waste, which fills around 28 acres of the 40 acre area that was permitted. The primary contaminants of concern from the site are 1,4 dioxane and TCE, both of which are industrial chemicals known for being harmful to human health. The landfill is enrolled in the MPCA's Closed Landfill Program, and a formal response plan is being implemented to address the contamination and associated concerns.
(MPCA Groundwater, 2021)

Feedlots

Feedlots, confined areas where livestock are concentrated, can pose a threat to water quality if runoff from the feedlot is not properly diverted away from surface water, or if it conduits to groundwater. Additionally, manure from feedlots should be properly stored and, if utilized as fertilizers, should be applied according to rules, guidelines, and recommended management practices. Most feedlots within the Watershed have between 50 and 300 animal units.There are a few dairy, hog, and poultry farms remaining within the Watershed, but most sites raise horses or beef cattle. Within the State of Minnesota, many counties have a delegated feedlot program. In Dakota County, the MPCA's Southeast Region Office regulates the feedlots as Dakota County does not have a delegated feedlot program.

Wastewater Discharge

There are no permitted wastewater discharges within the Watershed. The residents of the small cities of Randolph, New Trier, and Miesville currently use individual sewage treatment systems rather than a centralized wastewater treatment facility, although Randolph is in the process of installing a centralized system. These communities are considered unsewered or under sewered by the MPCA, which means that they have inadequate or no centralized wastewater treatment system. It's possible that some of the individual treatment systems in these cities may be failing or discharging directly to an open ditch. The pollution potential increases because of the high number of individual systems concentrated in a small area.

Another wastewater item of note is the City of Northfield. The City is not a member of the NCRWMO, however, the wastewater treatment plan for the City is located on the main stem of the Cannon River. As a result, discharges (intentional or accidental) from the plant impact the Cannon River.

Chloride

Chloride is an emerging pollutant of concern in the Watershed. Though the Watershed is rural in nature, winter de-icing of roads and storage locations of de-icing salt contribute to the chloride concern. Other main sources of chloride in the Watershed include water softeners, fertilizer, manure, and dust suppressant. According to the MPCA, one teaspoon of salt will permanently pollute five gallons of water. Chloride is considered a permanent pollutant because once it is in the water, there is no easy or cost-effective way to remove the chloride. Once in the water, chloride can be harmful in a variety of ways. Drinking water, including groundwater, may become contaminated (in the Twin Cities, 30% of wells have chloride levels that exceed the state water quality standard), plants, fish and aquatic bugs may not be able to survive, soil can lose its ability to store water and may become more susceptible to erosion, wildlife may get sick or die from ingesting the salt, pets may become sick, and infrastructure such as bridge and roads may suffer corrosion and need more frequent repairs (MPCA, Chloride 101).

Other Sources

Unsealed, abandoned, and unused wells could be a direct conduit from the surface to groundwater, thus acting as a potential source of groundwater pollution. Dakota County and the MDH retain information regarding private wells including well sealing records, locations of possible abandoned wells, and unused wells. Dakota County works to find and seal wells that are unused or abandoned through a variety of mechanisms such as property transfers, property development, and reports from landowners. Dakota County has been delegated authority under Minnesota Statute 103I to regulate most well construction and sealing within the Watershed.

There are additional sources throughout the Watershed that could pose a threat to surface water or groundwater (Table). Locations of various waste disposal sites, contaminant release sites, hazardous waste generators, and leaking above and belowground storage tanks are tracked by the MPCA. Many of these areas may have been remediated and many are closed. It's likely that none of these sites pose an immediate threat to surface or groundwater. There is one historical solid waste dump on the Cannon River near the City of Randolph. The status of this area is unknown.

Table 2-5: Potential sources of pollution in the Watershed.

Potential Source	Pollutants of Concern
Row Crops, Hay Fields, Vegetable and Fruit Fields and Orchards	Sediment, Pesticides, Nutrients, Bacteria
Feedlots	Bacteria, Solids, Nutrients
Livestock in waterways	Bacteria, Solids, Nutrients
Pastureland	Bacteria, Solids, Nutrients
Landspread Manure	Bacteria, Solids, Nutrients
Sod Farms	Pesticides, Nutrients
Failing/Non-compliant Individual Septic Systems	Bacteria, Nutrients
Leaking Storage Tanks	Pesticides, Oil, Gasoline, Toxins
Landfills/Junkyards/Dumps	Toxins, Nutrients

Potential Source	Pollutants of Concern
Storage Piles (temporary or permanent)	Salt, Arsenic, Sediment, Sand, Solids, Nutrients
Household Hazardous Waste	Toxins, Nutrients
Leaking Autos	Oil, Gasoline, Antifreeze
Abandoned Unsealed Wells	Any – direct conduit to groundwater
Open Pit Quarries/Aggregate Mines	Excess water from dewatering, conduit to groundwater
Pet Waste	Bacteria, Manure Solids, Nutrients
Wildlife	Bacteria, Manure Solids, Nutrients
Residential Lawns	Pesticides, Nutrients
Construction Sites	Sediment
Streambank Erosion	Sediment
Atmospheric Deposition	Toxins, Nutrients
Impervious Surfaces	Excess water, any substance on the surface, road salt
Drainage Tiles/Drainage Ditches	Excess water, Pesticides, Nutrients, Bacteria

3.0 Issue Assessment Prioritization and Measurable Goals

During the fall of 2021, the TC, comprised of representatives from local and state agencies was formed to guide the development of this Watershed Management Plan. The AC, comprised of interested community members and representatives from conservation organizations was also developed. During the planning process, the primary role of the AC was to provide feedback and high-level oversight of the plan. After approval of the 4th generation plan, the NCRWMO plans to continue engaging the TC and AC for their expertise and feedback to assist the Board with navigating difficult decisions necessary to successfully implement the plan.

After the committees were developed, one of their first tasks was to identify and prioritize issues within the Watershed. To prepare for this task, a thorough self-evaluation and gaps analysis was completed by the NCRWMO. To solicit feedback from the public, both virtual and in-person open house opportunities were provided. The feedback received from the open houses was compiled and compared to the self-evaluation and gaps analysis, along with the professional expertise of the TC with review from the AC to establish the final priority ranking of watershed issues. Once the priority issues were identified ranked, they were separated into two tiers. Tier one issues are the highest priorities for the NCRWMO to address during the implementation phase. Tier two issues will be incorporated into projects and workflow whenever possible but are not likely to be pursued on their own.

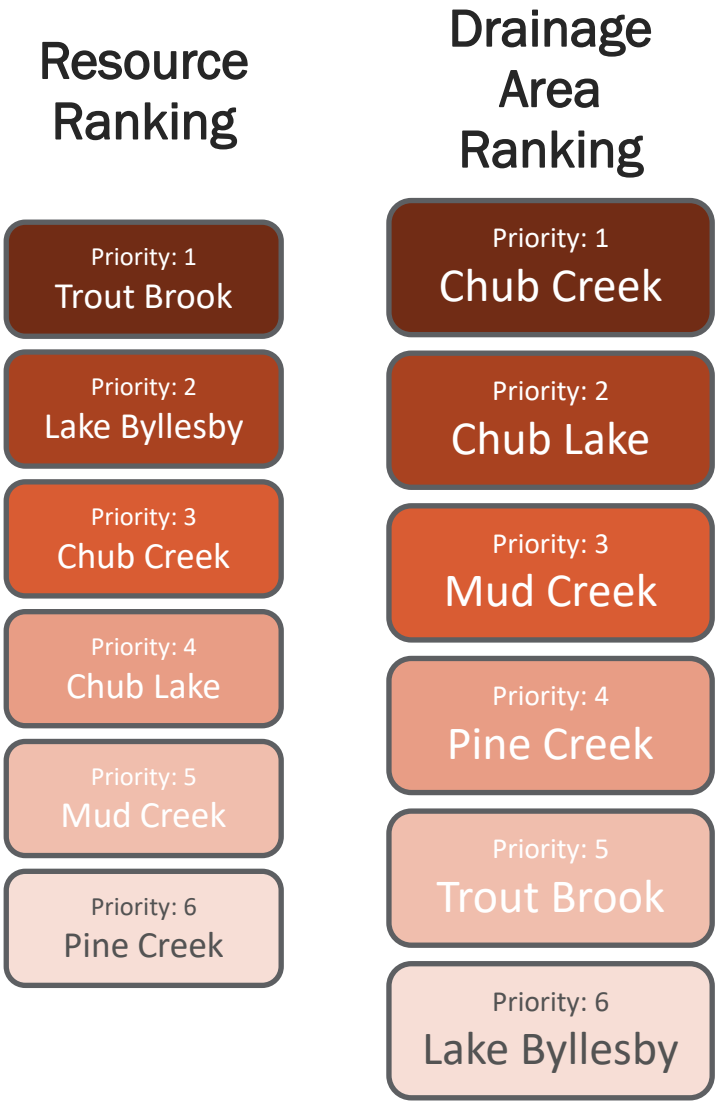


Figure 3-1: Priority Rankings (Lower Number equals Higher Priority)

In addition to prioritizing issues, surface water resources were also prioritized to further guide targeting of practices. However, in discussions during the process participants recognized that the ability to make measurable impacts in these waterbodies did not align with the resource priority ranking. Considering this, and where previous implementation efforts have been focused, the resource drainage areas were then ranked to better capture where implementation efforts should be targeted based on opportunity and effectiveness. For example, Lake Byllesby is a high priority resource but the ability for the NCRWMO to make significant improvement to this resource is limited with a majority of the lake's drainage area outside of the NCRWMO's boundary. Because Chub Creek is the largest tributary to Lake Byllesby in the NCRWMO's boundary, the Chub Creek drainage area is ranked higher than Lake Byllesby's drainage area. The approach of maintaining a resource-based ranking that ultimately feeds into a drainage area-based ranking is to recognize the importance of vital

resources such as Lake Byllesby and Trout Brook while ensuring implementation dollars are spent effectively. The resource and drainage area priority rankings are shown in Figure 3-1.

Following the prioritization process outlined above, the TC work through the logic model approach to define an issue statement for each issue, desired future conditions, numeric goals, issue-specific targeting criteria, and implementation strategies. The issue statements were crafted to address the top concerns that were identified for each issue while the desired future condition established the final outcome, dissociated from timing. From there, the partners worked backwards to define the appropriate goals and strategies that would achieve realistic but measurable progress towards the desired future condition. Ultimately, implementing this plan's strategies by meeting the measurable goals the NCRWMO will progress towards achieving the desired future condition for the identified priority issues. The following sections present the outcomes of this process for each priority issues

Tier One Issues

Tier one issues are the highest priority items for the NCRWMO to dedicate time and resources towards during the implementation phase. Water quality in the Watershed continues to be one of the main concerns from the NCRWMO and partners. There are many mechanisms of pollutant transport into surface waters such as overland runoff during rain and snowmelt events and leaching of contaminants into surficial and deep aquifers. Although many best management practices have been installed with the goal of improving water quality, there remain numerous stream and lake impairments (see Section 2) that affect multiple water uses including aquatic life, aesthetics, and water-based recreation. In addition to addressing pollutant sources directly, the NCRWMO and partners identified policy, outreach, and education as top priorities that are important to consider and plan for to effectively implement the necessary actions to improve and protect water quality.

Surface Water

Issue Statement	Protect and improve water quality in streams, rivers, and lakes by reducing pollutants that reach surface waterbodies and improving soil health. Surface water consists of all open water bodies, such as lakes, rivers, and streams within the Watershed.
Top Concerns	High levels of nutrients, erosion and increased sedimentation, soil health, and excessive water runoff and the correlated impacts of flooding.
Desired Future Condition	All surface waterbodies meet water quality standards for aquatic life and recreational use and perennial streams are hydrologically connected in all flow conditions at culverts and other stream crossing structures.
Measurable Goals	• Achieve pollutant reductions listed in Implementation Table (reduction estimates will be tracked during implementation using available reduction calculators) • Establish 5,000 acres of cover crops • Restore 60 acres of wetland area • Establish 10 nutrient management plans • Implementation actions will achieve progress towards meeting the WRAPS total nitrogen reduction goals (20% interim goal and 45% long term goal), nitrate goal (less than 10mg/L nitrate concentration in baseflow), total phosphorus reduction goal (12%), TSS reduction goals (less than 10% exceedance of applicable TSS standard). and TMDL reductions for Chub Lake (83.83% reduction in TP).

To ensure the top concerns were adequately addressed within the plan, the committees developed a desired future condition for surface waters within the Watershed.

Erosion from fields, gullies, streambanks, and shorelines contribute to soil loss, plugged culverts, and degraded water quality and habitat in lakes and streams. The topography of Miesville Ravine and the Trout Brook subwatershed increases the need for water and sediment control basins, grassed waterways, and gully

stabilization measures. Erosion is also a concern along the steep slopes near Chub Lake and surrounding wetland areas.

Flooding in the Watershed is typically localized in nature as rain events become more localized and intense. Waterbodies are not able to handle the intense rainfall in the same manner as historic, less intense rain events which has led to increased flooding, particularly at road crossings with culverts. Agricultural fields also experience localized flooding from the intense rain events.

Increased runoff volumes from development are not an issue in the Watershed due to the small amount of development that occurs. A model ordinance for managing runoff concerns from development was developed by the NCRWMO in 2012, and all NCRWMO members adopted the model ordinance. Due to the lack of development, however, this ordinance has yet to be triggered and utilized.

Groundwater

Issue Statement	Protect groundwater quality and quantity to ensure drinking water is safe for consumption and supply is sufficient to meet human needs and support groundwater-dependent ecosystems.
Top Concerns	High nitrates, surface water to groundwater connections, drinking water safety, and stresses to quantity from irrigation.
Desired Future Condition	All groundwater and drinking water in the Watershed are free from unhealthy levels of contamination, and groundwater is sufficient to meet human needs and sustain groundwater-dependent ecosystems.
Measurable Goals	• Establish 5,000 acres of cover crops • Establish 2,000 acres utilizing Irrigation Water Management • Enroll 2,000 into Conservation Crop Rotation • Establish 1,000 acres of Perennial Crops

The quality of groundwater is a concern to the NCRWMO Board members. Although the area is known for its karst topography, the location of connections between groundwater and surface water are not well known. The contamination of nitrates and other pollutants in private wells and the movement of these contaminants from groundwater to surface water are also relatively unknown. Cooperation with entities such as Dakota County, the University of Minnesota, Minnesota Department of Agriculture, and the Department of Health is essential to research these topics and gain a better understanding of the protection needs.

Issue Statement	Partner with member local governments to support them meeting their statutory requirements which may include establishing consistent ordinances throughout the planning area, enforcing existing ordinances, and implementing this Plan effectively.
Top Concerns	Lack of enforcement of existing ordinances, a lack of resources to track enforcement, inconsistencies in local ordinances between partnering local government units, lack of coordination between different levels of government agencies, need for policies related to drainage management, and ordinances related to groundwater and mining.
Desired Future Condition	Member communities will have the capacity to track and enforce existing ordinances, and local policies established that are consistent across NRCWMO partners, consistent with other local and state agencies and supportive of the NRCWMO plan goals.
Measurable Goals	• Complete gaps analysis of ordinances and establish three model ordinances, then encourage all member LGU's to implement consistent ordinances. • Coordinate 2 meetings per year for partner entities to discuss enforcement of existing ordinances and improve coordination efforts between entities. Meetings should address any hurdles identified with coordination and enforcement of ordinances.

Sand and gravel mining, and the possibility of frac sand mining, are also issues in the Watershed. Advisory Committee members have questioned whether mines are engineered correctly and if regulations are being followed. The adequacy and enforcement of appropriate mining ordinances among communities is also uncertain.

Additional information regarding this issue is provided in the Policy and Regulation section of this plan, along with summary information about existing regulations within the Watershed.

Outreach and Education

Issue Statement	Increase the awareness of water resources and practices needed for the improvement or protection of those water resources among all sectors of the community.
Top Concerns	Stakeholders' level of understanding of connections between land cover activities and water quality, stakeholder understanding of groundwater issues, stakeholder understanding of cost share opportunities to implement BMPs, and stakeholder engagement with water and natural resource goals.
Desired Future Condition	For residents and decision-makers alike to be knowledgeable about water issues, work to conserve water, and prevent pollution; knowledgeable of conservation practice funding opportunities; and change behaviors to water quality friendly practices based upon knowledge gained. Increase the amount of outreach conducted.
Measurable Goals	• Track effort and location of actions for surface water and groundwater outreach and education biannually.

Tier Two Issues

Tier two issues reflect priorities for the NCRWMO that will be incorporated as secondary benefits to Tier 1 priorities and issues where applicable and will be addressed as opportunities arise or when funding becomes available.

Habitat

Issue Statement	Promote the protection and restoration of high-quality natural areas throughout the Watershed including wetlands, woodlands, prairies, and riparian corridors for improvement of water-based recreation, fish and wildlife habitat, and water quality.
Top Concerns	Protection of high-quality habitat, poor aquatic habitat, loss of riparian habitat, loss of upland habitat, terrestrial invasive species, aquatic invasive species, lack of habitat connectivity, lack of pollinator habitat, and a loss of forested riparian areas.
Desired Future Condition	Protection and expansion of high-quality habitat within the NRCW.
Measurable Goal	• Develop one adaptive lake management plan for Chub Lake

Issues with wetlands in the Watershed are varied. While Greenvale Township indicates they have an increase in wetlands due to the Wetland Banking program, other committee members and NCRWMO Board members indicate there are fewer wetlands now due to farming practices, sod farms, and some development. Wetland restoration should be promoted, especially in areas with historical wetlands.

Enforcement of the Wetland Conservation Act (WCA) is effective in the Watershed with assistance from the Dakota County Soil and Water Conservation District. There was consensus that functions and values assessments of wetlands could be effective when done on an as-needed basis in this area.

Data and Studies

Issue Statement	Expand upon existing data and studies to fill gaps or outdated information so that conservation actions are guided by sound science and achieve cost-effective results.
Top Concerns	Data gaps from studies that limit the understanding of pollutant sources and impacts, knowledge of effectiveness of existing conservation practices, investigating sources of nitrates throughout the Watershed utilizing nitrate loading maps, and data sharing with local, state, and federal agencies.
Desired Future Condition	Sufficient data to direct conservation actions based on sound science, long-term data to detect trends and changes in watershed conditions, and data that can be effectively used to educate landowners.
Measurable Goal	• Complete one comprehensive gaps analysis. • Revisit gaps analysis 5 years into planning period to assess what data/studies require updating

The gaps analysis and 5-year assessment will be completed to assess what data or information should be updated to reflect changing conditions or data gaps that should be filled to better direct implementation work. These efforts will ensure the broad library of existing data stays relevant and useful. While not a direct outcome of this issue, water quality monitoring data will be utilized to track trends and changes in watershed conditions to help inform what watershed data and study information needs updating. Water quality and quantity monitoring remains an important function of the NCRWMO. The water monitoring program has improved over time by collaborating with other monitoring organizations and efforts (such as State –sponsored Watershed Restoration and Protection Projects, Clean River Partners programs, investigations by colleges and universities, the county parks department, etc.).

Emerging Issues

Issue Statement	Equip local partners with the knowledge and tools so they are prepared to manage challenges resulting from issues of emerging concern.
Top Concerns	Increase knowledge and management tools for include chloride, climate change and resilience, contaminants of emerging concern (such as PFAs and PCBs), and land development changes.
Desired Future Condition	Developing the management tools and knowledge for these concerns will assist the partners in creating their desired future conditions of having local policy makers that are aware of and consider potential impacts from emerging concerns, as well as the general public being educated on potential risks of emerging concerns and actions to mitigate impacts.
Measurable Goal	• Biannually, incorporate at least one piece of information into O&E.

4.0 Policy and Regulation

The NCRWMO is committed to the protection and enhancement of water resources in southern Dakota County, although the NCRWMO will not be a permitting authority for activities in the Watershed. Instead, the NCRWMO will work with and support member communities in the enforcement of their respective ordinances related to water quality. The NCRWMO has developed, and will continue to refine, a reporting form that will be sent to member communities annually to assist them in reporting the status of ordinance enforcement. Reporting forms will be sent in December, with a due date of February 1st of the following year. This timeframe matches the reporting period of many grant programs, which will provide reporting consistency for the member communities. If member communities face challenges with ordinance enforcement, and or if they do not reply to the annual questionnaire, the NCRWMO will set up meetings with the member community to develop strategies to improve enforcement. Strategies may include, but are not limited to, applying for grants to fund additional staff to balance enforcement workload, participate in meetings with Boards and community members regarding updates to ordinances and the importance of enforcement, and assisting with compliance inspections as able. As noted in the Policy and Regulatory implementation table, the NCRWMO will be conducting a gaps analysis of ordinances that exist within the Watershed. Results of the gaps analysis will be shared with member communities, along with model ordinances developed by the NCRWMO that may be adopted by the member community. While the NCRWMO does not have the authority to enforce the adoption of the model ordinances, the goal is that through partnership and open communication and collaboration in developing the model ordinances, 100% adoption of the model ordinances will be achieved.

Land Use Management Controls

Local units of government, including counties, cities, townships, and watershed districts, are responsible for regulating land-use controls and implementing various state programs and legislation, such as the MNDNR Shoreland Management Program and Minnesota's Wetland Conservation Act. In addition to local controls, federal and state laws, regulations, and rules are in place that relate watershed and natural resource management. Regulations that impact the NCRWMO are summarized below.

A key aspect of a successful land use management program is the consistent application of standards and criteria in planning, zoning, and permitting as well as enforcement of land use management controls. Opportunities exist for land use authorities to achieve consistency and manage planning for the long-term protection of watershed resources in a way that balances economic growth with ecological and environmental needs. Implementation actions identified in this plan will assist the NCRWMO in supporting member communities in their efforts to maintain and enforce effective regulatory controls.

