

Watershed Management Plan 2022–2031



Prepared for the
Lower Rum River Watershed Management Organization
December 2021

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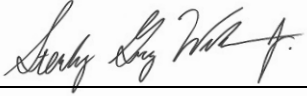
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Certifications

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the Laws of the State of Minnesota.



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December 16, 2021

Date

Acronyms

1W1P	One Watershed One Plan
ACD	Anoka Conservation District
AIS	Aquatic Invasive Species
BMP	Best Management Practice
BWSR	Minnesota Board of Water and Soil Resources
CAMP	Citizen Assisted Monitoring Program
CCWD	Coon Creek Watershed District
CWA	Clean Water Act
DWSMA	Drinking Water Supply Management Area
ECWMC	Elm Creek Watershed Management Commission
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
LA	Load Allocation
LGU	Local Governmental Unit
LiDAR	Light Detection and Ranging
MDNR	Minnesota Department of Natural Resources
MDH	Minnesota Department of Health
MIDS	Minimal Impact Design Standards
MnDOT	Minnesota Department of Transportation
MnRAM	Minnesota Routine Assessment Method
MPCA	Minnesota Pollution Control Agency
MRCCA	Mississippi River Critical Corridor Area
MS4	Municipal Separate Storm Sewer System
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NHIS	Natural Heritage Information System
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OHWL	Ordinary High Water Level
PWI	Public Waters Inventory
SCS	Soil Conservation Service
SRA	Stormwater Retrofit Analysis
SSURGO	Soil Survey Geographic Dataset
SSTS	Subsurface Sewage Treatment System
SWA	Subwatershed Assessment
SWCD	Soil and Water Conservation District
SWMP	Surface Water Management Plan

SWPPP	Storm Water Pollution Prevention Program
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TSS	Total Suspended Solids
URRWMO	Upper Rum River Watershed Management Organization
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VIC	Voluntary Investigation and Cleanup
WCA	Wetland Conservation Act
WHPP	Wellhead Protection Plan
WLA	Waste Load Allocation
WMO	Watershed Management Organization
WRAPS	Watershed Restoration and Protection Strategy

Executive Summary

The Lower Rum River Watershed Management Organization (LRRWMO) Watershed Management Plan (Plan) provides a framework for the protection, restoration, and management activities of the LRRWMO over a 10-year period. The Plan provides resource data and background information, prioritizes natural resource management issues, establishes measurable goals, and details policies, regulations, and implementation activities intended to achieve those goals. The Plan implementation program describes the administrative and cooperative roles, programs, and projects carried out by the LRRWMO.

The Plan is organized into five major sections, summarized as follows:

Section 1 – Introduction

Section 1 of this Plan summarizes the LRRWMO's location and history, purpose, and management structure. Like all watershed management organizations (WMOs), the LRRWMO is a special purpose unit of local government that manages water resources on a watershed basis. The LRRWMO's jurisdiction covers approximately 57 square miles in Anoka County and includes the City of Anoka, the City of Ramsey, and a portion of the City of Andover. The LRRWMO was formed in 1985. This watershed water management plan replaces the *2011 LRRWMO Water Management Plan (2011 Plan)*.

The purposes of the LRRWMO, consistent with Minnesota Statutes 103B.201, include:

- 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; and
- Secure the other benefits associated with the proper management of surface and groundwater.

The Board of Commissioners of the LRRWMO consists of three commissioners and three alternates appointed by the member cities. The powers of the Board are detailed in the most current iteration of the LRRWMO Joint Powers Agreement (JPA, see Appendix A).

Section 2 – Land and Water Resources Inventory

Section 2 of this Plan contains information about the water and natural resources located within the LRRWMO. Information is provided as text, tables, and maps and organized according to the following topics and resources:

- Climate and precipitation
- Topography and drainage
- Land use

-
- Soils
 - Geology
 - Groundwater
 - Surface water resources
 - Natural areas, habitat and rare features
 - Open space and recreational areas
 - Potential pollutant sources

The Rum River is the defining hydrologic feature of the LRRWMO. Other water resources, including the Mississippi River, Round Lake, and many other lakes, ponds, streams, and wetlands are present within the watershed.

Understanding the condition of water and natural resources present in the LRRWMO is key to identifying priority issues, establishing goals, and targeting the actions of the LRRWMO, its member cities, and other partners.