Wetland Regulations

MN Statute portions of 103B and 103G
MN State Rule Chapter 8420
Wetland Management

There are regulatory controls that govern the discharge of dredged or fill materials into waters of the United States, including wetlands. U.S. Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA) share responsibilities for implementing Section 404 of the Clean Water Act. Section 401 of the Clean Water Act requires certification of water quality compliance measures. This certification is a requirement of various federal permit programs and is implemented at the state level by the MPCA. USDA implements the Federal Farm Bill policies regarding draining or filling wetlands for farm program participation. Minnesota also has the Wetland Conservation Act (WCA) that is intended to result in "no-net loss" of wetlands through various mitigation, replacement, and permitting activities. BWSR administers the program, however, the program is implemented through local governments. The WCA entities within the planning area are Dakota County SWCD, various cities or townships, and the State of Minnesota (*Figure 4-1*).

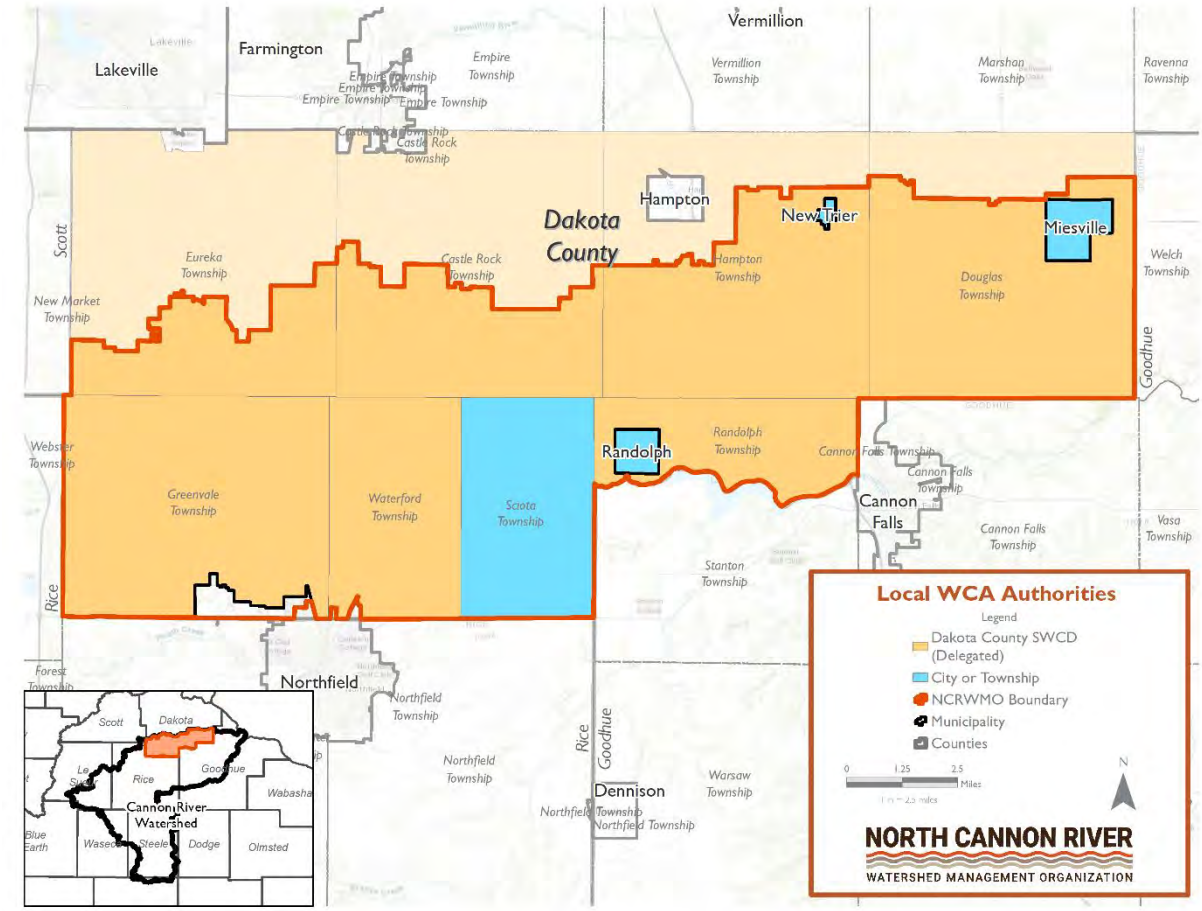


Figure 4-1: Local WCA Authorities in the NCRWMO

Floodplain Management

No Statutory Law/Rule

The Federal Emergency Management Agency (FEMA) administers federal floodplain management, mapping, insurance, and flood-assistance programs. The MNDNR oversees the state program(s) and administers the National Flood Insurance Program for the state. Local zoning regulations identify permitted land use in the floodway, flood fringe, and floodplain. The floodplain provisions of Dakota County Ordinance 50 are adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 CFR Parts 59-78, as may be amended to maintain the county's eligibility in the National Flood Insurance Program. The Cities of Randolph, New Trier and Miesville do not have shoreland ordinances, since the MNDNR did not require ordinance adoption in these small cities. MNDNR protected waterbodies or watercourses are not present within the city limits of New Trier or Miesville, although the City of Randolph includes shoreland along Chub Creek and Lake Byllesby. Though shoreland ordinances were not required in these communities, the MNDNR encourages ordinances or other official controls that protect water resources.

Shoreland Regulations

MN Statute 103F
MN Rules 6120.2500 – 3900
Shoreland Management

Minnesota has standards that are identified in rules and are overseen by the MNDNR. Local governments are required to adopt land-use controls that protect shorelands along rivers and lakes. Dakota County administers Ordinance 50: Shoreland and Floodplain Management Ordinance (www.co.dakota.mn.us/NR/rdonlyres/00004dac/jbreawwvradzlvxouqzqapjiquzbipsl/FINALOrdinance50Nov15 2011.pdf.) within 13 unincorporated townships in the County. The ordinance is enforced to regulate the use and orderly development of shoreland within the unincorporated areas of the county to promote the interests of public health, safety and welfare, and to protect, preserve and enhance natural resources as provided in Minn. Stat. § 103A.201 and Minn. Stat. ch. 116B. Included in the Ordinance, is a requirement for the maintenance of a 50-foot vegetated buffer along all MNDNR-protected watercourses in the County (Ordinance Section 16.08B). While this regulation has been "on the books" since 1973, the County is taking new steps to make sure landowners are in compliance with this provision.
The Cities of Randolph, New Trier and Miesville do not have shoreland ordinances, since the MNDNR did not require ordinance adoption in these small cities. MNDNR protected waterbodies or watercourses are not present within the city limits of New Trier or Miesville, although the City of Randolph includes shoreland along Chub Creek and Lake Byllesby. Though shoreland ordinances were not required in these communities, the MNDNR encourages ordinances or other official controls that protect water resources.

Buffer Regulations

Minnesota Statutes 103B and 103F.48, Subd. 4
Buffer Management

Buffers are required on public waters and drainage systems. According to legislation enacted in 2015, buffers of perennial vegetation are required to be an average of 50 feet with a minimum of 30 feet on public waters and 16.5 feet for public drainage systems. Flexibility is provided if other practices provide the same water quality benefit as a buffer. Exceptions are allowed for areas that are covered by roads, buildings, or other structures; areas that are enrolled in EQIP; public-water accesses; and municipalities that follow federal and state stormwater requirements. BWSR is the regulatory authority of this program, which is operated at the county level. Dakota County has elected to enforce the state buffer law through a locally adopted ordinance, while BWSR carries a responsibility for state oversight of those entities implementing and enforcing the ordinance at the local level.

Point Source Pollution

Regulations MN Statutes 115 and 116, as amended MN Rules Chapters 7001, 7050, 7060 and 7090
MN Rules Chapters 7050 and 7052
Point Source Pollution

Mandates regulating point sources of pollution were a major component of the Clean Water Act which was passed in 1972. The U.S. Environmental Protection Agency (EPA) is responsible for regulating point sources through the National Pollutant Discharge Elimination System (NPDES). The Minnesota Pollution Control Agency (MPCA) implements this program, which includes municipal sewage treatment plants, industrial discharges, stormwater, and concentrated animal feeding operations (CAFOs) at the state level. Minnesota has general permits that govern activities such as confined animal feedlots and the standards are outlined in state rule.

Subsurface Sewage Treatment Systems

Regulations MN Statutes 115.55 and 115.56
MN Rules Chapters 7080, 7081, 7082, 7083
Subsurface Sewage Treatment Systems

The goal of the Subsurface Sewage Treatment Systems (SSTS) program is to protect the public health and the environment by adequately dispersing and treating domestic sewage from dwellings or other establishments that generate volumes less than 10,000 gallons per day. SSTS requirements are adopted and enforced locally. In Dakota County, all cities except Randolph and New Trier and all townships except Waterford and Randolph have their own septic authority. The County has septic authority in the cities of Randolph and New Trier, townships of Waterford and Randolph, and all the shoreland and floodplain areas in unincorporated portions of the County.

The County does not currently have formal joint powers agreements (JPAs) with townships for septic inspections or permitting (though JPAs exist for maintenance reminders for tank pumping). Townships and cities that decide not to administer the program essentially default to the County. Minnesota Rule 7082.0040 states that “all counties with SSTS ordinances must permit and inspect SSTS within cities and townships that do not administer an SSTS ordinance that complies with these rules”.

Waste Management Regulations

MN Statutes 115.55
MN Rules Chapters 7001, 7035, 7045, 7150, 7151, 9215, 9220
Waste Management

Waste management permitting and regulatory programs are implemented by the MPCA. These programs include hazardous waste, storage tanks, and solid waste. Local land-use and zoning controls may regulate whether waste storage and handling facilities are a compatible use. The NCRWMO will report known violations to the MPCA, or other appropriate regulatory entities, as violations arise.

Groundwater/Surface Water Use

Regulations MN Statute 103G for appropriation
103H, 1989 Groundwater Act
Groundwater Protection Rule MN Rules Chapter 1573
Groundwater/Surface Water (Sitting Wells)

A water use (appropriation) permit from MNDNR Division of Ecological Water Resources is required for all users withdrawing more than 10,000 gallons of water per day or one million gallons per year. The MNDNR is required to manage water resources to ensure an adequate supply to meet long-range seasonal requirements for

domestic, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes. In addition to permitting water use, a Groundwater Protection rule (MR1573) was recently adopted in the state to minimize the potential sources of nitrate pollution. The rule restricts the application of nitrogen fertilizer in the fall and on frozen soils in areas identified as vulnerable to contamination.

Invasive Species

No Statutory Law/Rule or Requirement

MNDNR has regulatory authority over aquatic plants and animals, and terrestrial vertebrates. The Minnesota Department of Agriculture (MDA) has regulatory authority over terrestrial plants (noxious weeds) and plant pests. Dakota County Soil and Water Conservation District has an agriculture inspector whose responsibility is to ensure that all laws and rules related to noxious weeds are carried out. There is no counterpart for aquatic plants and animals or terrestrial vertebrates.

Feedlots

Regulations MN Rules Chapter 7020

The MPCA administers the feedlot regulations in Minnesota. Additionally, counties in the state may be delegated by the MPCA to administer the program for feedlots that are not required to have a state or federal permit (see Point Source Pollution above). In Dakota County, MPCA administers the feedlot program.

Public Waters Regulations

MN Statute 103G.245
Public Waters

The MNDNR administers the Public Waters Permit Program which regulates activities below the Ordinary High-Water Level (OHWL) in public waters and wetlands. There are many activities that require this permit prior to beginning work. These activities may include excavation, dredging, filling, putting in structures, and shore protection measures

Extraction/Extractive Use

Regulations MN Statute 93.44—93.51 and amendments thereto
Extraction/Extractive Use

Counties are responsible for administering land use controls for extraction. Extractive use means the use of land for the removal of surface or subsurface sand, gravel, rock, industrial minerals, a nonmetallic mineral, or peat not regulated by Minnesota statutes. Extractive Use mining may include construction sand and gravel used in concrete, aggregates, concrete products, asphalt, road base, fill, snow and ice control and other miscellaneous uses. Peat, black dirt, rock, and other soils are used extensively for landscaping.

Public Drainage Systems

Regulations MN Statute 103E
Public Drainage Systems

Artificial drainage (subsurface drainage tile and open ditches) was used historically to increase the amount of arable land. Over the past several decades, more extensive tiling (pattern tiling) has been used to optimize crop production by ensuring soil moisture does not prevent planting at the optimal time or create undesired crop stress due to excess soil/surface moisture. Public drainage systems are publicly managed drainage systems that provide outlets for private tile and ditches. Management of public drainage systems by drainage

authorities (typically counties or watershed districts) is governed by Minnesota Statute 103E. Drainage authorities work with landowners to ensure adequate drainage and enforcement of relevant regulations (e.g., buffer requirements). There are two ditches under public jurisdiction within the Watershed (Figure 2-9). County Ditch #1 is located in Hampton and Douglas Townships and includes much of Pine Creek. County Ditch #2 is located mostly in Waterford Township and includes much of the North Branch of Chub Creek. The County is the responsible drainage authority with regards to these two ditches.

The following table summarizes the existing water resource related ordinances of the member communities.

Ordinance or Regulatory Control	Action	Member Community	NCRWMO Role
Adopt and enforce ordinances as strict or stricter than Dakota County Ordinance 113 regarding SSTS, or will delegate SSTS enforcement to Dakota County	Review SSTS ordinance compared to Dakota County Ordinance 113	All	Confirm that member community has completed comparison, support and encourage efforts to update ordinance or delegate to Dakota County
Stormwater control ordinance on developments greater than one acre	Annually Report to NCRWMO	All	Send reporting form to member communities annually
Stormwater management for land disturbances ordinance	Annually Report to NCRWMO	All	Send reporting form to member communities annually
Erosion control during land disturbance ordinance	Annually Report to NCRWMO	All	Send reporting form to member communities annually
Erosion control for new and renewing tax relief program participants.	Annually report to NCRWMO	All	Send reporting form to member communities annually
Mining ordinances as related to the protection of surface and groundwater resources	Periodically review and update as necessary. If no ordinance is in place, consider adopting one.	All	Confirm that member community has completed review. Support and encourage updates or new ordinances as appropriate.

Dam Safety Requirements

MN Rule 6115.0300 – 6115.0520
Dams

The Lake Byllesby Dam is located on the southern edge of Dakota County. The dam is owned by Dakota County and regulated by the Federal Energy Regulatory Commission (FERC) and the Minnesota Department of Natural Resources (MNDNR). As such, the NCRWMO and its members do not have a regulatory or financial role with the Byllesby Dam. The MNDNR administers the state's dam safety program (MN Rules 6115.0300–6115.0520), which applies to all impoundments that pose a potential threat to public safety or property, including the Byllesby Dam. The dam safety rules require that the downstream impacts of a dam failure be analyzed under high-flow conditions, such as an extreme flood (such as the probable maximum flood), which is greater than a 100-year flood.

To meet FERC requirements, the Byllesby Dam required several updates. FERC regulations require that the dam meet standards for 100% of a Probable Maximum Flood, the most severe possible flood, which is calculated by combining information about precipitation, geology, and water management strategies, including the Probable Maximum Precipitation, which is the greatest theoretical amount of precipitation for an area. To meet this requirement, the Byllesby Dam was upgraded by Dakota County with two 65-feet wide by 14-feet tall hydraulically operated crest gates to provide flood control. Additional repairs, such as bedrock repairs, repairs to the concrete face of the dam, and existing gate systems, were made to the existing dam structure in 2015-2016 (Byllesby Dam, 2020). In October 2020, construction began for upgrades to the turbine and improvements to the powerhouse. This work is expected to be completed during the summer of 2023 (Byllesby Dam, 2022).

Figure 4-2: Lake Byllesby Dam

5.0 Implementation Program

Responsibilities

Since the NCRWMO is not a regulatory entity, implementation actions for the WMO are based on data collection, technical and financial support to partners, education and outreach endeavors, and voluntary conservation efforts. The core activities of the NCRWMO include 1) monitoring water quality and quantity, 2) providing cost share funding and grant match funding to install best management practices, 3) providing information, education, and coordinating necessary meetings with landowners, agricultural producers, and partners on addressing priority issues within the plan, and 4) evaluating the implementation of best practices and supporting enforcement of related ordinances throughout the Watershed.

Figure 5-1: NCRWMO Core Activities

Anticipated Expenditures and Implementation Schedule

The Implementation tables in Appendix A show the anticipated expenditures and schedule for implementing the strategies laid out in this plan. Figures are shown in 2022 dollars with no estimated increase for inflation. The NCRWMO will calculate inflation costs as needed and incorporate those costs into grant applications and other project proposal documents. Activities identified in the implementation tables will be funded through a combination of watershed-based implementation funding, other grant funds, membership dues, and partner contributions.

The NCRWMO is committed to improving water quality throughout its jurisdiction. One of the most effective ways to improve water quality is by offering financial incentives (cost share) to landowners to install best management practices. Therefore, the NCRWMO will continue its practice of using a portion of its member dues, along with funding from the SWCD cost share programs, to leverage other funds such as Clean Water Fund grants and NRCS funding. The NCRWMO's Administrative funds can also be used to achieve match funding requirements for some grants.

Implementation actions for the NCRWMO are captured in the implementation tables that are presented below. To organize the implementation actions, the tables have been split into the following categories: Best Management Practices (BMPs), Outreach & Education, Policy & Regulation, and Data & Studies. An explanation of the contents for each table is provided below, along with the table itself. Following the implementation tables are the cost assumptions that went into developing the total costs per implementation action and overall plan costs, as well as which priority issues the various actions address through multiple benefits.

BMP Table

The BMP table captures structural and non-structural best management practices that the NCRWMO anticipates watershed landowners will be willing to implement. This table offers a variety of practices, from cover crops to stream and shoreline protection and restoration, wetland restorations, stormwater runoff control, and alternative side inlets. The timing of implementation provided in the table is a professional estimation of feasible implementation efforts. While the NCRWMO and partners will make a dedicated effort to follow this timeline, they will also allow for deviation from the timeline if willing landowners in other

priority subwatersheds express interest in BMP implementation. Actions within the BMP table are color coded to show the priority level for a given practice within a priority watershed. Darker colors (and lower numbers) indicate higher priority for implementation within the given biennium.

Pollutant reductions are included for certain BMPs in the implementation table and reflect estimates based on best available information for the planned efforts. Reduction estimates for WASCOBs, filter strips, grade stabilization, shoreline protection and restoration, and wetland restorations came from the subwatershed analysis reports completed by the Dakota County SWCD while the remaining pollutant reduction estimates were derived from PTMApp. These tools will be used during implementation to track progress towards achieving these reductions. Monitoring data that is collected by the NCRWMO will also be used to verify these estimates where available. The remaining BMPs that are not represented in the subwatershed analysis reports or PTMApp will use level of effort to track progress towards achieving the plan goals.

Outreach and Education

Outreach to and education of community members and citizens within the Watershed is a high priority for the NCRWMO. As such, the WMO has identified several specific actions items that are captured within the implementation table, along with a menu type listing of education and outreach approaches that will be utilized as appropriate throughout the plan implementation process. These strategies may be used individually or may be combined to reach a broader audience or create additional interest and engagement within the community. Additionally, the NCRWMO will develop tailored surveys that will be sent to landowners to gather feedback after outreach efforts, following implementation of a new practice, and one year after implementation. This information will be used by NCRWMO to better understand what approaches work and what approaches don't work to select the menu options below that are most effective. The NCRWMO will also implement innovative education and outreach techniques as opportunities arise.

Figure 5-2: 2017 Tour of Trout Brook

Develop/Create/Establish
Materials that summarize funding opportunities to cost share the implementation of BMPs
Reoccurring opportunities and materials targeted for local decision makers to better understand how to leverage their roles to advocate for the NCRWMO plan and to implement the plan goals
A strategic plan to ensure outreach and education materials are communicated equally to all communities
Materials that inform the public of the unique geology of the area and why groundwater protection is so important
A collaboration group between the County and townships
With contractors and townships to distribute information about when mowing should be avoided to prevent the spread of noxious/invasive vegetation such as wild parsnip

Advocate/Promote/Implement/ Educate
For installation of interpretive information on natural resources and water quality within Miesville Ravine Park Reserve
Agricultural BMPs that improve surface water quality and protect groundwater through one-on-one interactions
Community leaders to become more such as becoming a Minnesota Water Steward
Dakota County's Groundwater plan and available resources that support clean and safe drinking water to residents
Opportunities to implement irrigation practices and technologies that reduce impacts to groundwater quality and quantity
Chloride reduction plan and corresponding policies in accordance with MPCA's Statewide Chloride Management Plan and Twin Cities Metropolitan Area Chloride Management Plan
County's effort related to private well and faucet water testing, so the public is aware of resources available to test their water to detect whether harmful chemicals are present
For MPCA and County to increase the appropriate disposal of waste and reduce illegal storage of materials
To the public and decision makers to support implementation of Dakota County's Land Conservation Plan
Adopting roadsides, adopting river stretches, and clean up days
Educate the public and decision-makers on municipal wastewater facilities and private septic systems, along with the importance of compliance with regulations
Support implementation of Dakota County Agricultural Chemical Reduction Effort (ACRE) with prioritized, targeted, and measurable strategies that are more protective than existing objectives (Nitrogen Fertilizer Management Plan and Groundwater Protection Rule)

Conduct/Host/ Meet/ Coordinate
Peer-to-peer, farmer led outreach efforts within smaller subwatersheds
Ag field days to highlight what has been accomplished in the Watershed
With commercial businesses who provide services to the agricultural community to share O&E materials and benefits of BMPs
With decision makers to ensure regulatory requirements are clear for applicable landowners

Distribute/ Provide
Information on MDA's guidelines for nitrogen application rates
Materials that summarize funding opportunities to cost share the implementation of BMPs
Information related to contaminants of emerging concern (COC) that is developed by state agencies to the public and decision makers
Materials that inform the public of the unique geology of the area and why groundwater protection is so important
The NCRWMO will provide educational resources and support to the City of Northfield regarding wastewater treatment and mitigation of future wastewater accidents that may impact the river.
The NCRWMO will support the City of Northfield by publishing informational materials about incorporating stormwater management practices into all new developments on their website for areas of new development in portions of the city within Dakota County.

Policy and Regulation

As previously mentioned, the NCRWMO is not a regulatory entity, however, due to the importance of effective regulatory controls and corresponding regulatory enforcement, the NCRWMO is committed to supporting their member communities in efforts to enforce regulatory controls. Supporting efforts have been identified and captured in the policy and regulation table in Appendix A.

Data and Studies

The Data and Studies table captures any existing data gaps, or studies needed to complete the work outlined in this plan. Once data gaps have been addressed and studies have been completed, the updated information will be used to better direct projects to achieve the plan goals.

BMP Implementation Table

Implementation Action	Measurable Output		Subwatershed	Implementation Schedule *Targeting Approach (Darker colors/lower numbers indicate higher priority for implementation within a given biennium)* Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10	Estimated Cost	Potential Partners
			Chub Creek	1	5	4	3	2		
			Mud Creek	2	1	5	4	3		
			Pine Creek	3	2	1	5	4		
			Trout Brook	4	3	2	1	5		
			Lake Byllesby	5	4	3	2	1		
Cover Crops	Establish 5,000 acres of newly enrolled with Cover Crops that reduce sediment loads by 1700 tons, phosphorus loads by 300 lbs, and nitrogen loads by 5900 lbs for a 10-year event	Measurable Outcomes (acres)	See Targeting Timeframe Above	1000	1000	1000	1000	1000	$ 500,000	Dakota County SWCD, NRCS
Grassed Waterways	Establish 15,000 linear feet of Grassed Waterways that reduce sediment loads by 600 tons/yr	Measurable Outcomes (linear ft.)		3000	3000	3000	3000	3000	$ 150,000	Dakota County SWCD, NRCS
Water and Sediment Control Basins (WASCOBs)	Establish 80 WASCOB basins that reduce sediment loads by 480 tons/yr	Measurable Outcomes (basins)		16	16	16	16	16	$ 1,920,000	Dakota County SWCD, NRCS
Filter Strips	Establish 1000 linear ft. of Filter Strips that reduce sediment loads by 15 tons/yr	Measurable Outcomes (linear ft.)		200	200	200	200	200	$ 10,000	Dakota County SWCD, NRCS
Critical Area Planting	Establish 25 acres of Critical Area Plantings that reduce sediment loads by 800 tons, phosphorus loads by 1 lb, and nitrogen loads by 2900 lbs for a 10-year event	Measurable Outcomes (acres)		5	5	5	5	5	$ 15,000	Dakota County SWCD, NRCS
Grade Stabilization	Establish 10 Grade Stabilization Structures that reduce sediment loads by 2,500 tons/yr	Measurable Outcomes (structures)		2	2	2	2	2	$ 120,000	Dakota County SWCD, NRCS
Stream and Shoreline Protection and Restoration	Establish 400 Linear ft. of Stream and Shoreline Protection and Restoration that reduce sediment loads by 70 tons/yr	Measurable Outcomes (linear ft.)		0	100	100	100	100	$ 48,000	Dakota County SWCD, NRCS
Wetland Restorations	Restore 60 acres of Wetlands that reduce sediment loads by 370 tons/yr	Measurable Outcomes (acres)		0	10	15	15	20	$ 915,000	Dakota County SWCD, NRCS

Implementation Action	Measurable Output		Subwatershed	Implementation Schedule *Targeting Approach (Darker colors/lower numbers indicate higher priority for implementation within a given biennium)* Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10	Estimated Cost	Potential Partners
Conservation Crop Rotation (Adding forages and small grains to corn/soybean rotation)	Enroll 2,000 acres into Conservation Crop Rotations	Measurable Outcomes (acres)		400	400	400	400	400	$ 280,000	Dakota County SWCD, NRCS
Alternate Side Inlets	Implement 5 Alternate Side Inlet Projects	Measurable Outcomes (projects)		1	1	1	1	1	$ 22,500	Dakota County SWCD, NRCS
Perennial Cropland and Winter Annual Establishment	Establish 1,000 acres of Perennial Crops and Winter Annuals that reduce sediment loads by 1900 tons, phosphorus loads by 100 lbs, and nitrogen loads by 600 lbs for a 10-year event	Measurable Outcomes (acres)		200	200	200	200	200	$ 100,000	Dakota County SWCD, NRCS, UMN FGI
Native Prairie Restoration	Restore 50 acres of Native Prairie that reduce sediment loads by 40 tons, phosphorus loads by 10 lbs, and nitrogen loads by 70 lbs for a 10-year event	Measurable Outcomes (acres)		10	10	10	10	10	$ 70,000	Dakota County SWCD, NRCS
Stormwater Runoff Control	Implement 10 Stormwater Runoff Control Projects	Measurable Outcomes (projects)		2	2	2	2	2	$ 400,000	Dakota County SWCD, NRCS
Nutrient Management Plans	Establish 10 Nutrient Management Plans		Chub Creek			1	5	4	$ 34,000	Dakota County SWCD, NRCS
			Mud Creek			2	1	5		
			Pine Creek			3	2	1		
			Trout Brook			4	3	2		
			Lake Byllesby			5	4	3		
		Measurable Outcomes (plans)		0	0	3	3	4		
Manure Management Plans	Establish 5 Manure Management Plans		Chub Creek			1	5	4	$ 40,000	Dakota County SWCD, NRCS, MPCA
			Mud Creek			2	1	5		
			Pine Creek			3	2	1		
			Trout Brook			4	3	2		
			Lake Byllesby			5	4	3		
		Measurable Outcomes (plans)		0	0	1	2	2		

Implementation Action	Measurable Output		Subwatershed	Implementation Schedule *Targeting Approach (Darker colors/lower numbers indicate higher priority for implementation within a given biennium)* Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10	Estimated Cost	Potential Partners
Conservation Tillage	Enroll 2,000 acres into Conservation Tillage that reduce sediment loads by 600 tons, phosphorus loads by 100 lbs, and nitrogen loads by 1900 lbs for a 10-year event		Chub Creek		5	4	3	2	$ 150,000	Dakota County SWCD, NRCS
			Mud Creek		1	5	4	3		
			Pine Creek		2	1	5	4		
			Trout Brook		3	2	1	5		
			Lake Byllesby		4	3	2	1		
		Measurable Outcomes (acres)		50	100	500	600	750		
Adaptive Lake Management Plan	Establish 1 Adaptive Lake Management Plan		Chub Lake		1				$ 10,000	Dakota County SWCD
		Measurable Outcomes (plans)			1					
Controlled Tile Drainage	Establish 2 Controlled Tile Drainage Projects		Chub Creek		1		5		$ 12,000	Dakota County SWCD, NRCS
			Mud Creek		2		1			
			Pine Creek		3		2			
			Trout Brook		4		3			
			Lake Byllesby		5		4			
		Measurable Outcomes (projects)			1		1			
Bioreactors	Implement 1 Bioreactor Project		Chub Creek			1			$ 31,900	Dakota County SWCD, NRCS
			Mud Creek			2				
			Pine Creek			3				
			Trout Brook			4				
			Lake Byllesby			5				
		Measurable Outcomes (projects)		0	0	1	0	0		
Saturated Buffer	Implement 2 Saturated Buffer Projects		Chub Creek			1			$ 16,000	Dakota County SWCD, NRCS
			Mud Creek			2				
			Pine Creek			3				
			Trout Brook			4				
			Lake Byllesby			5				
		Measurable Outcomes (projects)		0	0	1	0	0		
Irrigation Water Management	Establish 2,000 acres utilizing Irrigation Water Management		Chub Creek		4	4	4	4	$ 80,000	Dakota County SWCD, NRCS, UMN extension
			Mud Creek		5	5	5	5		
			Pine Creek		1	3	3	2		
			Trout Brook		2	1	1	3		
			Lake Byllesby		3	2	2	1		
		Measurable Outcomes (acres)		100	200	400	600	700		

Implementation Action	Measurable Output		Subwatershed	Implementation Schedule *Targeting Approach (Darker colors/lower numbers indicate higher priority for implementation within a given biennium)* Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10	Estimated Cost	Potential Partners
Variable Rate Irrigation	Implement 5 Variable Rate Irrigation Projects		Chub Creek			4	5	4	$ 250,000	Dakota County SWCD, NRCS, UMN extension
			Mud Creek			5	4	5		
			Pine Creek			1	3	2		
			Trout Brook			2	1	3		
			Lake Byllesby			3	2	1		
		Measurable Outcomes (projects)		0	0	1	2	2		
Trout Brook Habitat	Complete 1 Stream Habitat Project		Trout Brook			1			$ 150,000	Dakota County SWCD, MNDNR
		Measurable Outcome (Project)				1				
								Total:	**$**	**5,324,400**

O&E Implementation Table

Implementation Action	Measurable Outcome/s	Location	Implementation Schedule					Estimated Cost	Potential Partners
			Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10		
Execute Surface Water Outreach and Education Plan	Track actions and location of actions biennially	Watershed Wide	X	X	X	X	X	$ 115,650	Dakota County SWCD, MPCA, Dakota County, Met Council
Execute Groundwater Outreach and Education Plan	Track actions and location of actions biennially	Watershed Wide	X	X	X	X	X	$ 55,350	Dakota County SWCD, MDH, Dakota County, MGS
Maintain updated website	Updated website	Watershed Wide	X	X	X	X	X	$ 1,800	Dakota County SWCD
Notify public of regular meetings of NCRWMO	Public awareness of meetings	Watershed Wide	X	X	X	X	X	$ 900	Dakota County SWCD
Develop annual report and annual plan, post both to website	Public access to annual updates from NCRWMO	Watershed Wide	X	X	X	X	X	$ 1,800	Dakota County SWCD
Maintain an online directory of water and natural resource organizations and contracts for use by citizens and member communities	List of resources and contacts available for public use	Watershed Wide	X	X	X	X	X	$ 900	Dakota County SWCD
Develop surveys for landowners to gather feedback after outreach efforts, after project implementation, and at least once during project lifespan.	Develop three unique surveys	Watershed Wide	X					$ 5,400	Dakota County SWCD
Evaluate survey feedback and update outreach and education approach as needed	Record updates to outreach and education approach and which menu options have been most effective	Watershed Wide		X		X		$ 12,600	Dakota County SWCD
							Total:	**$ 194,400**	

Policy and Regulation Implementation Table

Implementation Action	Measurable Outcome/s	Location	Implementation Schedule					Estimated Cost	Potential Partners
			Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10		
Conduct Gaps Analysis of ordinances and develop model ordinances to fill gaps	Create model ordinances for three of gaps identified	Watershed Wide	X	X				$ 18,000	Dakota County SWCD, Townships, Cities, Dakota County
Communicate findings of gaps analysis and model ordinances	Communicate findings for three model ordinances	Townships		X				$ 7,200	Dakota County SWCD, Townships, Cities, Dakota County
Advocate for improvement in enforcement of existing ordinances	Coordinate 20 check-in's with townships	Townships	X	X	X	X	X	$ 1,800	Dakota County SWCD, Townships, Cities, Dakota County
Send regulatory enforcement reporting forms to member communities	Reporting forms sent in December, due to NCRWMO February 1st, provide guidance for next steps in supporting and encouraging regulatory enforcement	Watershed Wide	X	X	X	X	X	$ 1,350	Member Communities
WCA Coordination	Provide support to Dakota SWCD as requested	Watershed Wide	X	X	X	X	X	$ 900	Dakota SWCD
WCA Compliance	Review applications submitted under WCA and MNDNR permitting program	Watershed Wide	X	X	X	X	X	$ 900	Dakota SWCD
Re-examine possibility of buffer requirements on waterbodies outside of MNDNR protected waters	Focus on one waterbody/reach per biennium	Watershed Wide				X	X	$ 3,600	Dakota SWCD, MNDNR, BWSR, Dakota County
Fulfill the requirements of the MN Board of Water and Soil Resource's Performance Review and Assistance Program and submit required annual reporting activities per MR 8410.0150	Annual PRAP Reporting	Watershed Wide	X	X	X	X	X	$ 3,600	BWSR
							Total:	**$ 55,350**	

Data and Studies Implementation Table

Implementation Action	Measurable Outcome/s	Location	Implementation Schedule					Estimated Cost	Potential Partners
			Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10		
Conduct Gaps Analysis of studies and implement needed studies	Identify and record data and study needs and initiate study updates.	Watershed Wide	X		X			$ 7,200	Dakota County SWCD
Monitor water quality at Chub Creek permanent monitoring station near outlet of Chub Creek	Long term water quality trends for Chub Creek	Chub Creek	X	X	X	X	X	$ 9,000	Dakota County SWCD, Met Council
Conduct dissolved oxygen assessments in key streams to determine if water quality standards are being met	Impairment status information	Watershed Wide	X	X	X	X	X	$ 5,400	MPCA
Analyze Trout Brook springs for nitrate triennially	Nitrate level trends	Trout Brook springs	X		X		X	$ 7,200	Dakota County SWCD, MGS
Seek agricultural producers interested in applying for the Edge of Field monitoring	Local farm monitoring data	Subwatershed of Priority Resources	X	X	X	X	X	$ 1,350	MDA, MAWRC
Explore options for obtaining agricultural tile inventory information	Tile location information to better understand impact of tiling on stream water quality and quantity	Priority Resources, CD1, CD2		X	X			$ 900	MDA, Dakota County SWCD
Update nitrogen fertilizer management plan and/or disseminate new recommendations when published	Updated and distributed nitrogen fertilizer management plan	Watershed Wide	X	X				$ 3,600	MDA, UMN Extension, Dakota County, Local Co-ops
Determine nitrogen transport routes from surface water to groundwater	Understanding of nitrogen transport between surface and groundwater resources	Trout Brook subwatershed				X	X	$ 1,800	MGS, UMN, MPCA, Met Council

Implementation Action	Measurable Outcome/s	Location	Implementation Schedule					Estimated Cost	Potential Partners
			Years 1-2	Years 3-4	Years 5-6	Years 7-8	Years 9-10		
Review groundwater quality and quantity report to track trends	Understanding of groundwater quality and quantity trends	Watershed Wide	X		X		X	$ 1,800	Dakota County, USGS, MNDNR, Met Council
Review information on dam operation status of Lake Byllesby and advocate for research on effects of dam operations and fluctuating water levels on lake wildlife	Improvements to lake wildlife	Lake Byllesby		X		X		$ 900	Dakota County
Promote and encourage volunteer water monitoring, including partnerships with college students	Enhanced monitoring program	Priority Resources	X	X	X	X	X	$ 900	UMN, MPCA, WHEP
Review available information to identify culvert replacement projects to develop a culvert inventory and use for follow-up converstions as needed to ensure projects do not disconnect hydrology.	Annual update of culvert inventory	Locations of culvert replacements	X	X	X	X	X	$ 5,400	DNR
							Total:	**$ 55,350**	

Cost Assumptions

BMPs			
Practice	**Goal units**	**Cost per Unit**	**Cost period**
Cover crops (EQIP 340)	acres	$100.00	yearly for three years
Grassed Waterway	linear feet	$10.00	one time
Water and sediment control basins (WASCOBs)	project	$24,000.00	one time
Filter strips	linear feet	$10.00	one time
Critical Area Planting	acres	$600.00	one time
Grade Stabilization - Riparian	project	$12,000.00	one time
Grade Stabilization - Ravine	project	$40,000.00	one time
Shoreline restoration	linear feet	$120.00	one time
Streambank/channel restoration	stream miles	$264,000.00	one time
Wetland Restoration	acres	$15,250.00	one time
Nutrient management plan	plan(s)	$3,400.00	one time
Manure Management Plan	plan(s)	$8,000.00	one time
No tillage	acres	$75.00	yearly
Adaptive Lake Management Plan	plan(s)	$10,000.00	one time
Conservation Crop Rotation (adding third crop)	acres	$140.00	yearly
Controlled tile drainage (drainage water mgmt - 554)	project	$6,000.00	one time
Alternate Side Inlet	project	$4,500.00	one time

BMPs			
Practice	**Goal units**	**Cost per Unit**	**Cost period**
Tile line bioreactors (EQIP 747)	acres	$31,900.00	one time
Saturated Buffer	project	$16,000.00	one time
Irrigation Water Management	acres	$40.00	yearly
Variable Rate Irrigation	project	$50,000.00	one time
Native Prairie Restoration	acres	$1,400.00	one time
Stormwater ponds - Wet ponds	acres	$40,000.00	one time
Perennial Cropland and Winter Annual Establishment	acres	$100.00	one time

O&E				
Outreach and Education Action	**Goal units**	**Cost per Unit**	**Estimated Annual Hours to conduct O&E**	**Total Cost**
Promote agricultural BMPs that improve surface water quality and protect groundwater through one on one interactions	Hourly	$ 90.00	400	$ 36,000.00
Create and distribute materials that summarize funding opportunities to cost-share the implementation of BMPs	Hourly	$ 90.00	30	$ 2,700.00
Conduct peer-to-peer, farmer led outreach efforts within smaller subwatersheds	Hourly	$ 90.00	250	$ 22,500.00
Host Ag Field Days to highlight what has been accomplished in the watershed	Hourly	$ 90.00	125	$ 11,250.00
Meet with commercial businesses who provide services to the agricultural community to share O&E materials and benefits of BMPs	Hourly	$ 90.00	25	$ 2,250.00
Support community leaders such as becoming a Minnesota Water Steward	Hourly	$ 90.00	60	$ 5,400.00

O&E				
Outreach and Education Action	**Goal units**	**Cost per Unit**	**Estimated Annual Hours to conduct O&E**	**Total Cost**
Promote Dakota County's Groundwater plan and available resources that support clean and safe drinking water to residents	Hourly	$ 90.00	40	$ 3,600.00
Develop, adopt, and implement an Agricultural Chemical Reduction Effort (ACRE) with prioritized, targeted, and measurable strategies that are more protective than existing objectives (Nitrogen Fertilizer Management Plan and Groundwater Protection Rule).	Hourly	$ 90.00	350	$ 31,500.00
Promote opportunities to implement irrigation practices and technologies that reduce impacts to groundwater quality and quantity.	Hourly	$ 90.00	50	$ 4,500.00
Implement a chloride reduction plan and policies in accordance with MCPA's Statewide Chloride Management Plan and Twin Cities Metropolitan Area Chloride Management Plan	Hourly	$ 90.00	60	$ 5,400.00
Promote County's effort related to private well and faucet water testing so public is aware of resources available to test their water and testing increases to detect harmful chemicals	Hourly	$ 90.00	20	$ 1,800.00
Create and distribute materials that inform the public of the unique geology of the area and why groundwater protection is so important	Hourly	$ 90.00	80	$ 7,200.00
Advocate for MPCA and County to increase the appropriate disposal of waste and reduce illegal storage of materials	Hourly	$ 90.00	15	$ 1,350.00
Advocate to the public and decision makers to support implementation of Dakota County's Land Conservation Plan	Hourly	$ 90.00	15	$ 1,350.00
Establish and implement a coordination group between the County and townships	Hourly	$ 90.00	80	$ 7,200.00
Coordinate with contractors and townships to distribute information about when mowing should be avoided to prevent the spread of noxious/invasives such as wild parsnip.	Hourly	$ 90.00	40	$ 3,600.00
Establish recuring opportunities and materials targeted for local decision makers to better understand how to leverage their roles to advocate on behalf of NCRWMO plan and implement its goals.	Hourly	$ 90.00	40	$ 3,600.00

O&E				
Outreach and Education Action	**Goal units**	**Cost per Unit**	**Estimated Annual Hours to conduct O&E**	**Total Cost**
Distribute information related to contaminants of emerging concern (COC) that is developed by state agencies to the public and decision makers.	Hourly	$ 90.00	20	$ 1,800.00
Distribute information related to expected changes in future precipitation patterns and how those changes will impact water quality and what the WMO is doing to address the impacts.	Hourly	$ 90.00	20	$ 1,800.00
Coordinate with decision makers to ensure regulatory requirements are clear for applicable landowners.	Hourly	$ 90.00	40	$ 3,600.00
Promote adopting roadsides, adopting river stretches, and clean up days	Hourly	$ 90.00	20	$ 1,800.00
Develop and implement a strategic plan to ensure outreach and education materials are communicated effectively to all communities	Hourly	$ 90.00	120	$ 10,800.00

Multiple Benefits

Implementation Actions	Tier 1 Issues				Tier 2 Issues		
	Surface Water	Groundwater	Policy and Regulation	Outreach and Education	Habitat	Data & Studies	Emerging Issues
Cover Crops	●	●					
Grassed Waterways	●	◑					
Water and Sediment Control Basins (WASCOBs)	●	◑					
Filter Strips	●	◑			◑		
Critical Area Planting	●	●			●		
Grade Stabilization	●						
Stream and Shoreline Protection and Restoration	●				●		
Wetland Restorations	●	◑			◑		
Nutrient Management Plans	●	●					
Manure Management Plans	●	●					
Conservation Tillage	●	◑					
Adaptive Lake Management Plan	●				●		
Conservation Crop Rotation (Adding forages and small grains to corn/soybean rotation)	●	●					
Controlled Tile Drainage	●						
Alternate Side Inlets	●						
Bioreactors	●	◑					
Saturated Buffer	●	◑					
Irrigation Water Management	◑	●					
Variable Rate Irrigation	◑	●					
Perennial Vegetation Establishment	●	●			●		
Native Prairie Restoration	●	●			●		
Stormwater Runoff Control	●	◑					

Key	
●	Primary Benefit
◑	Secondary Benefit

Capital Improvement Projects (CIPs)

For the purposes of this plan, capital improvement projects (CIPs) are those projects that are larger scaled, more expensive, and have a longer effective life expectancy than the projects typically funded through agricultural incentive and cost-share programs. CIPs can be multifaceted and involve either one large complex of activities, such as a stream restoration that includes on and off channel storage components or providing groundwater recharge through restoring drained wetlands, or they can have a singular focus of restoring a large, historic wetland complex or basin. A CIP generally exceeds $100,000 in cost and has an expected life greater than 25 years. Some CIP may be under the $100,000 cost threshold yet meet the other requirements. Other requirements include a multi-year planning and implementation process (usually 5-7 years), creation of an Operation and Maintenance Plan (O&M), and inspection schedule, and an ownership component that usually extends beyond a private landowner. As such, land acquisition and/or conservation easements are feasible project elements. Since these projects require O&M and inspection plans for the life of the project to ensure the project's effectiveness, these projects are often completed in cooperation with multiple entities and are strong candidates for state or federal grant funding. Early coordination with permitting agencies is encouraged for all projects but especially for CIPs. The types of projects identified in this section are intended to provide significant benefits, often on a regional scale, rather than a field scale, and require feasibility studies before design and construction.