Section 3 – Issues Assessment

This section of the Plan presents and discusses the priority issues to be addressed by the LRRWMO over the life of this Plan. As part of Plan development, the Board solicited input on issues relevant to the Lower Rum River watershed through a variety of stakeholder engagement and data review activities, including:

- Public kickoff meeting hosted on June 26, 2019
- Citizen Advisory Committee (CAC) issue identification meeting on August 28, 2019
- Technical Advisory Committee (TAC) issue identification meeting on October 29, 2019
- Resident survey (online and in person) completed summer 2019
- Analysis of potential 2011 Plan gaps (Gaps Analysis)
- Review of responses to the Plan notification letter
- Review of engagement and issue identification from Rum River One Watershed, One Plan Project

Several of the above stakeholder engagement and issue identification activities are summarized in Appendix D. With consideration for the stakeholder engagement and data review activities, the Board identified the following as the most relevant issues including:

- Adverse impacts from **stormwater runoff**
- Degraded **water quality** of lakes, streams, and rivers

Additional water and natural resource issues that were identified as important:

- **Flood risk and water quantity** issues
- Excessive **erosion and sedimentation**
- Integrity of **wetlands, shoreland, and natural areas**
- **Groundwater contamination**

In addition to natural resource issues, organizational and/or administrative issues were also identified during Plan development; these include:

- Efficacy and efficiency of the **LRRWMO permit program**
- Limited **funding and capacity**
- Opportunities for increased **education and engagement**

The priority issues areas and associated specific issues identified by the Board are described in greater detail in Section 3 and are summarized in Table 3-1. Many of the priority resource issues are interrelated. Thus, many of the goals, policies, and activities included in this Plan address multiple resource issues.

Section 4 – Goals and Policies

Section 4 describes the goals and policies for water and natural resource management within the LRRWMO. LRRWMO goals are aligned with the broad statutory purposes listed in Minnesota Statutes 103B.201 but are more specific in their application to LRRWMO resources. LRRWMO goals are presented in Table 4-1. Goals are grouped according to issue area (see Section 3) although many of the goals address multiple issues. Where appropriate, goals contain measurable quantities to evaluate progress (see Section 5.5.2). The Plan establishes the following key water quality goals:

- Maintain or improve existing water quality in priority LRRWMO waterbodies:
 - Grass (Sunfish) Lake (TP= 14 µg/L, Chl a = 5.8 µg/L, SD = 1.3 m)
 - Round Lake (TP = 31 µg/L, Chl a = 7.9 µg/L, SD = 2.9 m)
 - Rum River (TP = 100 µg/L, TSS = 30 mg/L)
- Minimize increases in loading of nutrients, sediment, and other pollutants to downstream water resources through the continued implementation of the LRRWMO rules and permit program, preventing phosphorus loading of 800 lbs/year and sediment loading of 80 tons/year from development and redevelopment
- Maintain TP in the Rum River below 100 µg/L by reducing phosphorus loading to the Rum River by 100 lbs/year through non-structural and structural improvements (e.g., streambank stabilization)
- Reduce sediment loading from streambank erosion along the Rum River by approximately 75 tons/year through streambank stabilization and restoration actions over an estimated 500 feet
- Manage stormwater runoff with practices that mimic natural hydrology by retaining a volume equivalent to 1.0 inches over new and redeveloped or existing impervious surfaces.
- Achieve 100% of member communities implementing MPCA recommended best practices for chloride management

The LRRWMO has also adopted policies to support the achievement of LRRWMO and partner goals. These policies include requirements for member cities, as well as performance standards for projects implemented within the LRRWMO. Policies are subdivided into the following strategies:

- Regulation
- Education
- Cooperation
- Operations

Generally, these strategies include all of the LRRWMO's activities, and are described in greater detail in Section 4.2.

Section 5 – Implementation Program

Individual LRRWMO implementation activities are described in Section 5. Estimated costs, year(s) of implementation, partners, and priority level of each activity are presented in Table 5-2. For assessment and reporting purposes, the LRRWMO cross-references all activities in the implementation plan to applicable LRRWMO goals (see Table 4-1).

The LRRWMO implementation plan includes the continuation of ongoing activities as well as new activities to address emerging issues and changing priorities. Activities included in Table 5-2 are categorized as:

- Administration
- Engineering, Permitting, and Planning
- Education Programs
- Monitoring Programs
- Projects and Capital Improvements

New or expanded activities in the LRRWMO implementation schedule include continuing support for the new Education and Outreach Coordinator as a shared service with Anoka Conservation District and development/execution of an education plan, targeted subwatershed analyses to identify opportunities for increased stormwater treatment, and leveraging watershed-based implementation funding to support streambank stabilization and water quality improvement actions along the Rum River.