Figure 5-3: Capital Improvement Project Considerations

The NCRWMO capital improvement plan is focused on supporting the acquisition of funds and advancing of projects that compliment and support the goals identified in this plan. The NCRWMO has limited financial resources. Therefore, only CIPs that are externally funded will be pursued with the NCRWMO as the lead entity. Additionally, the NCRWMO will leverage the existing knowledge and emerging opportunities presented by project partners, such as road authorities, Dakota County, Dakota SWCD, the MNDNR, and others.

NCRWMO is dedicated to protecting and improving the water resources within the North Cannon River Watershed and will support other partners in the capital improvement project pursuits to the extent feasible. Some examples of support that may be provided by the NCRWMO include, but are not limited to, assisting with outreach efforts, grant and project review, participation on project planning teams, O&M plan development, and attending public meetings to support the project. The NCRWMO anticipates potential partnering on projects such as water retention and storage or stormwater projects with cities or townships as well as streambank stabilization, and wetland restorations.

Dakota County, a long-standing partner of the NCRWMO, provides a framework for addressing several priority issues and geographies in the North Cannon River WMO within their Land Conservation Plan (Figure 30). Additionally, the Land Conservation Plan identifies a variety of funding options that could be utilized, along with a variety of County tools that could be used to enhance the partnership's ability to implement conservation projects. Funding options begin on page 45 of the Land Conservation Plan.

Dakota County Land Conservation Plan
(https://bit.ly/3SBsO17)

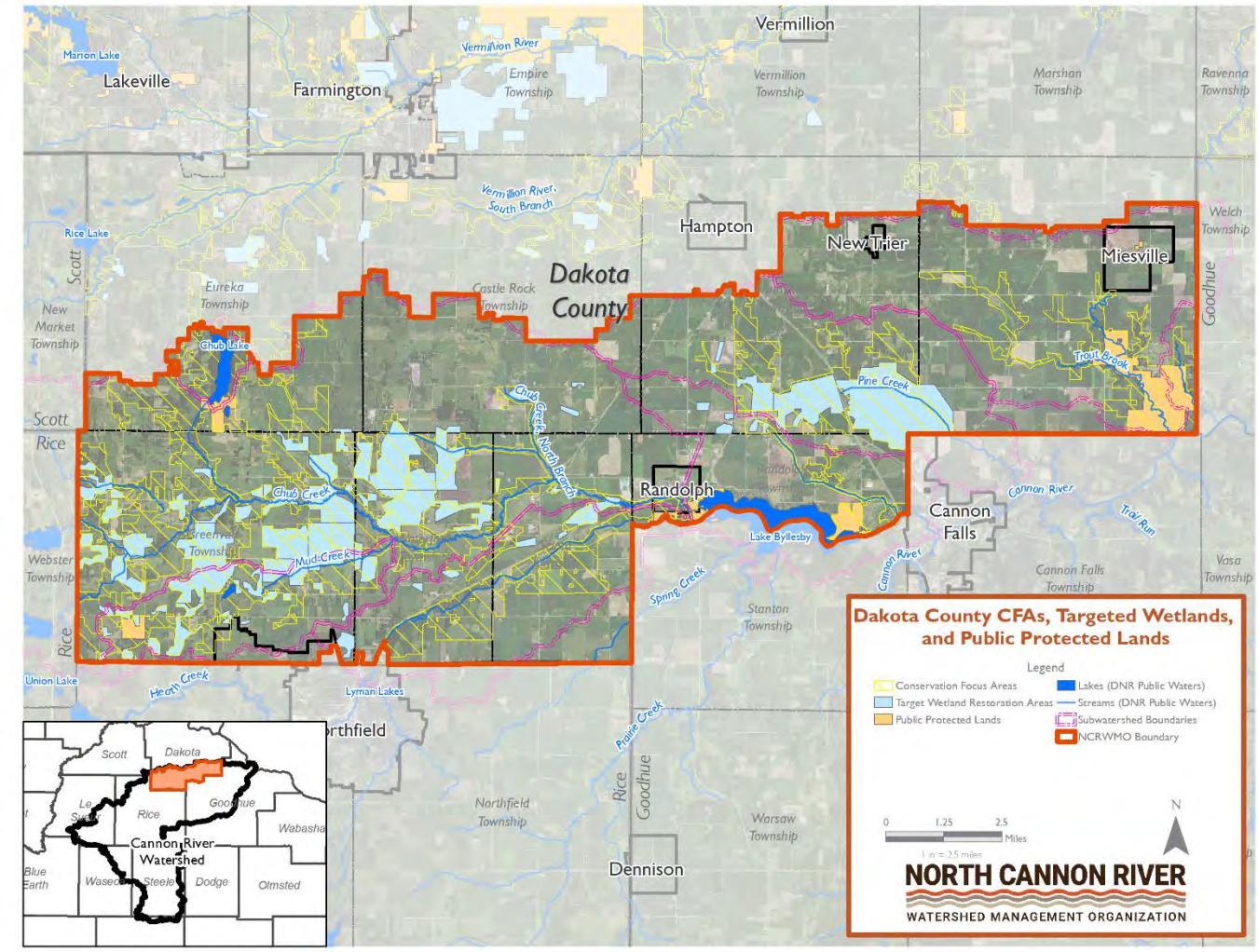


Figure 5-4: Dakota County CFA and Proposed Wetland Restoration Basins (data courtesy of Dakota County)

Another way that the NCRWMO will coordinate the implementation of capital improvement projects will be through meeting with road authorities at least every two years and the County, SWCD, and municipalities annually. The meetings will allow the NCRWMO to learn about anticipated road projects in advance, which will provide adequate time to develop grant applications or seek funding for additional water quality benefits. This process may also include coordinating with the MNDNR if culverts are being replaced for the purposes of fish navigation, as they may be able to contribute funding.

Capital Improvement Plan Funding and Timeline

Approaching implementation of a large-scale project or program affords some economies of scale in acquiring and implementing funds for BMPs that are conducted as part of a larger-scaled project rather than implementing BMPs on an individual basis. Capital improvement projects, as mentioned above, can be multifaceted and involve either one large complex of activities, such as stream restorations that include on-stream and off-stream storage components, or it could be a plan to provide flood storage through restoring noncontributing drained wetlands distributed throughout a targeted subwatershed. Since capital improvement projects typically take a 5- to 7-year timeframe from concept development through completion, the concept plan and feasibility study must often be completed before engineering and construction are funded. Table provides a schematic of potential capital improvement projects, costs, and timeline. Capital improvement projects require the coordination of numerous project components, and strong partnerships will be needed to enhance the capacity of the NCRWMO to take on CIPs. The partnership's input will be important as these projects are developed from feasibility to construction.

Capital improvement project concepts that the NCRWMO may consider include a suite of practices to address sediment and nutrient loading in targeted subwatersheds or stabilizing a section of streambank while also promoting edge of field water storage practices. Numerous funding sources will be explored by the NCRWMO for CIPs, including but not limited to grant and loan programs, membership dues, partnerships with other entities and stakeholders, and utilizing MN Statute 103B.245 which allows WMOs to give member communities the ability to levy funds on behalf of the WMO.

Table 5-1: Potential Capital Improvement Plan Project List Template

*Note: Symbols provide visual representation of the activity identified in each row. Location of symbols indicate when an activity could take place during project development and implementation.

Project/Phase	Cost	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Priority Issue - Tier 1 (Concerns to be addressed)				**Objective of Priority Issue**				**Strategy to Achieve Objective**			
Surface Water (Erosion/High Sediment, Exessive water runoff/flooding)				Reduce pollutants that reach surface waterbodies and improve soil health				On/Off Stream Storage			
Easements	-										
Concept/Feasibility	$ 50,000										
Design/Permit	$ 150,000										
Construction	$ 500,000										
Closeout	$ 10,000										
Priority Issue - Tier 1 (Concerns to be addressed)				**Objective of Priority Issue**				**Strategy to Achieve Objective**			
Surface Water (High Nutrients, Erosion/High Sediment, Drainage Management, Excessive water runoff/flooding)				Reduce pollutants that reach surface waterbodies and improve soil health				Stream Restoration			
Easements	-										
Concept/Feasibility	$ 50,000										
Design/Permit	$ 150,000										
Construction	$ 500,000										
Closeout	$ 10,000										
Priority Issue - Tier 1 (Concerns to be addressed)				**Objective of Priority Issue**				**Strategy to Achieve Objective**			
Surface Water (High Nutrients, Erosion/High Sediment, Soil Health, Drainage Management, Excessive water runoff/flooding)				Reduce pollutants that reach surface waterbodies and improve soil health				Wetland Restorations			
Easements	-										
Concept/Feasibility	$ 50,000										
Design/Permit	$ 150,000										
Construction	$ 500,000										
Closeout	$ 10,000										

CIP Program Review

Due to the cost and complexity of CIP projects, the NCRWMO will conduct a review of the program every two years to ensure that progress is being made and that projects align with the available funding and capacity of the NCRWMO. Should the NCRWMO find that the identified projects are not in alignment, or if better alternatives have become available, they will follow the plan amendment process as outlined below to update the table. The biennial review period will also provide an opportunity for new CIP projects to be added.

Financial Considerations

Minnesota Statute 103B.241 gives Watershed Management Organizations (WMOs) the power to levy ad-valorem taxes to pay for capital improvements. However, the State of Minnesota has ruled that other statutes do not specifically allow joint powers WMOs to use this funding authority. Minnesota Statute 103B.251 gives WMOs with an adopted watershed plan the ability to certify for payment by the county all or part of the cost of a capital improvement contained in the capital improvement program of the plan. Additionally, Minnesota Statutes 103B.245 allows a WMO to change its joint powers agreement giving its member communities the ability to levy funds for the WMO through individual taxing districts within each community, therefore the NCRWMO may partially or wholly fund CIP projects through these mechanisms. Minnesota Statutes 103B.252 allows Local Government Units (LGUs) or WMOs to declare an emergency and order work to be done without a contract. This statute does not contain levy limits.

Through the NCRWMO joint powers agreement (Appendix A), each member community may be asked to contribute annually to the NCRWMO general fund. The annual contribution is based 50% on the assessed valuation of all real property and 50% based on the total area of each member within the boundaries of the Watershed. Additionally, the joint powers agreement provides a detailed process for the funding of the capital improvement program of the NCRWMO.

Member communities may utilize the following funding sources to complete the work outlined in this plan: special assessments, ad valorem taxes, stormwater utility fees, development fees, tax increment financing, various grant and loan programs from local, state, and federal agencies and private foundations. The funding sources are described in more detail below.

Implementation Program Costs

The total cost of implementing the actions identified in this plan is $5,619,600. This cost amount includes the total cost of the projects (design, construction, cost share) and staff time in hours. This represents the total cost of the comprehensive plan for the NCRWMO for the next 10 years. It is understood that this amount will not be covered through base dues and as such, the NCRWMO and/or their partners (e.g., the Dakota County SWCD) will continue to apply for grants to provide cost share to install best management practices. Grant funding may also be sought for education programs and additional water quality monitoring and studies. Continued and strengthened partnerships and collaboration with other groups will further augment the implementation of the goals and strategies.

Funding Sources

The NCRWMO will collect member dues to implement the priorities and implementation actions identified in this plan. Supplemental funding will also be sought through grant applications and collaboration and partnerships with other organizations. (See Table 6.2 for a list of opportunities for collaboration.)

Grants

In 2008, voters in Minnesota passed the Clean Water, Land and Legacy Amendment (Legacy Amendment) to the Minnesota Constitution to protect drinking water sources; protect, enhance, and restore wetlands, prairies, forests, and fish, game, and wildlife habitat; preserve arts and cultural heritage; support parks and trails; and protect, enhance, and restore lakes, rivers, streams, and groundwater.
The Legacy Amendment increased the state sales tax by three-eighths of one percent beginning on July 1, 2009 and continuing until 2034. The additional sales tax revenue is distributed into four funds as follows: 33% to the Clean Water Fund; 33% to the Outdoor Heritage Fund; 19.75% to the Arts and Cultural Heritage Fund; and 14.25% to the Parks and Trails Fund.

Clean Water Funds are distributed through the grant and loan programs of several State agencies including:

- Minnesota Board of Water and Soil Resources
- Minnesota Pollution Control Agency
- Minnesota Public Facilities Authority
- Minnesota Department of Health

A list of grant programs from regional, state, and national agencies and organizations are included in Table followed by details on common grant and funding programs.

Table 5-2: Grant programs for natural resources-related activities.

Grant Program
BWSR Clean Water Accelerated Implementation Grant Program
BWSR Clean Water Community Partners Grant Program
BWSR Multipurpose Drainage Management Grant Program
BWSR One Watershed One Plan
BWSR Projects and Practice Grant
BWSR Soil Erosion and Drainage Law Compliance Program
BWSR Targeted Watershed Grant
BWSR Lawns to Legumes
Conservation Corp Minnesota Clean Water Fund Grants
Great Lakes Restoration Initiative
Great River Greening Metro Conservation Corridor Partnership Habitat Restoration
LCCMR Environment & Natural Resources Trust Fund
Lessard-Sams Outdoor Heritage Fund Program
McKnight Foundation Environmental Grants
MDA Clean Water Agriculture BMP Loan Program
MDA Livestock Investment Grant
MDA Specialty Crop Grants
MDA Sustainable Agriculture Grant
MDA Value Added Grant Program
MDH Source Water Protection Competitive Grant Program
MDH Source Water Protection Plan Implementation Grant Program
MNDNR Aquatic Invasive Species Grant Program
MNDNR Conservation Partners Legacy Grant Program (from Lessard-Sams Outdoor Heritage Council)
MNDNR Federal Recreation Trail Program
MNDNR Flood Hazard Mitigation Grants
MNDNR Local Trail Connections Program
MNDNR Natural and Scenic Area Grants
MNDNR Outdoor Recreation Grant Program
MNDNR Parks and Trails Legacy Grant Program
MNDNR Regional Trail Grant Program

Grant Program
MNDNR State Park Road Account Program
Metropolitan Council Livable Communities Grant Program
Metropolitan Council Parks Grants
Metropolitan Council Wastewater and Water Quality Grant Programs
Midwest Glacial Lakes Partnership/USFWS National Fish Habitat Action Plan
MPCA Clean Water Partnership (CWP) Loan Program
MPCA Section 319 Grants
MPCA Surface Water Assessment Grant
MPCA Clean Water Revolving Fund: Opportunity for Wastewater or Stormwater
MPCA Watershed Pollutant Load Monitoring Network
NFWF (National Fish and Wildlife Foundation) Acres for America
NFWF American the Beautiful Challenge
NFWF Conservation Partners Program
NFWF Five Star and Urban Waters Restoration Grant Program
NFWF Midwest Cover Crop Initiative
NFWF Sustain our Great Lakes Program
USDA Community Forest and Open Space Conservation Program
USEPA Brownfields Assessment Grants
USEPA Brownfields Cleanup Grant Program
USEPA Brownfields Revolving Loan Fund Grant Program
USEPA Environmental Education Regional Grant Program
USEPA Environmental Justice Small Grants Program
USEPA Urban Waters Small Grant Program
USFWS Great Plains Fish Habitat Partnership Grant Program
USFWS Neotropical Migratory Bird Conservation Act (NMBCA) Grant Program
USFWS North American Wetland Conservation Act U.S. Small Grants Program
USFWS North American Wetland Conservation Act U.S. Standard Grants Program

Natural Resource Conservation Service (NRCS)

The U.S. Department of Agriculture's NRCS provides financial and technical assistance to help landowners conserve, maintain, and improve natural resources and the environment. Among others, the NRCS administers the Environmental Quality Incentives Program (EQIP), the Conservation Reserve Program (CRP), and the Conservation Stewardship Program (CSP). EQIP offers financial and technical help to assist eligible participants install or implement structural and management practices that promote agricultural production and environmental quality. Current EQIP priorities include practices that address water quality, air quality, wildlife habitat, and soil erosion. CRP encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. CSP is a voluntary conservation program that encourages producers to address resource concerns in a comprehensive manner by undertaking additional conservation activities and improving, maintaining, and managing existing conservation activities. CSP presents a significant shift in how NRCS provides conservation program payments. CSP participants will receive an annual land use payment of operation-level environmental benefits they produce.

Under CSP, participants are paid for conservation performance: the higher the operational performance, the higher their payment.

Ducks Unlimited, Trout Unlimited, and **Pheasants Forever**
Provides funds for projects that enhance, create, or protect fish and wildlife habitat. The NCRWMO can partner with these conservation organizations to develop and implement conservation programs, and educate the general public about natural resource restoration and preservation.

Individual Entities
Projects needing to provide wetland mitigation in compliance with the Wetland Conservation Act (WCA) may have funds and/or technical resources available to restore or create wetland function and values lost or intended to be destroyed as part of a project. Other private funding sources include service organizations such as the Lions Club and Elks, youth groups including Boy/Girl Scouts, Adopt-a-Highway/River cleanup groups, and sportsman clubs.

Existing Programs and Partnering Opportunities

Within the Watershed, there is a network of agencies and organizations already working toward goals that align with those of the NCRWMO. The NCRWMO is committed to making the best use of its financial resources and thus will collaborate with these entities whenever possible to implement plan activities and achieve measurable outcomes identified throughout the planning process. Collaboration may mean partnering on or providing matching funds for grant applications; providing space or facilitation assistance for an educational event or meeting; promoting events or educational campaigns; sharing data or monitoring equipment; inviting others to informational meetings or events; assisting with recruitment of volunteers; or attending meetings of partnering organizations to stay informed of local activities. Below is a list and brief description of potential opportunities for partnerships between the NCRWMO and other entities.

Figure 5-5: NCRWMO Partners

Basin Alliance for the Lower Mississippi in Minnesota (BALMM)
A locally led alliance of land and water resource agencies that works to create a unified effort to improve water quality in the Lower Mississippi River Basin. BALMM emphasizes the implementation of land use practices through watershed management, aquifer protection, and flood plain management. BALMM sponsors and promotes workshops and educational campaigns, establishes ongoing coordination of local, state, tribal, and federal agencies with regards to water protection, and lobbies elected officials and funding sources to give priority attention to the water quality in southeastern Minnesota. The NCRWMO can stay apprised of BALMM activities, participate in educational campaigns, and partner on programs and grant applications.

Clean River Partners
A non-profit organization that works with agencies, organizations, and individuals to protect and restore healthy lakes, streams, rivers, woods, and prairies throughout the Watershed. The Clean River Partners sponsor activities such as educational programs, river clean ups, and canoe trips. They perform numerous research projects on water quality, educate local units of government, work to affect local and state policy, work with rural cities to improve wastewater treatment, coordinate stream and lake volunteer monitors, and distribute grant funds when available. The NCRWMO can promote Clean River Partner events, participate in educational campaigns, and collaborate on research and monitoring projects.

Dakota County
A variety of departments concentrate on multiple programs related to the Watershed, including monitoring groundwater quality and quantity, land conservation programs, Lake Byllesby dam operations status and study

effects of operations on wildlife, install stream identification road signs at stream crossings, and develop and install interpretive signage at parks.

Dakota County Soil and Water Conservation District (SWCD)
In cooperation with the Natural Resource Conservation Service in Dakota County (NRCS), the Dakota County SWCD provides technical and cost-share assistance to groups, local units of government, and individual landowners for conservation practices such as feedlot improvements, conservation tillage, filter strips, buffer strips, grassed waterways, shelter belts, windbreaks, manure and nutrient management, wetland restoration, natural resource based planning, streambank restoration and stabilization, low impact development, and more. The SWCD also uses geographic information systems (GIS) to map land use and land cover, identify wetlands, and identify potential greenways. The SWCD also performs water quality monitoring, and assists townships with Wetland Conservation Act (WCA) applications. The NCRWMO can promote SWCD and NRCS programs among its member communities and landowners.

Metropolitan Council
Engages stakeholders in planning for future growth and development in the seven-county metro area as well as conducting water quality monitoring. The Met Council's 2030 Regional Development Framework serves as a guide for decisions and implementation of regional services. Under the Metropolitan Land Planning Act, local communities must prepare and submit to the Council local comprehensive plans that are consistent with the Council's regional system plans. The Metropolitan Council Environmental Services collects and treats wastewater, operates a laboratory, and partners with various public and private groups to provide technical and financial assistance and educational strategies for sustainable environmental management and protection. Additionally, the Met Council funds the water quality and quantity monitoring of the Cannon River at Welch and has collected water quality samples on Chub Lake. The NCRWMO can partner with the Met Council in a variety of ways by taking advantage of technical and financial assistance, using their laboratory services for water quality analyses, partnering on water monitoring efforts, and learning more about how growth and development in the NCRWMO can occur with environmental sustainability.

Minnesota Board of Water and Soil Resources (BWSR)
Provides technical and financial assistance to local units of government to plan and implement conservation practices and watershed management plans. The NCRWMO can take advantage of their technical expertise, especially when drafting ordinances for their members to adopt or consider.

Minnesota Department of Agriculture (MDA)
Works directly with some producers and implements a variety of statewide programs including pesticide and fertilizer water monitoring, outreach and education to agronomists and producers, and implementation of the Minnesota Agricultural Water Quality Certification Program. The MDA is statutorily responsible for the management of pesticides and fertilizer other than manure to protect water resources. The MDA implements a wide range of protection and regulatory activities to ensure that pesticides and fertilizer are stored, handled, applied, and disposed of in a manner that will protect human health, water resources and the environment. The MDA works with the University of Minnesota to develop pesticide and fertilizer BMPs to protect water resources, and with farmers, crop advisors, farm organizations, other agencies, and others. They also educate, promote, demonstrate, and evaluate BMPs, to test and license applicators, and to enforce rules and statutes. The MDA has broad regulatory authority for pesticides and has authority to regulate the use of fertilizer to protect groundwater. The NCRWMO can partner with MDA in providing technical resources and education to the agricultural community.

Minnesota Department of Health (MDH)
Assist the NCRWMO with gathering data on groundwater quality and quantity and the location of abandoned and/or unsealed wells. The MDH also manages the State's Wellhead Protection Program which helps prevent drinking water from becoming polluted by managing potential sources of contamination in the area which supplies water to a public well.

Minnesota Department of Natural Resources (MNDNR)

Collects data on fisheries, habitat, and water quality. They also work to improve fish and wildlife habitat in trout streams and wildlife management areas. The NCRWMO can cooperate with the MNDNR in these efforts and stay informed on data collected in the Watershed.

Minnesota Pollution Control Agency (MPCA)
The state agency responsible for controlling pollution in water, on land, and in the air. With regards to water, the MPCA collects water quality data and maintains the statewide database, oversees the total maximum daily load (TMDL) program, administers the National Pollution Discharge Elimination System (NPDES), coordinates a citizen stream and lake monitoring program, and provides technical assistance on pollution prevention and control. The NCRWMO can work with the MPCA to make sure the NPDES Phase II is implemented in southern Dakota County and can work with them to perform TMDLs and improve water quality.

Schools, Colleges, and Universities
The NCRWMO can also partner with local schools and colleges such as Randolph Area Schools, Carleton College, and St. Olaf College in many ways. Students can perform ongoing studies and assessments of water quality and watersheds through testing, biological monitoring, and mapping.

University of Minnesota Extension Service
Staff offer educational assistance to Dakota County farmers on a variety of subjects including manure nutrient management, pasture management, sheep production, beef production, horse and alternative livestock production, and the Farm Bill. Dakota County farmers also have access to extension specialists in neighboring counties to provide education on subjects such as dairy production, crop production, pesticide applicator training, marketing, and more. Staff can also help farmers access research-based information on almost any agricultural-related topic available through the University of Minnesota. The NCRWMO can use the Extension Service as technical advisors when needed and can promote their educational campaigns.

Impact on Member Communities

Local Planning

Following the approval and adoption of this 4th Generation Plan, governmental units within the NCRWMO having land use planning and regulatory responsibility are required by Minnesota Rules 8410 to prepare a local water management plan or update their comprehensive plan. Local units of government may adopt this Watershed Management Plan by reference rather than writing a different local water management plan, or they may update their comprehensive plan. However, local plan content must include a capital improvement program and implementation plan to bring the local water management plan into conformance with this Plan and Minnesota Rules 8410.

Before a township or city adopts its local watershed management plan, it must be submitted to the NCRWMO for its review. The local plan must also be submitted to the Metropolitan Council and Dakota County for a 45-day review. Within 60 days of receipt of the local plan, the NCRWMO will review the local plan for conformance with the WMO plan. The NCRWMO will take into consideration any comments received from the Metropolitan Council and Dakota County. The NCRWMO will approve or disapprove all or part of the local plan within the 60-day timeframe, unless the city or township agrees to an extension. If the NCRWMO does not complete its review, or fails to approve/disapprove the plan within the allotted time, and an extension was not granted, the local plan will be considered approved (MN Statutes 103B.235, Subd. 3 and 3a).

Once the NCRWMO approves the local plan, the local government must adopt and implement its plan within 120 days and amend its official control within 180 days of plan approval.

This Plan includes several policies that are requirements of member communities. Member communities will be asked to comply with and annually report their actions to complete and enforce the policies included in this Plan.

The financial impact on member communities will stem from the enforcement of required ordinances and the reporting of enforcement activities. This Plan cannot estimate the expense of these actions for each community. However, annual dues will be collected by the NCRWMO to implement this plan and provide match for grant funding.

Figure 5-6: Local Watershed Plan Adoption Process

Plan Evaluation

Annually the NCRWMO will evaluate the implementation of this plan and examine the effectiveness of the efforts put forth, determine where additional efforts are needed, proceed with plan amendments as needed. To meet statutory requirements, the NCRWMO will submit to the board an activity report for the previous calendar year (to be completed within 120 days of the end of the calendar year) and within 180 days of the end of the organization's fiscal year, submit to the board and the state auditor's office an audit report for the preceding fiscal year if the organization has expended or accrued funds during this time, except as provided in Minnesota Statutes, section 6.756. When a county or city audit report contains the financial statements for an organization, the organization must submit to the board excerpts from the audit report concerning the organization within 30 days of completion of the audit report. The audit report must be prepared by a certified public accountant or the state auditor in the format required by the Government Accounting Standards Board (MN State Statute 8410.015 Subp. 1). These reports may be combined into one document, and must contain the following information:

- List of NCRWMO board members
- Names of designated officers and related governmental organization they represent
- Identification of contact per to answer questions about the organization (include postal and electronic mailing addresses and telephone number)
- An assessment of the previous year's annual work plan that indicates whether the stated activities were completed including the expenditures of each activity with respect to the approved budget unless included in the audit report
- A work plan and budget for the current year specifying which activities will be undertaken
- At a minimum of every two years, an evaluation of progress on goals and the implementation actions, including the capital improvement program, to determine if amendments to the implementation actions are necessary according to part 8410.0140, subpart 1, item C, using the procedures established in the goals and implementation sections of the plan under parts 8410.0080, subpart 1, and 8410.0105, subpart 1
- A summary of significant trends of monitoring data required by part 8410.0105, subpart 5
- A copy of the annual communication required by part 8410.0105, subpart 4
- The organization's activities related to the biennial solicitations for interest proposals for legal, professional, or technical consultant services under Minnesota Statutes, section 103B.227, subdivision 5
- An evaluation of the status of local water plan adoption and local implementation of activities required by the watershed management organization according to part 8410.0105, subpart 1, items B and C, during the previous year
- The status of any locally adopted ordinances or rules required by the organization including their enforcement
- A summary of the permits and variances issued or denied and violations under rule or ordinance requirements of the organization or local water plan
- Internally, the NCRWMO will conduct additional evaluation measures, one of which will be to review at least biennially, data on the estimated reduction in sediment load to NCRWMO water resources due to the installation or use of best management practices as recorded through SWCD and/or U.S. Department of Agriculture (USDA) programs. The NCRWMO may also review similar data for phosphorus and other common pollutants

Amendments to Plan

This plan remains in effect for 10 years from the year it was approved and adopted, unless it is superseded by adoption and approval of a succeeding plan. All amendments to this plan must follow the procedures set forth in this section, or as required by law; or as may be subsequently revised. Plan amendments may be proposed by any person to the NCRWMO Managers, but only the NCRWMO may initiate the amendment process. The NCRWMO may amend its plan in the interim (interim plan amendment) if either minor changes are required or if problems arise that are not addressed in the plan.

The NCRWMO may also amend this Plan, as necessary, to avoid duplication or conflict with the regulations or policies of other governmental agencies and ensure that Plan implementation does not violate the constitutional rights of private property owners or other individuals.

General Amendment Procedure

2021 Minnesota Statutes, Chapter 103B. 231 Subd. 11
Water Planning and Project Implementation
https://www.revisor.mn.gov/statutes/cite/103B.231
Amendments

To the extent and in the manner required by the adopted plan, all amendments to the adopted plan shall be submitted to the towns, cities, county, the Metropolitan Council, the state review agencies, and the Board of Water and Soil Resources for review in accordance with the provisions of subdivisions 7 and 9. Amendments necessary to revise the plan to be consistent with the county groundwater plan, as required by subdivision 4,

must be submitted for review in accordance with subdivisions 7 and 9. Minor amendments to a plan shall be reviewed in accordance with standards prescribed in the watershed management plan.

Following BWSR approval of the amendment, the NCRWMO will adopt the amendment. The above process must be completed except when the proposed amendments constitute minor amendments (see criteria described below).

Minor Plan Amendments

All amendments to a plan must adhere to the review process provided in Minnesota Statutes, section 103B.231, subdivision 11, except when the proposed amendments are determined to be minor amendments according to the following provisions:

The board has either agreed that the amendments are minor or failed to act within five working days of the end of the comment period specified in item B unless an extension is mutually agreed to with the organization
The organization has sent copies of the amendments to the plan review authorities for review and comment allowing at least 30 days for receipt of comments, has identified the minor amendment procedure is being followed, and directed that comments be sent to the organization and the board.

No county board has filed an objection to the amendments with the organization and the board within the comment period specified in item B unless an extension is mutually agreed upon by the county and the organization.

The organization has held a public meeting to explain the amendments and published a legal notice of the meeting twice, at least seven days and 14 days before the date of the meeting
The amendments are not necessary to make the plan consistent with an approved and adopted county groundwater plan Form of amendments.

Draft and final amendments may be sent electronically. A receiving entity may request to receive an amendment in paper format. Draft amendments must show deleted text as stricken and new text as underlined. Unless the entire document is redone, all final amendments adopted by the organization must be in the form of replacement pages for the plan with each page renumbered as appropriate and each page including the effective date of the amendment.

Prior to sending a proposed minor plan amendment out for review, the NCRWMO will obtain BWSR's concurrence that the proposed amendment is a minor plan amendment.

Amendment Format

Upon completion of the plan amendment, the NCRWMO will submit the plan amendment to the appropriate review authorities in a format consistent with Minnesota Rules 8410.0140, Subp. 4. The rule requires that, unless the entire document is reprinted, all amendments adopted must be printed in the form of replacement pages for the plan, each page of which must:

Show deleted text as stricken and new text as underlined (for draft amendments under consideration):
Be renumbered as appropriate; and include the effective date of the amendment.

Distribution of Amendments

The NCRWMO will maintain a distribution list of everyone who receives a copy of the plan. Within 30 days of adopting an amendment, the NCRWMO will distribute printed copies of the amendment to everyone on the distribution list. Electronic versions of the amendment will be made available on the NCRWMO website. The NCRWMO will also consider sending drafts of proposed amendments to all plan review authorities to receive input before establishing a hearing date or beginning the formal review process.

6.0 References and Resources

Groundwater

Ambient Groundwater Quality Study 1999-2019, Dakota County, MN: Private Well Drinking Water Quality in Three Principal Drinking Aquifers: Prairie du Chien, Jordan and Unconsolidated Sediments–Dakota County Environmental Resources Department, September 2020 (Ambient Groundwater, 2020)

Hydrology, Geology, and Groundwater References

- Dakota County Comprehensive Plan DC2040, Chapter 5: Land Use and Natural Resources (June 18, 2019) https://www.co.dakota.mn.us/Government/Planning/CompPlan/Documents/DakotaCounty2040ComprehensivePlan.pdf
- Dakota County, Minnesota Groundwater Plan (January 2021) https://www.co.dakota.mn.us/Environment/WaterResources/Groundwater/Pages/groundwater-plan.aspx
- Minnesota Groundwater Contamination Atlas, MPCA (site update dated 2021-04-15)https://webapp.pca.state.mn.us/cleanup/search/superfund?siteId=2154-AREA0000000003 (MPCA Groundwater, 2021)
- University of Minnesota Geological Survey, County Geologic Atlas (CGAs) (2022) Geologic Atlas of Dakota County, Minnesota, Atlas C-6, 1990, Balaban, N.H. and Hobbs, H.C https://cse.umn.edu/mgs/county-geologic-atlas

Cannon River Gauging Stations (U.S. Geological Survey)

- Cannon River at Northfield, Minnesota https://waterdata.usgs.gov/usa/nwis/uv?05355024 – Established in 2022
- Springs, Springsheds, and Karst Karst Database and Spring Inventory at MNDNR https://www.dnr.state.mn.us/waters/groundwater_section/mapping/springs.html
- USGS 05355024 Cannon River at Northfield, Minnesota http://waterdata.usgs.gov/mn/nwis/uv/?site_no=05355024&PARAmeter_cd=00065,00060 – Established in 2012

Precipitation and Climate

- Cannon River at Northfield, Minnesota https://waterdata.usgs.gov/usa/nwis/uv?05355024 – Established in 2022
- Springs, Springsheds, and Karst Karst Database and Spring Inventory at MNDNR https://www.dnr.state.mn.us/waters/groundwater_section/mapping/springs.html
- USGS 05355024 Cannon River at Northfield, Minnesota http://waterdata.usgs.gov/mn/nwis/uv/?site_no=05355024&PARAmeter_cd=00065,00060 – Established in 2012

Recreation

- Cannon River State Water Trail, Minnesota State Water Trails, Minnesota Department of Natural Resources (2022) http://www.dnr.state.mn.us/watertrails/cannonriver/index.html
- Chub Lake Wildlife Management Areas (2022) Chub Lake WMA | Minnesota DNR (state.mn.us)
- City of Randolph Sanitary Sewer Project, Randolph, Minnesota (2022) https://clients.bolton-menk.com/randolphssp/
- Chloride, Water Pollutant, Minnesota Pollution Control Agency https://www.pca.state.mn.us/water/chloride-101 (MPCA, Chloride 101)
- Fundamental Inventory Guide, Rice County Comprehensive Plan 2040 (2022) (Rice 2040) https://www.co.rice.mn.us/482/Fundamental-Inventory-Guide-2040
- Groten, Joel T. and C. E. Alexander, Karst Hydrogeologic Investigation of Trout Brook, Dakota County, Minnesota, University of Minnesota, 2013. (Groten 2013)
- Lake Byllesby Dam and Reservoir, Dakota County, Minnesota https://www.co.dakota.mn.us/Environment/WaterResources/LakeByllesbyDamReservoir/Pages/default.aspx (Byllesby Dam, 2020)
- Lake Byllesby Regional Park Master Plan (2005) https://www.co.dakota.mn.us/parks/About/ParkMasterPlans/Pages/lake-byllesby-master-plan.aspx
- Lake Byllesby Park Master Plan https://www.co.dakota.mn.us/parks/About/ParkMasterPlans/Pages/lake-byllesby-master-plan.aspx
- Metropolitan Council, 2018 Lake Water Quality Summary Report, Chub Lake https://eims.metc.state.mn.us/Site/19002000-AL (Metropolitan Council, 2018)
- Miesville Ravine Park Reserve Master Plan (2005) https://www.co.dakota.mn.us/parks/About/ParkMasterPlans/Pages/miesville-ravine-park-master-plan.aspx
- *MPCA, MNDNR: Minnesota's Lake Ice Season Decreased By Up to 14 Days Due to Climate Change* Minnesota Pollution Control Agency, Minnesota Pollution Control Agency (MPCA, MNDNR 2021) https://www.pca.state.mn.us/news/mpca-dnr-minnesotas-lake-ice-season-decreased-14-days-due-climate-change
- Straight River State Water Trail, Minnesota State Water Trails, Minnesota Department of Natural Resources (2022) https://www.dnr.state.mn.us/watertrails/straightriver/index.html
- Wild and Scenic Cannon River, Minnesota Department of Natural Resources (2022) https://www.dnr.state.mn.us/waters/watermgmt_section/wild_scenic/wsrivers/cannon.html
- Socio-economic paragraph was compiled from GIS data pulled by Casey Decker at ISG, using ESRI Software, August 2022, US Census Bureau and the American Community Survey (ESRI August 2022)

Appendix A – North Cannon River Watershed Joint Powers Agreement

JOINT POWERS AGREEMENT TO
PROTECT AND MANAGE THE NORTH CANNON RIVER WATERSHED

Agreement #2020-1

THIS AGREEMENT, made and entered into as of the date of execution, by and between the units of government within the North Cannon River Watershed, helps each party realize that the success or failure of the North Cannon River Watershed Management Organization created by this Agreement is dependent upon the sincere desire of each Member community to cooperate in the exercise of a joint power to address mutual concerns. Each party to this Agreement pledges this cooperation.

WITNESSETH:

WHEREAS, units of government, including but not limited to Cities/Townships within the North Cannon River Watershed, have authority, pursuant to Minn. Stat. 471.59, to jointly or cooperatively, by agreement, exercise any powers common to the contracting bodies; and

WHEREAS, the parties are desirous of jointly and cooperatively developing a surface water management plan for the watershed and instituting programs to conserve soil and water resources through implementation of practices that preserve and use natural water storage areas, control excessive volumes and rates of runoff, effectively reduce or prevent erosion and sedimentation, promote and protect ground water recharge, preserve and enhance water quality and prevent unnatural flooding in order to protect and manage the natural and artificial water conveyance systems of the North Cannon River Watersheds.

NOW, THEREFORE, the parties to this Agreement do mutually agree as follows:

SECTION I
DEFINITIONS

For the purposes of this Agreement, the terms used herein shall have the meanings as defined in this article.

Subdivision 1. "Agreement" means the Joint Powers Agreement, as amended and restated in this document.

Subdivision 2. “Board” means the Board of Managers of the WMO, consisting of one Manager from each of the governmental units which is a party to this agreement and which shall be the governing body of the WMO.

Subdivision 3. “BWSR” means the Minnesota Board of Water and Soil Resources.

Subdivision 4. “Capital Improvement Program” means an itemized program for at least a five year prospective period, and any amendments to it, subject to at least biennial review, setting forth the schedule, timing, and details of specific contemplated capital improvements by year, together with their estimated cost, the need for each improvement, financial sources, and the financial effect that the improvements will have on the Local Government Unit or the WMO.

Subdivision 5. “Council or Board” means the governing body of a governmental unit which is a member of this WMO.

Subdivision 6. “Governmental Unit” means any City, County, Town, Township, and other political subdivision as cited in Minn. Stat. § 471.59 Subd. 1.

Subdivision 7. “Local Comprehensive Plan” has the meaning given it in Minn. Stat. § 473.852, subd. 5.

Subdivision 8. “Local Government Units” or “Local Unit” has the meaning given it in Minn. Stat. § 473.852 subd. 7.

Subdivision 9. “Manager” means an individual appointed by a Governmental Unit to serve on the Board. The term Manager shall include both the representative and alternate representative appointed to serve on the Board.

Subdivision 10. “Member” means a governmental unit which enters into this agreement.

Subdivision 11. “Multi-jurisdictional Project” means any project or capital improvement undertaken in more than one Member community, or any project or capital improvement that involves contribution or benefit from more than one Member community.

Subdivision 12. "North Cannon River Watershed" means the area contained within a line drawn around the extremities of all terrain whose surface drainage is tributary to the North Cannon River, as set forth on attached Exhibit A.

Subdivision 13. "Official Controls" has the meaning given it in Minn. Stat. § 473.852 subd. 9.

Subdivision 14. "Plan" means the watershed management plan adopted by the WMO pursuant to Minn. Stat. § 103B.231, or other applicable statutes including Minn. Stat. § 103B.801.

Subdivision 15. "Watershed Management Organization" hereinafter referred to as WMO, means the organization created by this Agreement, the full name of which is "North Cannon River Watershed Management Organization:" hereinafter referred to as the WMO. It shall be a public agency of its Members.

SECTION II
ESTABLISHMENT

The parties create and establish the North Cannon River Watershed Management Organization. The WMO Members shall include the Cities of Miesville, New Trier, and Randolph; and Townships of Castle Rock, Douglas, Eureka, Greenvale, Hampton, Randolph, Sciota, and Waterford. In addition to other powers identified in this Agreement the WMO shall have all of the authority for a joint powers watershed management organization identified in Minn. Stat. § 103B.211.

SECTION III
GENERAL PURPOSE

It is the general purpose of the parties to this Agreement to establish an organization to jointly and cooperatively develop a surface water management plan and program for management and protection of the soil and all water resources of the North Cannon River Watershed and to develop an intergovernmental mechanism which will jointly and severally implement said surface water management plan and program. The program shall operate within the legal boundaries of the North Cannon River Watershed.

This Agreement is to provide an organization which can investigate, survey, study, plan, monitor and supervise the construction of facilities to drain or pond storm waters; to alleviate damage by flood

waters; to assist in planning for land use, to repair, improve, relocate, modify, consolidate or abandon in whole or in part, drainage systems within the watershed areas to do whatever is necessary to assist in water conservation and the abatement of water pollution within the North Cannon River Watershed area.

The legal boundaries of the North Cannon River Watershed are set forth in Exhibit A, attached hereto and hereafter referred to as the 'Area". In general, the surface water management program may include projects which accomplish the following:

1. Preserve and use natural water storage and retention systems in order to reduce to the greatest practical extent the public capital expenditures necessary to control excessive volumes and rates of runoff.
2. Protect and improve existing surface water quality through proper land use and appropriate soil and water conservation practices.
3. Prevent flooding and erosion by implementing floodplain management and erosion control programs.
4. Protect and enhance fish and wildlife habitat and water recreational facilities by reducing pollutant loads to surface waters, restoring and protecting streambanks and riparian areas, establishing greenways, and performing other activities.
5. Undertake programs to promote groundwater recharge and protect groundwater quality.
6. Provide a mechanism for the review of local land and water management plans.
7. Provide a form for resolution of intergovernmental disputes relating to water management and protection of the North Cannon River Watershed.
8. Cooperate on a united basis on behalf of all units of government within the Area with all other levels of government for the purpose of facilitating surface and ground water management in the Area.

The above descriptions are not intended to be exclusive or overly restrictive of the surface water management plan and programs, but rather are intended to act as guidelines.

SECTION IV
BOARD OF MANAGERS

Subdivision 1. Appointment. The governing body of the WMO shall be its Board. Each Member shall be entitled to appoint one representative on the Board, and said representative shall be called a "Manager." Dakota County, Rice County, Goodhue County and the Dakota County Soil and Water Conservation District may be requested to appoint a non-voting advisory member. There shall be a minimum of three Managers on the Board pursuant to Minn. Rule 8410.0030 subp. 1(d).