A significant portion of the LRRWMO resources is invested in the continued implementation of the LRRWMO project review permitting programs (see Section 5.3.2.1). The LRRWMO stormwater performance standards (see Appendix E) have contributed preventing 175 lbs/year of total phosphorus and 18 tons per year of sediment loading from development and redevelopment (through over 40 LRRWMO-reviewed projects reviewed in 2019 and 2020).

The 10-year implementation schedule (Table 5-2) includes planned capital improvements planned in cooperation with Anoka Conservation District (ACD) and funded by anticipated watershed-based implementation funding (WBIF), competitive grants, and local WMO funds.

Section 5 describes the funding mechanisms used and available to the LRRWMO, self-assessment and reporting practices, and procedures for amending this Plan. Section 5 also details requirements for City local water management plans consistent with Minnesota Statutes 103B.235 and Minnesota Rules 8410.0160.

Section 5 also describes the regulatory roles and responsibilities of the LRRWMO member cities. Generally, the member cities maintain and implement their own local controls (i.e., ordinances) regarding stormwater management, land use, and natural resource protection. Member cities must also develop local water management plans that conform to [Minnesota Statutes 103B.235](#), [Minnesota Rules 8410.0160](#), City plans and local controls must be consistent with this Plan and performance standards adopted by the LRRWMO. With respect to this LRRWMO Plan update, local plans or official controls must include:

- Development and redevelopment volume control standards consistent with LRRWMO performance standards
- A requirement and process for documenting maintenance requirements for private stormwater BMPs
- Floodplain development and redevelopment standards consistent with LRRWMO minimum building elevations and enforcing “no net loss” of floodplain volume
- Commitment to collaborate with the LRRWMO to implement, evaluate, and update, as needed, the LRRWMO permit program

1 Introduction

The Lower Rum River Watershed Management Organization (LRRWMO) *Watershed Management Plan* (Plan) provides guidance for managing the water and natural resources within the jurisdiction of the LRRWMO. This section summarizes the location and history of the LRRWMO, as well as its purposes, authorities, and management structure.

1.1 The Role of Watershed Management Organizations

Like all watershed management organizations (WMOs), the LRRWMO is a special purpose unit of local government that manages water resources on a watershed basis. Watershed management organization boundaries generally follow natural watershed divides, rather than political boundaries. Thus, they may include several municipalities and counties.

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

Per Minnesota Statutes 103B.201, the purposes of WMO water management programs are as follows:

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

1.2 LRRWMO Location and History

1.2.1 Location and Boundaries

The Lower Rum River watershed is located entirely within Anoka County, in the northwest portion of the Twin Cities Metropolitan Area (TCMA). Figure 1-1 shows the location and boundaries of the LRRWMO and other local units of government. The LRRWMO is adjacent to the following watershed management authorities:

- Upper Rum River WMO (URRWMO) – along northern boundary
- Coon Creek Watershed District (CCWD) – along eastern boundary
- Elm Creek Watershed Management Commission (ECWMC) – along southern boundary (across Mississippi River)
- Sherburne County– along western boundary

The jurisdictional boundary of the LRRWMO includes all or part of three cities:

- Andover
- Anoka
- Ramsey

The limits of Anoka County form the jurisdictional boundary of the LRRWMO to the west, while the northern boundary is defined by the municipal boundaries of Northern and Oak Grove. This boundary does not follow hydrologic divides (i.e., water flows in and out of the LRRWMO across the county boundary). The Mississippi River forms the southern boundary of the LRRWMO, while the eastern boundary generally follows the watershed divide separating the Rum River watershed from the watershed of Coon Creek. The total drainage area of the LRRWMO is 56.9 square miles (~36,400 acres).

Most of the LRRWMO watershed drains towards the Rum River and its tributaries, although some areas are directly tributary to the Mississippi River. The LRRWMO is moderately developed with generally suburban land use (see Figure 2-3).

A legal description for of the boundaries of the LRRWMO is included in Appendix A.

1.2.2 History and Accomplishments since the 2012 Plan

The LRRWMO was formed by a Joint Powers Agreement (JPA) signed by the Cities of Andover, Anoka, Coon Rapids, and Ramsey in the summer of 1985. The LRRWMO was formed for the purpose of preparing a water management plan to meet the requirements of Minnesota Statutes Sections 473.875 to 473.883, the Metropolitan Water Management Act (MWMA). The powers and duties of the LRRWMO are outlined in the JPA.

The JPA was revised in 1995 to include recent changes in state statutes, Minnesota Rules 8410 Rules, and the Wetland Conservation Act (WCA). The JPA was again revised and approved in 2007 to address cost-sharing for WMO projects.