Subdivision 2. Eligibility or Qualifications. The Council / Board of each Member shall determine the eligibility or qualification of its representative on the WMO but the terms of each Manager shall be as established by this Agreement. Pursuant to Minn. Stat. 103B.227 Subd. 2, staff of local units of government that are Members of the watershed management organization are not eligible to be appointed to the Board.

Subdivision 3. Term. The members of the WMO Board of Managers shall not have a fixed term but shall serve at the pleasure of the governing body of the Local Unit appointing each member to the WMO.

Subdivision 4. Vacancy. Any vacancy shall be filled within 90 days for the unexpired term of any Manager by the Council/Board of the Governmental Unit of the Member who appointed said Manager. The Watershed Management Organization shall notify the BWSR within 30 days of any vacancies. Vacancies will be filled and published according to Minn. Stat. § 103B.227.

Subdivision 5. Filing. Each Member shall within 30 days of appointment file with the Secretary of the Board of Managers a record of the appointment of its Manager. The WMO shall notify the BWSR within 30 days of any new appointments.

Subdivision 6. Compensation. Managers shall attend regular and special WMO meetings without compensation from the WMO, but this shall not prevent a Governmental Unit from providing compensation for its Manager for serving on the Board, if such compensation is authorized by Local Governmental Unit and by law.

Subdivision 7. Board. At the first or second meeting of the year the WMO shall elect from its Managers a Chairperson, a Vice-Chairperson, a Secretary, a Treasurer, and such other officers as it deems necessary to conduct its meetings and affairs. All officers shall hold office for terms of one year and until their successors have been elected by the Board. An officer may be reelected to the same office for unlimited terms. The officer's duties include the following:

A. Chairperson. The Chairperson shall preside at all Board meetings and shall have all the same privileges of discussion, making motions and voting, as do other Managers. The Chairperson may delegate certain responsibilities to the Administrator as necessary to carry out the duties of office.

B. Vice-Chairperson. The Vice-Chairperson shall, in the absence or disability of the Chairperson, perform the duties and exercise the powers of the Chairperson.

C. Treasurer. The Treasurer shall have the custody of the funds and securities of the WMO and shall keep full and accurate accounts of receipts and disbursements in books belonging to the WMO and shall deposit all monies and other valuable effects in the name and to the credit of the WMO in such depository as may be designated by the WMO. The Treasurer shall disburse funds of the WMO as approved by the Board and shall render to the WMO at regular meetings, or as the Board may request, an account of all his/her transactions as Treasurer and of the financial condition of the WMO. The Treasurer may delegate certain duties to the Administrator as necessary to carry out the duties of the office.

D. Secretary. The Secretary shall attend all Board meetings, shall act as clerk of such meetings, and shall record all votes and the minutes of all proceedings. The Secretary shall give notice of all Board meetings. The Secretary may delegate certain duties to the Administrator as necessary to carry out the duties of the office.

E. Administrator. The Board may appoint an Administrator to coordinate activities of the WMO, accept delegated duties by the Board officers, and accept business duties not assigned to officers. All notices to the Board shall be delivered or served at the office of the Administrator.

At the organizational meeting or as soon thereafter as it may be reasonably done, the WMO shall adopt rules and regulations governing its meetings. Such rules and regulations may be amended from time to time at either a regular or a special meeting of the WMO provided that a ten day period notice of the proposed amendment has been furnished to each person to whom notice of the WMO meetings is required to be sent; a majority vote of all eligible votes shall be sufficient to adopt any proposed amendment to such rules and regulations. If the WMO does not adopt rules and regulations for governing its meetings, the rules contained in the most current edition of Robert's Rules of Order Newly Revised shall govern the NCRWMO in all cases to which they are applicable.

Subdivision 8. Alternate Members. One alternate member to the Board shall be appointed by appropriate resolution of the governing body of each party to this Agreement and filed with the WMO. The alternate shall attend any meeting of the Board where the regular member is absent; and vote on behalf of the party the member represents only if the regular member is absent from the meeting. If a Board member is also an officer of the WMO, the alternate shall not be entitled to serve as such officer.

Subdivision 9. Quorum. A majority of all voting members to the WMO shall constitute a quorum, but less than a quorum may adjourn a scheduled meeting.

Subdivision 10. Voting. Unless as otherwise provided by this Agreement or state law, Board action shall be by a majority vote of the entire Board. Decisions regarding capital improvement projects shall require a 2/3 majority of the entire Board.

Subdivision 11. Meetings. Regular meetings of the WMO shall be held at least quarterly on a day selected by the WMO. Special meetings may be held at the call of the Chair or by any three members by giving not less than seventy-two (72) hours written notice of the time, place and purpose of such meeting delivered or mailed to the residence of the WMO member. Written notice of the date, time, place,

and purpose of a special meeting shall be posted on the WMO's principal bulletin board, or if the WMO has no principal bulletin board, on the door of its usual meeting room. Notice shall also be mailed or otherwise delivered to all persons who have filed a written request for notice of special meetings of the WMO. The notice shall be posted and mailed or delivered at least three days before the date of the special meeting. As an alternative to mailing or otherwise delivering notice to persons who have filed a written request for notice of special meetings, the WMO may publish the notice once at least three days before the meeting, in the official newspaper of the WMO or, if there is none, in a qualified newspaper within the area of the WMO's authority. Notification of all meetings will be made by an email to all Managers and Member entities, who will be responsible for posting within their individual entities official notices. Notification will also be made by posting the agenda and materials to the NCRWMO website. All meetings of the WMO are subject to Minn. Stat. Ch. 13D.

SECTION V
POWER AND DUTIES OF THE BOARD

Subdivision 1. WMO. The WMO, acting by its duly appointed Board of Managers, shall as it relates to surface water management, flood prevention, erosion control, water quality improvement, and other benefits associated with the proper management of surface water of the North Cannon River, have the powers and duties set out in this section.

Subdivision 2. Surface Water Management Plan. The WMO undertakes the implementation of the current Surface Water Management Plan and preparation of future generations of Surface Water Management Plans. Plans will cover all of the area of the North Cannon River Watershed and comply with the requirements of Minn. Stat. § 103B.231. Plans will describe the existing physical environment, local and metropolitan comprehensive plans. In addition Plans will:

a) Present information on the hydrologic system and its components and existing and potential problems related thereto;

b) State objectives and policies, including management principles, alternatives and modifications, for water quality, and protection of natural characteristics;

c) Set forth a management plan, including the hydrologic and water quality conditions that will be sought and significant opportunities for improvement;

d) Describe the effect of the plan on existing drainage systems;

e) Identify high priority areas for wetland preservation, enhancement, restoration, and establishment and describe any conflicts with wetlands and land use in these areas;

f) Describe conflicts between the watershed plan and existing plans of local government units;

g) Set forth an implementation program consistent with the management plan, which includes a capital improvement program and standards and schedules for amending the comprehensive plans and official controls of local government units in the watershed to bring about conformance with the watershed plan; and

h) Set out a procedure for amending the plan.

Subdivision 3. Personal and Real Property. The Board may acquire necessary property to carry out its powers and its duties.

Subdivision 4. Committees. The WMO may appoint committees such as citizen and technical advisory committees and sub-committees as it deems necessary.

Subdivision 5. Rules and Regulations. The WMO may prescribe and develop such rules and regulations as it deems necessary or expedient to carry out its duties and the purposes of this Agreement unless specifically prohibited elsewhere in this document.

Subdivision 6. Review and Recommendations. Where the WMO is authorized or requested to review and make recommendations on any matter, the WMO shall act on such matter within sixty (60) days. Failure to act shall constitute a waiver of the WMO's authority to make recommendations.

Subdivision 7. Local Water Management Plan. After consideration but before adoption by the governing body, each Local Unit shall submit its water management plan to the WMO for review for consistency with the watershed plan for the North Cannon River. The WMO shall approve or disapprove the local plan or parts thereof. The WMO shall have 60 days to complete its review. If the WMO fails to

complete its review within the prescribed period, unless an extension is agreed to by the Local Unit, the WMO waives its authority to make recommendations.

Subdivision 8. Use and Development of Land. If, within the time frame prescribed by the North Cannon River Watershed Plan, a Local Unit does not have an approved local water management plan, the WMO may have the authority of a Watershed District under Minn. Stat. Chapter 103D to regulate the use and development of land within that Local Unit's jurisdiction. The WMO may also have the authority to regulate the use and development of land when an amendment to, or variance from, the adopted local water management plan is applied for.

Subdivision 9. Data. The Board may establish and maintain devices for acquiring and recording hydrological data within the North Cannon River Watershed.

Subdivision 10. Claims. The Board may enter upon lands within or without the watershed to make surveys and investigations to accomplish the purposes of the WMO. The WMO shall be liable for actual damages resulting therefrom but every person who claims damages shall serve the Chairman or Secretary of the Board of Managers with a Notice of Claim as required by Chapter 466.05 of the Minnesota Statutes.

Subdivision 11. Legal and Technical Assistance. The Board 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 water management facilities within the North Cannon River Watershed. The use of WMO funds for litigation shall be only upon a favorable vote of a majority of the eligible votes of the then existing members of the WMO.

Subdivision 12. Reserve Funds. The Board may accumulate reserve funds for the purposes herein mentioned and may invest funds of the WMO not currently needed for its operations, in the manner and subject to the laws of Minnesota applicable to townships and cities.

Subdivision 13. Monies Collectable. The Board may collect monies subject to the provisions of this Agreement, and state law, from its Members and from any other source approved by a majority of its Board.

Subdivision 14. Contracts. The Board may make contracts, incur expense and make expenditures necessary and incidental to the effectuation of these purposes and powers and may disburse therefore in the manner hereinafter provided. Every contract for the purchase or sale of merchandise, materials, equipment or services by the WMO shall be let in accordance with the Uniform Municipal Contracting Law, Minn. Stat. 471.345 and the Joint Exercise of Power Statute, Minn. Stat. 471.59. No Manager of the WMO shall take part in any vote on any contract in which a direct or indirect conflict of interest is present.

Subdivision 15. Employment. The WMO may contract for services, may use staff of other governmental agencies, may use staff of the Members and may employ such other persons as it deems necessary. Where staff services of a Member are utilized, such services shall not reduce the financial contribution of such Member to the WMO's operating fund unless utilization of staff service is substantial and the WMO so authorizes.

Subdivision 16. Surveys. The Board may make necessary surveys or utilize other reliable surveys and data and develop projects to accomplish the purposes for which the WMO is organized.

Subdivision 17. Other Governmental Units, Agencies. The Board may cooperate or contract with the State of Minnesota or any subdivision thereof or federal agency or private or public organization to accomplish the purposes for which it is organized.

Subdivision 18. Water Conveyances. The Board may order the construction, cleaning, repair, alteration, abandonment, consolidation, reclamation or changes in the course or terminus of any ditch, drain, storm sewer, water course, natural or artificial within the North Cannon River Watershed.

Subdivision 19. Watershed Operations. The Board may order the construction, acquisition, operation or maintenance of dams, dikes, reservoirs and appurtenant works.

Subdivision 20. Water Pollution. The Board may investigate on its own initiation or shall investigate upon petition of any member all complaints relating to pollution of the North Cannon River or its tributaries. Upon finding that ground or surface waters are being polluted, the Board may order the Member Governmental Unit 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 and ground water in the watershed.

Subdivision 21. Permits. The Board may require permits for the establishment or expansion of any solid waste, hazardous waste, sewage sludge, sludge ash disposal, application or treatment facility or any project that may degrade surface or ground water quality.

Subdivision 22. Surface Waters. The Board may regulate, conserve and control the use of storm and surface water within the North Cannon River Watershed.

Subdivision 23. Insurance. The Board may contract for or purchase such insurance as the Board deems necessary for the protection of the WMO.

Subdivision 24. Annual Financial, Activity and Audit Reports; Newsletter. The WMO shall submit to its Members and BWSR a financial report, an activity report and an audit report for the preceding fiscal year, in compliance with state law. The WMO shall publish and distribute an annual newsletter or other appropriate written communication in compliance with state law. The WMO shall transmit to the clerk of each Member copies of the report/newsletter as it deems necessary. All the WMO's books, reports, and records shall be open to examination by any Member at all reasonable times.

Subdivision 25. Amendments. The Board shall recommend all changes in this Agreement to its Members. Any amendments shall require ratification by all Member units of government.

Subdivision 26. Other Powers. The Board may exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth herein.

Subdivision 27. Local Studies. Each Member reserves the right to conduct separate or concurrent studies on any matter under study by the WMO.

Subdivision 28. Gifts; Grants; Loans. The WMO may within the scope of this Agreement: accept gifts, apply for and use grants or loans of money or other property from the United States, the State of Minnesota, a unit of government or other governmental unit or organization, or any person or entity for the purposes described herein; enter into any reasonable agreement required in connection therewith; comply with any laws or regulations applicable thereto; and hold, use and dispose of such money or property in accordance with the terms of the gift, grant, loan or agreement relating thereto.

Subdivision 29. Boundary Change in North Cannon River Watershed.

A. Enlargement. Proceedings for the enlargement of the North Cannon River watershed shall be initiated by a request from affected Member(s) to the WMO, or as mandated by law. Such request should include a map and legal description of the affected area. In reviewing such a request, the WMO should consider, among other things, (a) whether the affected area is contiguous to the existing North Cannon River Watershed; (b) whether the affected area can be feasibly administered by the WMO; and (c) the reasons why it would be conducive to the public health and welfare to add the area to the existing North Cannon River Watershed. Upon deliberation, if it appears to the WMO that enlargement of the watershed as requested would be for the public welfare and public interest and the purpose of resource management would be served, or that in fact the enlargement is mandated by law, the WMO shall by its findings and order enlarge the North Cannon River Watershed and file a copy of said findings and order with the appropriate governmental offices.

B. Transfer of Territory. Proceedings to transfer territory that is within the North Cannon River Watershed to the jurisdiction of another watershed management organization or a watershed district shall be initiated by a request from affected Member(s) to the WMO, or as mandated by law. Such request should include a map and legal description of the affected area. Upon deliberation, if it appears to the WMO that the transfer of territory as requested would be for the public welfare and public interest and the purpose of resource management would be served, the WMO shall by its findings and order change the North Cannon River Watershed boundaries accordingly and file a copy of said findings and order with the appropriate governmental offices.

C. Subdistricts. The WMO may define and designate drainage subdistricts within the North Cannon River Watershed and shall have authority to separate the watershed into such different subdistricts and to allocate capital improvement costs to a subdistrict area if that subdistrict is the only area that materially benefits from the capital improvement.

Subdivision 30. Ratification. The WMO may, and where required by this Agreement shall, refer matters to the governing bodies of the Members for ratification. Within 60 days, the governing bodies of the Members shall take action upon the matter referred for ratification.

SECTION VI
FINANCIAL MATTERS

Subdivision 1. Operating Funds. On or before August 1 of each year, the WMO shall prepare a work plan and operating budget for the following year for the purpose of providing funds to operate the WMO's business. The annual contribution of each Member shall be based on fifty percent (50%) on the assessed valuation of all real property and fifty percent (50%) on the basis of the total area of each Member within the boundaries of the watershed each year to the total area in the North Cannon River Watershed. In no event shall any assessment require a contribution by a local unit of government in any calendar year to exceed $0.0005 on each dollar of assessed valuation of its territory within the watershed. The annual operating budget shall be recommended to the parties for ratification upon majority approval of all voting members of the WMO, through its finance committee delegate. After approval, the Secretary shall certify the recommended budget to each party on or before September 1 of each year, together with a statement showing the amounts due from each party. Each party shall pay over to the WMO the amount owing in two equal installments, the first on or before January 1 and the second on or before July 1, in accordance with the tax year for which the amount due is being paid.

Subdivision 2. Fiscal Procedures. The Board shall follow standard procedures in accounting for all receipts and disbursements of funds of the NCRWMO. The Treasurer shall keep a record of receipts and disbursements, and shall report on all financial transactions and unpaid claims that shall be submitted in writing at Board meetings. The Board shall approve all purchases and claims before payments may be

made. Claims shall be paid as promptly as possible. In no event shall there be a disbursement of NCRWMO funds without the signatures of at least two (2) Managers. In no event shall a wire transfer be made by the NCRWMO.

SECTION VII
CAPITAL IMPROVEMENT PROGRAM

Subdivision 1. Capital Improvement Program.

a) An improvement fund shall be established for each improvement project ordered by the Board. Each Member agrees to contribute to the funds, its proportionate share of the engineering, legal and administrative costs, as determined by the amount to be assessed against each Member as a cost of the improvement. The Board shall submit in writing, a statement to each Member setting forth in detail, the expenses incurred by the Board for each project. Each Member further agrees to pay its proportionate share of the cost of the improvement in accordance with the determination of the Board. The Board or the Member awarding the contract shall submit in writing copies of the engineer's certificate authorizing payment during construction, and the Member being billed agrees to pay its proportionate share of the costs within 60 days after receipt of the statement. The Board or the Member awarding the contract shall advise other contributing Members of the tentative time schedule of the work and the estimated times when the contributions shall be necessary.

b) Notwithstanding the provisions of paragraph (a) of this subdivision, the Board may fund all or any part of the cost of a capital improvement contained in the capital improvement program of the plan in accordance with Minn. Stat. § 103B.251. The Board may establish a maintenance fund to be used for normal and routine maintenance of an improvement constructed in whole or in part with money provided by Dakota County pursuant to Minn. Stat. § 103B.251. The levy and collection of an ad valorem tax levy for maintenance shall be by Dakota County based upon a tax

levy resolution adopted by the Board and remitted to the county on or before October 1st of each year. When it is determined to levy for maintenance, the Board shall be required to follow the hearing process established by Minn. Stat. Ch. 103D. Mailed notice shall also be sent to the Clerk of each member at least 30 days prior to the hearing.

Subdivision 2. Capital Cost Allocation of Improvements in the Board's Watershed Management Plan. All capital improvement costs of improvements designated in the Board's adopted watershed management plan for construction by the Board which the Board determines will provide multi-jurisdictional benefits shall be constructed and financed pursuant to Minn. Stat. § 103B.245 Subd 1, Minn. Stat. § 103B.251, or in a manner to be determined by each Member. The Members understand and agree that the costs will be levied on all taxable property in the watershed.

Capital costs or the financing thereof shall be apportioned to each Member fifty percent (50%) on the assessed valuation of all real property and fifty percent (50%) on the basis of the total area in the North Cannon River Watershed.

Subdivision 3. Works of Improvement. All construction, reconstruction, extension or maintenance of the North Cannon River Watershed, including outlets, lift stations, dams, reservoirs, or appurtenances of a surface water or storm sewer system of a multi-jurisdictional nature, ordered by the WMO which involve potential construction by or assessment against any Member Governmental Unit, or if a capital improvement ordered by the WMO may result in a levy by a Member against privately or publicly-owned land within the watershed if the law provides therefore; and which has been identified in the Capital Improvement Program shall follow the statutory procedures outlined in Minn. Stat. Chapter 429, except as herein modified.

For those improvements initiated by the WMO or so designated in the WMO's watershed management plan to be constructed by the Board, the Board shall secure from its engineers or some other competent person a preliminary report advising it whether the proposed improvement is feasible and as to

whether it shall best be made as proposed or in connection with some other improvement and the estimated cost of the improvement as recommended.

The Board shall then hold a public hearing on the proposed improvement after mailed notice to the clerk of each Member community. The WMO shall not be required to mail or publish notice except by said notice to the clerk. The notice shall be mailed not less than 45 days before the hearing, shall state the time and place of the hearing, the general nature of the improvement, the estimated total cost and the estimated cost to each Member Governmental Unit. The Board may adjourn said hearing to obtain further information, may continue said hearing pending action of the Member Governmental Units or may take such other action as it deems necessary to carry out the purpose of this WMO.

To order the improvement, a resolution setting forth the order shall require a favorable vote of 2/3 of all of the then existing Board of Managers. The order shall describe the improvement, shall allocate in percentages the cost allocation between the Member Governmental Units, shall designate the engineers to prepare plans and specifications, and shall designate who will contract for the improvement.

After the Board has ordered the improvement or if the hearing is continued while the Member Governmental Units act on said proposal, it shall forward the preliminary report to all Member Governmental Units with an estimated time schedule for the construction of the improvement. The Board shall allow an adequate amount of time, and in no event less than 90 days, for each Member Governmental Unit to conduct hearings, in accordance with the provisions of Chapter 429 or the charter requirements of any city, or to ascertain the method of financing which the Member Governmental Unit will use to pay its proportionate share of the costs of the improvement.

If the WMO proposes to use Dakota County's bonding authority, or if the WMO proposes to certify all or any part of a capital improvement to Dakota County for payment, then and in that event all proceedings shall be carried out in accordance with Minn. Stat. § 103B.251,

The Board shall not order and no engineer shall prepare plans and specifications before the Board has adopted a resolution ordering the improvement. The Board may direct one of its Members to prepare plans and specifications and order the advertising for bids upon receipt of notice from each Member

Governmental Unit who will be assessed that it has completed its hearing or determined its method of payment, or upon expiration of 90 days after the mailing of the preliminary report to the Members whichever comes first.

Subdivision 4. Implementation of Capital Improvements. The WMO shall not undertake a capital improvement project until the watershed Plan and the Capital Improvement Program have been adopted.

Subdivision 5. Local Projects. The WMO may provide assistance to a Member on a project that is only of a local nature, but the WMO shall not order a Member to undertake a local project.

Subdivision 6. Arbitration. Any Member Governmental Unit aggrieved by the determination of the Board as to the allocation of the costs of an improvement, the implementation of the Plan or local water management plan, or items related to this agreement shall have 30 days after the WMO resolution ordering the improvement to appeal the determination. The appeal shall be in writing and shall be addressed to the Board asking for arbitration. The determination of the Member's appeal shall be referred to a Board of Arbitration. The Board of Arbitration shall consist of three persons: one to be appointed by the Board of Managers; one to be appointed by the appealing Member Governmental Unit; and one to be appointed by the two so selected. In the event the two persons so selected do not appoint the third person within 15 days of their appointment, then the chief judge of the district court of Dakota County shall 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 shall not be a resident of any Member Governmental Unit. The Arbitrators' expenses and fees, incurred in the conduct of the Arbitration shall be divided equally between the WMO and the appealing Member. Arbitration shall be conducted in accordance with the Uniform Arbitration Act, Minn. Stat. Chapter 572B, and the decision reached through Arbitration shall be final.