At its inception, the LRRWMO included a portion of the City of Coon Rapids – this area was transferred to the Coon Creek Watershed District via a 2014 revision to the JPA and legal boundary. The most current JPA and legal description are included in Appendix A. Since its formation, the LRRWMO has developed and adopted four watershed management plans. This document, adopted by the LRRWMO in 2021, is the fourth-generation LRRWMO Plan and supersedes the third-generation plan adopted in January 2012. This Plan shall extend 10-years from the date of BWSR approval (through 2031), unless otherwise superseded.

Accomplishments of the LRRWMO since the adoption of the 2012 Plan include:

- Ongoing water quality monitoring and trend analysis of Round Lake, Grass (Sunfish) Lake, and the Rum River (in collaboration with the Anoka Conservation District, Anoka Ramsey Community College, and MPCA)
- Supporting the development of groundwater and lakeshore stewardship videos through the Anoka County Water Resource Outreach Collaborative
- Supporting an Outreach and Education Coordinator position as a shared service with Anoka Conservation District
- Hosting a bi-annual river float with city officials and staff to inspect for problems, as well as share an appreciation of the river
- Implementing a six-part wetland education program for property owners
- Increasing public outreach with an updated LRRWMO website, web video content, and newsletter articles
- Implementing a Rum River bank stabilization program with Anoka Conservation District to construct revetments to improve water quality, enhance habitat, and protect property from erosion
- Implementing stormwater management retrofits to promote infiltration in cooperation with Anoka Conservation District
- Providing cost-share grant funding for residents to implement erosion control, shoreline restoration, and stormwater infiltration projects in coordination with Anoka Conservation District
- Reviewing over 180 proposed projects to ensure compliance with LRRWMO stormwater management and wetland performance standards

1.3 Management Structure, Power, and Duties

The Board of Commissioners of the LRRWMO consists of three commissioners and three alternates appointed by the member cities. Each of the three member cities appoints one commissioner and one alternate. Alternate commissioners are voting Board members when the primary commissioner is absent. The JPA gives each member city the responsibility to determine the eligibility or qualifications of its representative (commissioner) on the Board.

As identified in the JPA, the Board has the authority to employ persons as it deems necessary, conduct studies, fund improvements, and operate and maintain improvements constructed by the Board.

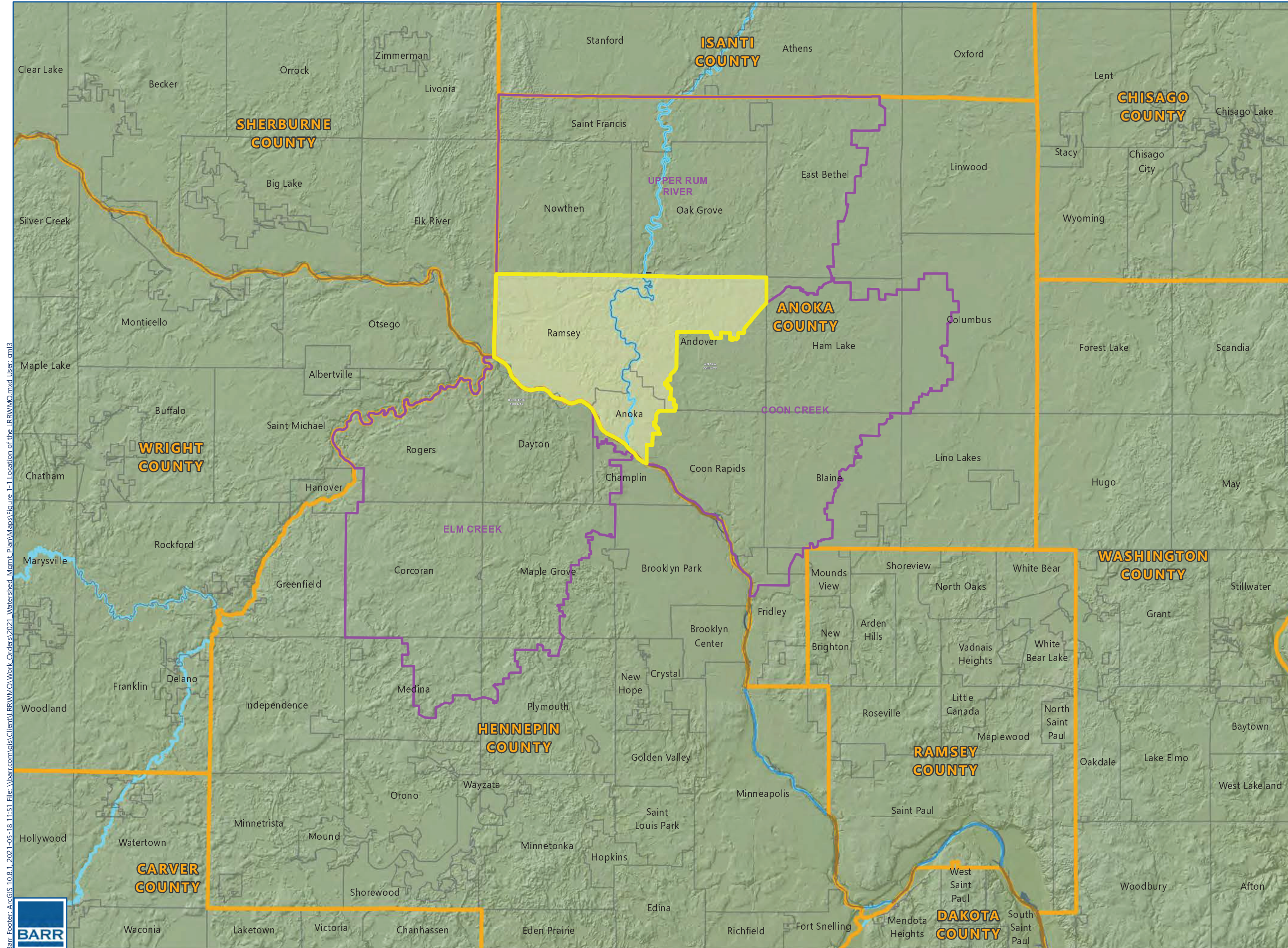
Procedures have been established to finance capital improvement projects in such a manner that costs