Subdivision 7. Tax District. Each city or township, a party to this Agreement, may establish a watershed management tax district in the territory within the watershed, for the purpose of paying costs of the planning required to develop a surface water management plan for the North Cannon River

Watershed. Any Local Government Unit which has part of its territory within a watershed for which a watershed Plan has been adopted and which has a local water management plan adopted and approved by the WMO may establish a watershed tax district in the territory within the watershed, for the purpose of paying capital costs of the water management facilities described in the Capital Improvement Program of the Plans and for the purpose of paying for normal and routine maintenance of the facilities.

Subdivision 8. Procedure. The tax district shall be established by ordinance adopted after a hearing by the Local Government Unit, following provision of Minnesota Statutes 103B.245 subd. 2.

Subdivision 9. Tax. After adoption of the ordinance under Subdivision 8, a Local Government Unit may annually levy a tax on all taxable real property in the district for the purposes for which the tax district is established.

Subdivision 10. Bonds. After adoption of the ordinance under Subdivision 8 and after a contract for the construction of all or part of an improvement has been entered into or the work has been ordered done by day labor, the Local Government Unit may issue obligations in the amount it deems necessary to pay in whole or in part the capital cost incurred and estimated to be incurred in making the improvements; all in accordance with Minn. Stat§ 103B.245.

Subdivision 11. Capital Improvements Payment by County. The WMO after adoption of a Watershed Plan may certify for payment by the County as provided in Minn. Stat. 103B.251 all or any part of the cost of a capital improvement contained in the capital improvement program of the Plan.

SECTION VIII
WITHDRAWAL FROM AGREEMENT

Withdrawal of any Member may be accomplished by filing written notice with the WMO and the other Members 60 days before the effective date of withdrawal. No Member may withdraw from this Agreement until the withdrawing Member has met its financial obligations for the year of withdrawal and prior years.

SECTION IX
DISSOLUTION

Subdivision 1. Termination of Agreement. This Agreement may be terminated by the unanimous consent of the parties, a notice of intent to dissolve the WMO shall be sent to Dakota County and BWSR at least 90 days before the date of dissolution.

Subdivision 2. Petition to Dissolve Agreement. In addition to the manner provided in Subdivision 1 for termination, any Member may petition the Board to dissolve the Agreement. Upon 90 days notice in writing to the clerk of each Member Governmental Unit, the Board shall hold a hearing and upon a favorable vote by a majority of all eligible votes of then existing Board members, the Board may by Resolution recommend that the WMO be dissolved. Said Resolution shall be submitted to each Member Governmental Unit and if ratified by three-fourths of the Council/Boards of all eligible Members within 60 days, said Board shall dissolve the WMO allowing a reasonable time to complete work in progress and to dispose of personal property owned by the WMO.

Subdivision 3. Upon dissolution of the WMO, the Board shall provide at least a 90 days notice of the intent to dissolve to the affected counties and the BWSR

Subdivision 4. Upon dissolution of the WMO, all property of the WMO shall be sold and the proceeds thereof, together with monies on hand after payment of all obligations, shall be distributed to the Members. Such distribution of the WMO assets shall be made in proportion to the total contributions to the WMO required by the last annual budget. All payments due and owing for operating costs or other unfulfilled financial obligations, shall continue to be the lawful obligation of the Members. In no event may this Agreement be terminated until all of the planning and plan implementation provisions of the Act, which are required of a watershed management organization, have been completed.

SECTION X
MISCELLANEOUS PROVISIONS

Subdivision 1. Special Assessments. The WMO shall not have the power to levy a special assessment upon any privately or publicly held land. All such assessments shall be levied by the Member

wherein said lands are located. The WMO shall have the power to require any Member to contribute the costs allocated or assessed according to the other provisions of this Agreement.

Subdivision 2. Member Vote Suspension for Failure to Contribute. Any Member who is more than 60 days in default in contributing its proportionate share to the general fund shall have the vote of its Board representative suspended pending the payment of its proportionate share. Any Member who is more than 60 days in default in contributing its proportionate share of the cost of any improvement to the contracting Member shall upon request of the contracting Member have the vote of its Board representative suspended, pending the payment of its proportionate share. Any Member whose Board representative vote is under suspension shall not be considered as an eligible Member as such membership affects the number of votes required to proceed on any matter under consideration of the Board.

Subdivision 3. Amendment. The WMO may recommend changes and amendments to this Agreement to the Members. Amendments shall be acted upon by the Members within 90 days of referral. Amendments shall be evidenced by appropriate resolutions of the Members filed with the WMO and shall, if no effective date is contained in the amendment, become effective as of the date all such filings have been completed.

Subdivision 4. Termination of Prior Agreement. By executing this document, the parties agree to terminate the prior joint powers agreement adopted June 6, 2000.

Subdivision 5. Counterparts. This Agreement may be executed in several counterparts and all so executed shall constitute one Agreement, binding on all of the parties hereto notwithstanding that all of the parties are not signatory to the original of the same counterpart.

Subdivision 6. Effective Date. This Agreement shall be in full force and effect upon the filing of a certified copy of the resolution approving said Agreement by each Member. Said resolutions shall be filed with Dakota County Planning Services, who shall notify all Members in writing of its effective date.

Subdivision 7. Requests for Proposal. The WMO shall at least every two years solicit interest proposals for legal, professional, or technical consultant services before retaining the services of an

attorney or consultant or extending an annual services agreement pursuant to Minn. Stat. § 103B.227 subd. 5.

Subdivsion 8. Statutory References. All statutory references include future amendments.

IN WITNESS WHEREOF, the parties hereto have executed the Agreement as of the day of complete execution hereof by the parties.

Township of Castle Rock

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Douglas

Dated:_____ By_____
Chairman

Attest:_____
Clerk

attorney or consultant or extending an annual services agreement pursuant to Minn. Stat. § 103B.227 subd. 5.

Subdivsion 8. Statutory References. All statutory references include future amendments.

IN WITNESS WHEREOF, the parties hereto have executed the Agreement as of the day of complete execution hereof by the parties.

Dated: 21 Sept 20

Township of Castle Rock

By Kelly Elvestad
Chairman

Attest: _____
Clerk

Dated: _____

Township of Douglas

By _____
Chairman

Attest: _____
Clerk

attorney or consultant or extending an annual services agreement pursuant to Minn. Stat. § 103B.227 subd. 5.

Subdivsion 8. Statutory References. All statutory references include future amendments.

IN WITNESS WHEREOF, the parties hereto have executed the Agreement as of the day of complete execution hereof by the parties.

Township of Castle Rock

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Douglas

Dated: 11-2-2020 By_____
Chairman

Attest:_____
Clerk

Township of Eureka

Dated: 9/6/2020

By _____
Vice Chairman

Attest: Ranee Solis
Clerk

Township of Greenvale

Dated: _____

By _____
Chairman

Attest: _____
Clerk

Township of Hampton

Dated: _____

By _____
Chairman

Attest: _____
Clerk

City of Miesville

Dated: _____

By _____
Mayor

Attest: _____
Clerk

City of New Trier

Dated: _____

By _____
Mayor

Attest: _____
Clerk

Township of Eureka

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Greenvale

Dated: October 27, 2020 By Gregory Langer
Chairman

Attest: Lenne Taylor
Clerk

Township of Hampton

Dated:_____ By_____
Chairman

Attest:_____
Clerk

City of Miesville

Dated:_____ By_____
Mayor

Attest:_____
Clerk

City of New Trier

Dated:_____ By_____
Mayor

Attest:_____
Clerk

Township of Eureka

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Greenvale

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Hampton

Dated: 18 Aug 2020 By_____
Chairman

Attest:_____
Clerk

City of Miesville

Dated:_____ By_____
Mayor

Attest:_____
Clerk

City of New Trier

Dated:_____ By_____
Mayor

Attest:_____
Clerk

Township of Eureka

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Greenvale

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Hampton

Dated:_____ By_____
Chairman

Attest:_____
Clerk

City of Miesville

Dated:_____ By Sara Nielsen
Mayor

Attest: Jeri McCarthy
Clerk

City of New Trier

Dated:_____ By_____
Mayor

Attest:_____
Clerk

Township of Eureka

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Greenvale

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Hampton

Dated:_____ By_____
Chairman

Attest:_____
Clerk

City of Miesville

Dated:_____ By_____
Mayor

Attest:_____
Clerk

City of New Trier

Dated: 10/12/2020 By Nicole M Rene
Mayor

Attest: Brenda A. Lufield
Clerk

City of Randolph

Dated: 9-8-20

By _____
Mayor

Attest: _____
Clerk

Township of Randolph

Dated: _____

By _____
Chairman

Attest: _____
Clerk

Township of Sciota

Dated: _____

By _____
Chairman

Attest: _____
Clerk

Township of Waterford

Dated: _____

By _____
Chairman

Attest: _____
Clerk

City of Randolph

Dated:_____

By_____
Mayor

Attest:_____
Clerk

Township of Randolph

Dated: 08-18-2020

By_____
Chairman

BRENDA TAYLOR
Clerk, Randolph Twnshp., Dakota Co., MN
Notarial Officer (ex-officio notary public)
My term is indeterminate

Attest:_____
Clerk

Township of Sciota

Dated:_____

By_____
Chairman

Attest:_____
Clerk

Township of Waterford

Dated:_____

By_____
Chairman

Attest:_____
Clerk

City of Randolph

Dated:_____ By_____
Mayor

Attest:_____
Clerk

Township of Randolph

Dated:_____ By_____
Chairman

Attest:_____
Clerk

Township of Sciota

Dated: 9/14/2020 By_____
Chairman

Attest: Heidi VanDeSteeg
Clerk

Township of Waterford

Dated:_____ By_____
Chairman

Attest:_____
Clerk

City of Randolph

Dated:_____

By_____
Mayor

Attest:_____
Clerk

Township of Randolph

Dated:_____

By_____
Chairman

Attest:_____
Clerk

Township of Sciota

Dated:_____

By_____
Chairman

Attest:_____
Clerk

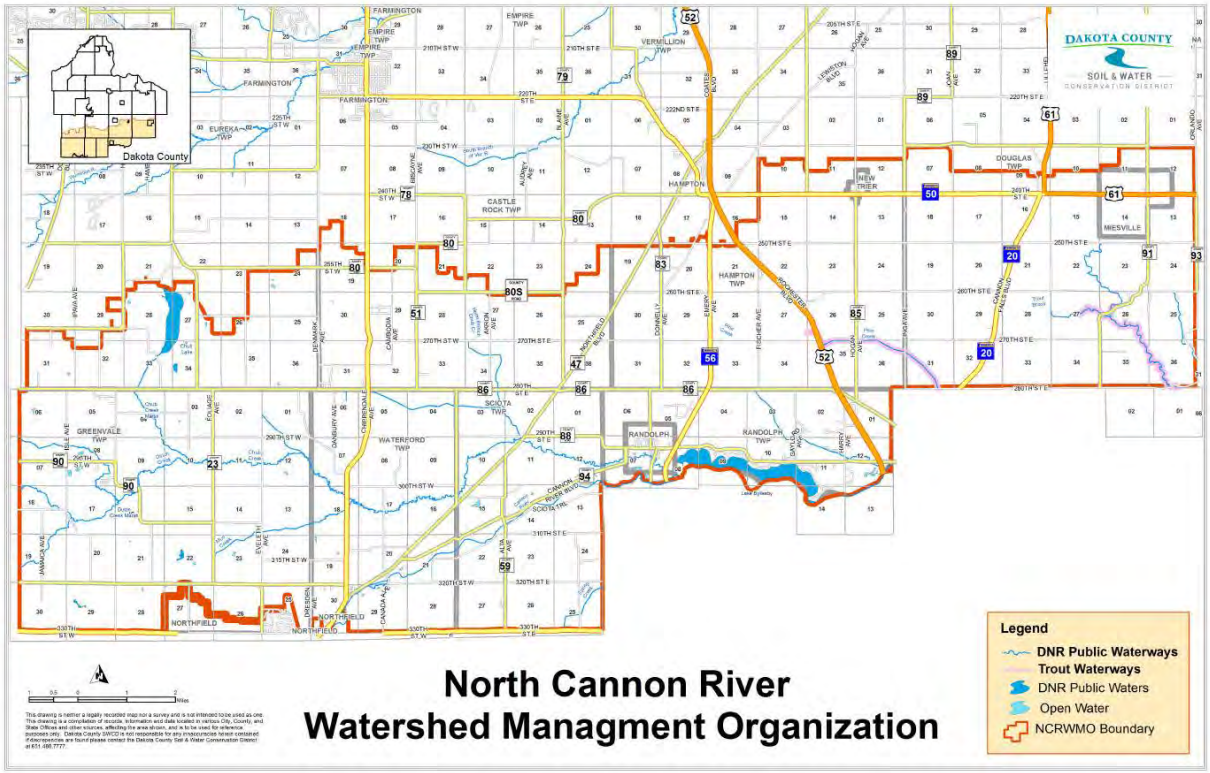
Township of Waterford

Dated: 11/9/2020

By Frank Wenger
Chairman

Attest: Elizabeth Wheeler
Clerk

EXHIBIT "A"


Dakota County
DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT
North Cannon River
Watershed Managment Organization
Legend
DNR Public Waterways
Trout Waterways
DNR Public Waters
Open Water
NCRWMO Boundary

Appendix B: BWSR's Performance Review and Assistance Program Report for the North Cannon River Watershed Management Organization

BOARD OF WATER AND SOIL RESOURCES

Level II Performance Review

North Cannon River

Watershed Management Organization

Local Government Unit Review

Final Report

January 26, 2022

Minnesota Board of Water and Soil Resources

520 Lafayette Road North

St. Paul, MN 55155

651-296-0768

www.bwsr.state.mn.us

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Table of Contents

This report has been prepared for **North Cannon River Watershed Management Organization** 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 North Cannon River Watershed Management Organization. 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 the LGU's reported accomplishments of their management plan action items, determined the organization's compliance with BWSR's Level I and II performance standards, and surveyed members of the organization and their partner organizations for feedback.

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 North Cannon River Watershed Management Organization (NCRWMO) administrator to discuss an evaluation of the water management function of the NCRWMO. The findings in this document represent the data collected over the course of about 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, the NCRWMO was subject to only three as the NCRWMO does not implement the Wetlands Conservation Act.

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 (not applicable): Wetlands Conservation Act (WCA) spot check to evaluate WCA program performance and delivery.

After thorough review of the data, we developed a list of actions and recommendations to help guide the NCRWMO in continued growth of program delivery. We do this to ensure that the NCRWMO continues to meet basic standards as established in statutes and policy. We also developed a list of commendations for the great work the NCRWMO does as our partner in delivering conservation across the varied landscapes of Minnesota. Parts 1-3 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 North Cannon River Watershed Management Organization (NCRWMO) should be commended for their work in implementing core programs, planning efforts, and building partnerships. The board and staff are viewed 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 new opportunities for increased prioritization of projects and available funding.

The NCRWMO is commended for meeting most of the applicable basic performance standards including completing required annual reports, maintaining an updated management plan, and keeping a dedicated website up to-date on projects and programs. They are also commended for meeting some high performance standards, including monitoring key water resources and maintaining cooperative partnerships.

Summary of Recommendations

There were several recommendations made by BWSR staff. These recommendations stem from the data we collected through the three parts of this review, as discussed previously. We rely heavily on our relationships with local government staff and representatives as well as the input of partners 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 – Develop clear prioritized, targeted, and measurable actions for future watershed management plans

Recommendation 2 – Combine utilization of an Advisory Committee with a periodic review of the Capital Improvement Program (CIP)

Recommendation 3 – Conduct a strategic planning exercise to analyze organizational needs for future operations

Findings

This section describes what BWSR learned about the performance of the North Cannon River Watershed Management Organization (NCRWMO) via the various collection methods as outlined below.

Findings Part 1: Planning

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

As part of this review, the administrator for the NCRWMO 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 NCRWMO, a total of 46 action items listed. These action items were grouped under more broad goal areas, but there did not appear to be any ties to measurable numerical outcomes. The goal areas are listed below and cover a mix of resource and administrative priorities:

- Surface Water Quality
- Surface Water Quantity
- Soil Erosion and Sedimentation
- Groundwater
- Wetlands
- Wildlife, Habitat, and Recreation
- 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 a long list of action items may be too specific to be achievable within the plan timeframe. With regards to metro watershed management plans, the NCRWMO Watershed Management Plan falls toward a broad category of the scale with fewer actionable items. Many plan goals are continuous and do not identify the desired measurable outcomes that the NCRWMO hopes to accomplish by the end of 10-year plan life. Many of the plan's goals and strategies are directly project related, and are structured to correlate to the specific priority issue areas that will be addressed. We only found nine items that had not yet been started or were dropped. It was noted that many of those strategies appeared to be attributed to the responsibilities of other agencies to implement. We found that six action items had been completed which is consistent with plans of this type which have numerous ongoing activities.

The BWSR rated version of the Plan Progress Evaluation Table submitted by North Cannon River staff is contained in Appendix A, pages 12-17.

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 or best practices recommendations. While all local government water management entities should be meeting all of the basic standards, the more ambitious LGUs will also meet several high-performance standards. The performance standards checklists submitted and reviewed for North Cannon River WMO are contained in Appendix B, pages 18-19.

For this Level II review, NCRWMO reports compliance with nine of 11 applicable basic standards, and three of eight applicable high performance standards. The high achievements noted include:

- Water quality trends tracked for key water bodies
- Coordination with County, SWCD, City and Township officials
- Partnerships

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 NCRWMO staff and board members

A total of 15 staff and board members of the NCRWMO were invited to take the online survey, and four responses were received, although answers to specific questions sometimes had fewer responses than those who initiated the survey. When participants were asked how often the WMO utilizes their watershed management plan to guide their decision making, they all answered "usually" which is excellent. It is highly encouraged that organizations undertake activities consistent with their plan priorities. We asked several additional questions about the day-to-day operations of the NCRWMO:

***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 the North Cannon River WMO were:

- Wetland Health Evaluation Program
- Partnerships
- Watershed based implementation funding

When asked why these projects and programs were successful, there was only one response:

- Partnerships as NCRWMO capacity is limited

The NCRWMO 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. We only received one response to this series of questions as well:

Have not taken on capital improvement projects, many members have limited budgets and if they do CIPs they are on an individual basis and not through the WMO. There has not been the appetite to levy dollars for large projects, nor have CIP projects been identified.

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

- SWCD
- County

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

- Natural Resources Conservation Service
- Farm Service Agency
- Minnesota Department of Agriculture
- Department of Natural Resources
- Minnesota Pollution Control Agency
- Met Council

Finally, the NCRWMO staff and board were also asked to identify ways to improve the effectiveness of their organizations. Again, we received just one response to the question:

- *I believe many plan goals have been achieved. Currently in process of updating the plan that expires in 2023.*

The full content of internal and external survey responses can be found in Appendix C, pages 20-22.

External Survey: Assessment of NCRWMO by Partners

North Cannon River WMO Partners Survey: BWSR was provided a list of nine partners by NCRWMO staff. Four partners responded to the survey, however, only two of those respondents answered some or all of the questions. The partners that did respond said they interacted with the NCRWMO several times a year over the past 2-3 years. In relation to these answers the respondents said the frequency of their interaction was "about right".

The partners were asked to assess their interactions with the NCRWMO in five operational areas within the survey. The partners' rating of the commission's work in these areas was mostly "strong" or "good" indicating a very strong working relationship between the partners and NCRWMO. There was one single rating of "acceptable" which was in relation to the NCRWMO's initiative. There were no "poor" ratings given for any of the categories which is excellent, so for the most part NCRWMO is either meeting or exceeding their partners' expectations.

Performance Area	NCRWMO Partner Ratings (percent)				
	Strong	Good	Acceptable	Poor	Don't Know
Communication	0%	100%	0%	0%	0%
Quality of Work	50%	50%	0%	0%	0%
Customer Relations	0%	100%	0%	0%	0%
Initiative	0%	50%	50%	0%	0%
Timelines/ Follow through	0%	100%	0%	0%	0%

The partners' overall rating of their working relationship with the NCRWMO was "strong" or "powerful". It should be noted that there were no ratings of "poor" in any category which indicates the NCRWMO maintains strong relationships with partners and should be commended for their efforts.

We asked partners for any comments in relation to the previous ratings, but no answers were provided.

When partners were asked for additional thoughts about how the NCRWMO could be more effective, we again did not receive any responses.

General Conclusions

After a thorough review of the provided information including water plan progress, performance standards, and reviewing the survey inputs we have developed some recommendations for the North Cannon River Watershed Management Organization (NCRWMO).

In brief review, the NCRWMO reports compliance with nine of 11 applicable basic performance standards, and three of eight applicable high-performance standards. The NCRWMO has demonstrated clear progress toward their plan goals and actions, effectiveness in implementation of core programs and is a reliable partner. The NCRWMO should continue to build upon their strong working relationships with partners to meet the water management and conservation challenges in the watershed.

The NCRWMO Watershed Management Plan is a broad plan and has fewer stated actions and less specificity than neighboring watershed management organization plans. The 46 actions within the plan were reviewed and progress has been good with about 31 action items having some progress started. Aside from stated TMDL reductions, there were few measurable goals or resource outcomes attributed to the actions items which will be recommended for future plan efforts.

Commendations

Commendations are based on achievement of BWSR's high performance standards (see Findings, Part 2 and Appendix B, pages 18-19). These practices reflect above average operational effectiveness and level of effort.

The North Cannon River Watershed Management Organization is commended for:

- Water quality trends tracked for key waterbodies
- Consultant RFP developed or renewed for professional services within the last 2 years
- Maintaining project information on their website
- Partnering with neighboring organizations on projects

Action Items

Action items are based on compliance with BWSR's basic practice performance standards (see Findings, Part 2 and Appendix B, pages 18-19). Action Items address lack of compliance with one or more basic standards.

The NCRWMO has three action items based on the performance standards checklist that was received:

Non-current data practices policy – Minnesota statutes chapter 13 outlines the requirements for government data practices. Minnesota Statute 13.05 describes the duties of the responsible authority. BWSR can work with NCRWMO to update their data practices policy to become compliant with state statute. We require this action item to be addressed by NCRWMO within six months of this report delivery.

No regular review of Capital Improvement Program – A capital improvement program (CIP) is a plan content requirement for metro watershed management plans. CIPs should be reviewed and updated regularly, at least every two years according to BWSR plan guidance materials. A regular schedule for CIP review should be developed and implemented. We require this action item be addressed by NCRWMO within six months of this report delivery.

No functioning advisory committee – Technical or citizen advisory committees are paramount for project research and development, and for public interest and transparency in project implementation by the WMO.

Although it appears that an advisory committee is utilized during plan updates or amendments, it is highly recommended that an advisory committee is convened at least annually to meet the requirement.

Recommendations

This section contains recommendations offered by BWSR to the managers and administrator of the NCRWMO. 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.

Recommendation 1 – Develop clear prioritized, targeted, and measurable actions for future watershed management plans

The NCRWMO Watershed Management Plan is a broad plan, with actions that are tied to goal categories, but don't appear to have specific measurable outcomes or numerical targets. BWSR recommends that as part of current in-process planning effort, that the NCRWMO set clear measurable outcomes for the identified priority issues and the stated implementation actions that will be achieved. In addition to fulfilling plan content criteria for the development of watershed management plans, this strategy will also make it easier for the NCRWMO administrator and managers to evaluate and report plan implementation progress to partners and constituents, and more clearly demonstrate the effectiveness of the organization overall.

Recommendation 2 – Combine utilization of an Advisory Committee with a periodic review of the Capital Improvement Program (CIP)

Although both of these items individually, are action items to be addressed by NCRWMO, we recommend leveraging these opportunities together. The results we collected in the surveys indicate that the NCRWMO may not have the resources or support to manage a CIP alone, which may no longer actually be the case, especially when considering the funding allocation increases to the area tied to the newer programs such as BWSR's watershed-based implementation funding program. The NCRWMO managers may find that an increased focus on the program and potential actions supporting the CIP program may enhance interest from partners in accomplishing CIP projects that help achieve plan goals if they are provided more opportunities to evaluate CIPs within the North Cannon River Watershed.

Recommendation 3 – Conduct a strategic planning exercise to analyze organizational needs for future operations

In review of the performance standards and surveys for NCRWMO, it was evident that the organization itself may be neglected and/or is a low priority for its members. Though ample time and additional notice was provided for managers to participate in the Board survey, the lack of response was quite unusual. In review of the organization performance standards checklist, we identified that the organization has neglected to either initiate or maintain items necessary for the operation of an independent local unit of government. Though it's recognized that the NCRWMO contracts with a partnering LGU for administration services, the NCRWMO does not have a staff or board member orientation/training plan to ensure that Board members are familiar and stay current on applicable governing rules and statutes. We also found that there are no established operational guidelines – another critical aspect for a high achieving organization. BWSR recommends the NCRWMO initiate a strategic planning effort to address these items and potentially establish some organizational goals for continued operations as a critical part of Minnesota's water management framework. BWSR offers PRAP assistance grants on a non-competitive basis to assist in funding these types of efforts and would be a willing partner to assist the WMO with this type of activity.

LGU Comments and BWSR Responses

North Cannon River Watershed Management Organization board members and staff were invited to comment on the findings, conclusions and recommendations in the draft version of this report. The NCRWMO provided a comment letter which can be found in Appendix D (pg. 23). The NCRWMO provided responses to the actions and recommendations made by BWSR which are summarized below. BWSR Acknowledges NCRWMO's considerations to the action items and recommendations and is willing to provide assistance in any way requested.

Action Items

- Non-current data practices policy.

NCRWMO Response: NCRWMO has a data practices policy but it has not been reviewed in the last 2 years. The data practices policy will be reviewed in the first half of 2022.

- No regular review of Capital Improvement Program. o

NCWMO Response: NCRWMO is currently updating their Comprehensive Watershed Management Plan, and CIP will be addressed during the planning process. NCRWMO will develop a CIP review process for incorporation in the Plan. Until the 4th Generation Plan is adopted, the NCRWMO will annually solicit capital projects.

- No functioning advisory committee.

NRCWMO Response: An Advisory Committee and Technical Committee have been re-established because they were needed for the Plan update process. Upon completion of the Plan a regular schedule for the AC and/or TC may be established or at least a process will be established in the Plan for what would trigger the need for an AC or TC meeting during Plan implementation.

Recommendations

- Develop clear prioritized, targeted, and measurable actions for future watershed management plans.

NCRWMO Response: The definitions of prioritized, targeted and measurable have evolved since the last Plan. The NCRWMO and consultant hired to write the Plan are aware of BWSR's current guidance on PTM and will incorporate PTM into the 4th Generation Plan.

- Combine utilization of an Advisory Committee with a periodic review of the Capital Improvement Program (CIP).

NCRWMO Response: This could be written into the 4th Generation Plan. NCRWMO has a larger 14-member Board representing the townships and cities within the watershed. The Board may be best suited for review of the CIP, then validated by the AC prior to coming back to the Board for approval.

- Conduct a strategic planning exercise to analyze organizational needs for future operations.

NCRWMO Response: This may not be an immediate priority for the NCRWMO due to the current workload of updating the Comprehensive Watershed Management Plan. However, NCRWMO will evaluate the need to conduct a strategic planning exercise in the future.

Appendix A. Plan Accomplishments

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

North Cannon River Watershed Management Organization

Goal and Strategy	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating (BWSR)	Next Steps
5.1 Surface Water Quality					
1. Monitor water quality at Chub Cr. Permanent Station	Annual	Annually	Kept Chub Creek site but added 3 Trout Brook sites and Pine Creek sites. Partially possible due to partnership with Dakota County Parks.	○	Maintain partnerships in order to keep all sites. Continue to publish results and report in State systems.
2. Conduct DO assessments in key streams	2016-17	Annually	See above, added sites and conduct annually.	○	See above, maintain and report.
3. Analyze nitrates in Trout Brook springs	Every 5 years	Annually	Increased monitoring substantially to 4 sentinel springs, 4 times a year.	○	Continue monitoring, coordinate results and trends with partners.
4. Participate in other water quality studies as needed	As needed	As needed	Not much need, more modeling efforts than monitoring, but participated with County on PCSWMM and CRWJPB on their efforts.	○	Continue to partner and assist as needed.
5. Provide grant match and cost share for water quality BMPs	Annual	Annual	Provide $4,000 to the SWCD for project cost-share in which they can leverage as match for grants.	○	Continue to provide $4,000, consider increasing amount in next Plan.
6. Collaborate with communities to help identify buffer priorities	2019	2016-18	County had previously enforced Ordinance 50 and then State buffer law addressed this as well.	✧	Support County and State processes that monitor buffers.
7. Re-examine possible buffer requirements for all watercourses	2018	2016-18	Assessed during State buffer law process, map remained the same.	✧	None.
8. Advocate w/ County to fund buffers on watercourses upstream from DNR streams	2014	2016-18	Assessed during State buffer law process, map remained the same.	✧	None.

Goal and Strategy	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating (BWSR)	Next Steps
9. Advocate for improved wastewater system in City of Randolph	2016	On going	City of Randolph and Dakota County are leading this effort. City received State funding for community wastewater treatment and design is complete.	○	Monitor progress.
10. Seek producers interested in Discovery Farms participation	2014	On going	Administrator researched edge-of-field monitoring options. No willing landowners but option is there if the right site and landowner opportunity arises.	○	Continue to look for sites.
11. Advocate w/ County to investigate old dumps and other pollution sources	2014	No Action	Other agencies would lead these efforts.	□	Inquire with County on status of efforts.
5.2 Surface Water Quantity					
1. Monitor water quantity at Chub Cr. Permanent Station	Annual	Annually	Kept Chub Creek site but added 3 Trout Brook sites and Pine Creek sites. Partially possible due to partnership with Dakota County Parks.	○	Maintain partnerships in order to keep all sites. Continue to publish results and report in State systems.
2. Provide grant match and cost share for BMPs that reduce rate and volume of runoff	Annual	Annually	Provide $4,000 to the SWCD for project cost-share in which they can leverage as match for grants.	○	Continue to provide $4,000, consider increasing amount in next Plan.
3. Investigate methods to collect data on tile lines	2016	On going	Track research from Discovery Farms or Universities.	○	Implement tile monitoring if opportunity arises.
4. Disseminate info on conservation drainage BMPs	2014	Presented info at various Board meetings, more landowner outreach planned for late 2021.	Coordination with key partners including NRCS and Ecosystem Services Exchange (ESE). Neither interested in presenting or assisting with an event.	○	Outreach directly to landowners in targeted watershed.
5.3 Soil Erosion and Sedimentation					

Goal and Strategy	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating (BWSR)	Next Steps
1. Provide grant match and cost share for erosion control BMPs	Annual	Annually	Provide $4,000 to the SWCD for project cost-share in which they can leverage as match for grants.	○	Continue to provide $4,000, consider increasing amount in next Plan.
2. Develop model ordinance to enforce erosion control on tax relief property	2015	Not complete	Some uncertainty as to what was meant by tax relief programs.	□	Research and discuss with the Board.
3. Develop model ordinance to enforce road right-a-way setback requirements	2015	Not complete, not needed	Many actively sought compliance with ROW setbacks and does not seem to be a widespread issue.	□	Research and discuss with the Board.
4. Receive data on sediment load reductions due to BMPs installed	Every other year	Annually	The SWCD calculates pollutant reductions for every project.	○	Continue to receive reductions from SWCD.
5. Seek producers interested in Discovery Farms participation	2014	On going	Administrator researched edge-of-field monitoring options. No willing landowners but option is there if the right site and landowner opportunity arises.	○	Continue to look for sites.
5.4 Groundwater					
1. Cooperate w/ agencies to update nitrogen fertilizer rates; disseminate recommendations	2015-16	2016- On going	In partnership with SWCD and MDA through the Groundwater Protection Rule and Local Advisory Team process.	○	Continue to support.
2. Cooperate w/ researchers on nitrogen transport in Trout Br.	As needed	2017- On going	Met with UMN, USGS, MGS, MPCA and other partners prior to increasing monitoring in Trout Brook to discuss trends, importance, info sharing, etc.	○	Partner as needed.
3. Provide grant match and cost share for nutrient management practices	Annual	On going	Money is provided to SWCD for cost-share assistance on BMPs, which could include nutrient management, however there have been no requests for it.	○	Continue to provide assistance.
4. Track GW quantity and quality through reports by others	Annual	On going	Many sources available online. Made recommendation to County for more web-based data.	○	Continue to track.
5.5 Wetlands					

Goal and Strategy	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating (BWSR)	Next Steps
1. Review WCA applications	As needed	Not needed	Stay informed of WCA applications but typically not involved in review.	☐	Continue to track.
2. Provide grant match and cost share funding for wetland restoration projects	Annual	On going	Money is provided to SWCD for cost-share assistance on BMPs, which could include wetlands however, there have been no requests for it.	○	Continue to provide assistance.
5.6 Wildlife, Habitat and Recreation					
1. Advocate w/ MDNR and others to develop Chub Lake WMA Management Plan	2014	Needed	Cannot locate a formal plan for the Chub Creek WMA.	☐	Ask more partners about status, determine its importance in next plan.
2. Advocate w/ County to continue land conservation programs	2017	2019-2020	Provided input when Dakota County updated their Land Conservation Plan.	✧	Continue to partner on priority areas and programs.
3. Provide grant match and cost share to install shoreline BMPs	Annual	On going	Money is provided to SWCD for cost-share assistance on BMPs, which could include wetlands however, there have been no requests for shorelines.	○	Continue to provide assistance.
4. Provide a forum or assist w/ improved cooperation for Trout Brook Habitat management	2014	2016	There have been some projects by SWCD and Trout Unlimited.	✧	Continue to look for opportunities to partner.
5. Review Byllesby Dam status; advocate for research on effects of dam operations on wildlife	2014	Not completed	Dakota County has staff dedicated to working on Byllesby, no requests made for wildlife research.	☐	Determine if wildlife research within scope of County work.
6. Review information on implementing Lk Byllesby TMDL	As needed	As needed	Not a regular activity but look at as needed.	○	Review as part of next Plan process.
7. Advocate w/ City of Randolph to adopt shoreland and floodplain ordinance	2015	Not needed	Properties where this might apply are now either in easements, approached/in-process about easements or county property. Floodplain would also restrict development.	☐	No action.
5.7 Education and Outreach					

Goal and Strategy	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating (BWSR)	Next Steps
1. Promote/encourage volunteer water monitoring	Annual	2016-On Going	Sponsor wetlands for Wetland Health Evaluation Program (WHEP) and recruit volunteers. Also continue to support CMP and CAMP volunteers.	○	Continue to promote and involve volunteers in monitoring.
2. Maintain updated website	Annual	Annually and 2021	Maintain website, full rebuild of website with new domain in 2021.	○	Maintain.
3. Develop annual report and plan	Annual	Annually	Develop report, submit to BWSR, post and distribute.	○	Continue.
4. Provide education and partner w/ others; find funding to educate and engage agricultural producers	Annual	Primarily since 2019	More became possible with WBF pilot funds and WBIF. Partnered more to get more done.	○	Continue.
5. Disseminate updated nitrogen fertilizer application recommendations	2015-16	Through MDA	When Groundwater Protection Rule started it was on township basis. Some info disseminated; more could be done.	○	Continue to share information.
6. Use technical and citizen advisory committees as needed	As needed	Not needed	Typically have only used during a new Plan process.	□	Use a technical and advisory group for the next Plan. Consider role and meeting schedule for non-planning timeframe.
7. Request that County install stream signs on Co. roads	2014	2018	Installed by County.	✧	None.
8. Advocate and partner w/ County to install interpretive signs at Parks	2017	On going	Subject was talked about but the county was in process of developing sign standards.	○	Continue to work on this and get water information into signage.
9. Maintain online directory of water/natural resource jurisdictions/organizations	Annual	Other Resources	Other resources and websites do this and would be duplicative. Could develop a local 'who has jurisdiction' type of list.	□	Discuss ideas.
5.8 Administration					
1. Cultivate partnerships with agencies/organizations	Annual	On going	Meeting materials snt to partners, administrator works with partners as needed.	○	Continue to partner.
2. Fulfill BWSR performance requirements	Annual	Annually	Annual reports, web updates, etc are all completed annually.	○	Continue to meet requirements.

Goal and Strategy	Proposed Timeframe	Actual Timeframe	Accomplishments to Date	Progress Rating (BWSR)	Next Steps
3. Amend plan, as needed, to avoid duplication	As needed	As needed	No amendments have been made but in process of starting 4th gen plan update.	O	As needed.
4. Evaluate implementation of strategies and policies	Annual	As needed	Have done for annual reports and when assessing Watershed Based Funding.	O	Continue.

Appendix B. Performance Standards

North Cannon River Watershed Management

LGU Name: Organization

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 I 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		2011
	■	Manager appointments: current and reported	II	NA	
	■	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	NA	
	■	**WD/WMO has knowledgeable & trained staff that manages WCA program or has secured qualified delegate.** (N/A if not LGU)	II	NA	
	★	Administrator on staff	II	NA	
	★	Board training: orientation and continuing education plan, record for each board member	II		x
	★	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	NA	
	■	**WCA TEP reviews & recommendations appropriately coordinated. (if delegated WCA LGU)**	II	NA	
	★	**Certified wetland delineator on staff or retainer**	II	NA	
	■	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		x
	■	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	x	
	★	Partnerships: cooperative projects/tasks with neighboring organizations, such as counties, SWCDs, WDs, tribal governments, Non-Government Organizations	II	x	

Year	Budget	Expenses
2020	$35,300	$36,738
2019	$32,250	$26,411
2018	$36,015	$30,352
2017	$33,641	$27.762
2016	$29,141	$19,944
2015	$30,441	$23,907
2014	$31,933	$24,137
2013	$24,000	$28,337
2012	$24,000	$53,443
2011	$19,500	$17,130

Appendix C. Summary of External Survey Results

North Cannon River WMO 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	0%
Usually	100%
Seldom	0%
Never	0%

List your organization's most successful programs and projects during the past 3-5 years.
Partnerships and supporting existing programs. Began to sponsor wetland monitoring through Wetland Health Evaluation Program (WHEP) and increased knowledge of the watershed and the organization by recruiting volunteers for monitoring. Continued work with SWCD and BWSR to secure WBIF grants and implement projects.

What helped make these projects and programs successful?
Partnerships as NCRWMO capacity is limited

During the past 3-5 years, which of your organization's programs or projects have shown little progress or been on hold?
Have not taken on CIP, many members have limited budgets and if CIP they are on an individual basis not through the WMO

List the reasons why the organization has had difficulty with these projects and programs.
Stated above and additionally there has not been the appetite to levy dollars for large projects, nor have projects been identified that need CIP

Regarding the various organizations and agencies with which you could cooperate on projects or programs…
List the ones with which you work well already
SWCD and County
List the ones with which better collaboration would benefit your organization
NRCS, FSA, MDA, DNR, MPCA, Met Council
If you don't know much about your organization's working relationships with partners, enter "I don't know"
NA

What steps could your organization take to increase your effectiveness in accomplishing your plan goals and objectives?
I believe many plan goals have been achieved. Currently in process of updating the Plan that expires in 2023

How long have you been with the organization?	(response percent)
Less than 5 years	100%
5 to 15 years	0%
More than 15 years	0%

North Cannon River WMO 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	100%
Monthly	0%
Almost every week	0%
Daily	0%

Is the amount of work you do in partnership with this organization…	(percent)
Not enough, there is potential for us to do more together	0%
About right	100%
Too much, they depend on us for work they should be doing for themselves	0%
Too much, we depend on them for work we should be doing ourselves or with others	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)*	0%	100%	0%	0%	0%
Quality of work *(they have good projects and programs; good service delivery)*	50%	50%	0%	0%	0%
Relationships with Customers *(they work well with landowners and clients)*	0%	100%	0%	0%	0%
Initiative *(they are willing to take on new projects, try new ideas)*	0%	50%	50%	0%	0%
Timelines/Follow-through *(they are reliable and meet deadlines)*	0%	100%	0%	0%	0%

How is your working relationship with this organization? (percent)	
Powerful, we are more effective working together	50%
Strong, we work well together most of the time	50%
Good, but it could be better	0%
Acceptable, but a struggle at times	0%
Poor, there are almost always difficulties	0%
Non-existent, we don't work with this organization	0%

Do you have additional thought about how the "subject" organization could be more effective?
No Responses Received

How long have you been with your current organization?	(response percent)
Less than 5 years	0%
5 to 15 years	50%
More than 15 years	50%

Appendix D. Comment Letter

NORTH CANNON RIVER
WATERSHED MANAGEMENT ORGANIZATION

To: Performance Review and Assistance Program (PRAP), Board of Water and Soil Resources
From: NCRWMO Board of Managers and Administrator
Subject: Comments on the Draft NCRWMO PRAP Report
Date: January 19, 2022

NCRWMO Board of Managers and Administrator would like to thank BWSR for the PRAP review. It will be useful to ensure the continued success of the organization. It was also a timely review as many items will be address in the 4th Generation Comprehensive Watershed Management Plan, which is currently in development. Overall, NCRWMO does not have concerns with the action items and recommendations. This is a summary of how NCRWMO intends to address these items.

Action Items

- Non-current data practices policy.
  - NCRWMO has a data practices policy but it has not been reviewed in the last 2 years. The data practices policy will be reviewed in the first half of 2022.
- No regular review of Capital Improvement Program.
  - NCRWMO is currently updating their Comprehensive Watershed Management Plan, and CIP will be addressed during the planning process. NCRWMO will develop a CIP review process for incorporation in the Plan. Until the 4th Generation Plan is adopted, the NCRWMO will annually solicit capital projects.
- No functioning advisory committee.
  - An Advisory Committee and Technical Committee have been re-established because they were needed for the Plan update process. Upon completion of the Plan a regular schedule for the AC and/or TC may be established or at least a process will be established in the Plan for what would trigger the need for an AC or TC meeting during Plan implementation.

Recommendations

- Develop clear prioritized, targeted, and measurable actions for future watershed management plans.
  - The definitions of prioritized, targeted and measurable have evolved since the last Plan. The NCRWMO and consultant hired to write the Plan are aware of BWSR's current guidance on PTM and will incorporate PTM into the 4th Generation Plan.
- Combine utilization of an Advisory Committee with a periodic review of the Capital Improvement Program (CIP).
  - This could be written into the 4th Generation Plan. NCRWMO has a larger 14-member Board representing the townships and cities within the watershed. The Board may be best suited for review of the CIP, then validated by the AC prior to coming back to the Board for approval.
- Conduct a strategic planning exercise to analyze organizational needs for future operations.
  - This may not be an immediate priority for the NCRWMO due to the current workload of updating the Comprehensive Watershed Management Plan. However, NCRWMO will evaluate the need to conduct a strategic planning exercise in the future.

Serving the Communities of: Castle Rock Township, Douglas Township, Eureka Township, Greenvale Township, Hampton Township, Randolph Township, Sciota Township, Waterford Township, City of Miesville, City of New Trier, and the City of Randolph

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Appendix E. Program Data

Time required to complete this review

NCRWMO Staff: 15 Hours

BWSR Staff: 80 Hours

Schedule of Level II Review

BWSR PRAP Performance Review Key Dates

- August 23, 2021: Initial meeting with NCRWMO staff
- August 30-Sept 17, 2021: Survey of board, staff, and partners
- October, 2021: Presentation of Draft Report
- January, 2022: Transmittal of Final Report to LGU

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.