can be equitably distributed to benefited members for projects of benefit to more than one member. Where only one member community is benefited, that community will be responsible for the entire cost.

The powers and duties of the LRRWMO, as enacted by the Board, are listed in Section VI of the JPA and include, briefly:

1. Have the powers and duties set in the JPA and prescribed by law as it relates to flood control, water quality, groundwater recharge, water conservation, construction of facilities, and other duties set forth in Minnesota Statutes 103B
2. Employ persons or contract with consultants as necessary to accomplish its duties and powers
3. Contract for space, materials, and supplies to carry on its activities with a member city or elsewhere
4. Acquire necessary personal property to carry out its powers and duties
5. Develop an overall plan (watershed management plan) containing a capital improvement program that shall meet the requirements of Minnesota Statutes 103B
6. Make necessary surveys or use other information and develop projects to accomplish the purposes for which the LRRWMO is organized.
7. Enter into contracts or cooperate with governmental agencies, private/public organizations, or individuals to accomplish the purposes for which the LRRWMO is organized.
8. Order any member city to construct, clean, repair, or otherwise alter any ditch, drain, storm sewer, or watercourse in the LRRWMO as necessary to implement the Plan
9. Order any member city to acquire, operated, construct, or maintain dikes, dams, and reservoirs as necessary to implement the Plan
10. Regulate, conserve and control the use of stormwater, surface water and groundwater within LRRWMO.
11. Contract for or purchase insurance, as needed.
12. Establish and maintain devices for acquiring and recording hydrological and water quality data within the watershed.
13. Enter upon lands to make surveys and investigations to accomplish the LRRWMO's purposes.
14. Provide any member city with technical data or other information to assist the city in preparing its local watershed management plan.
15. Provide legal and technical assistance in connection with litigation or other proceedings between one or more of its members and any other unit of government relating to drainage or water quality within the LRRWMO.
16. Accumulate reserve funds and invest funds not currently needed for LRRWMO operations.

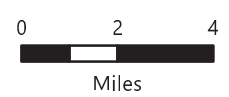
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17. Collect money from the LRRWMO member cities, Anoka County, and from any other approved by the majority of its Commissioners
 18. Accept gifts, apply for, and use grants or loans of money or other property.
 19. Make contracts, employ staff or consultants, incur expenses and make expenditures.
 20. Obtain an annual audit of the LRRWMO books and accounts.
 21. Make its books, reports, and records available for and open to inspection by its member cities.
 22. Recommend changes to the joint powers agreement to its member cities.
 23. Exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth in the joint powers agreement and state law.
 24. Cooperate with the Minnesota Department of Natural Resource (MDNR) in obtaining protected waters permits and complying with Minnesota law regarding protected waters.
 25. Member cities may conduct separate or concurrent studies on any matter under study by the LRRWMO.
 26. Establish a procedure for establishing citizen or technical advisory committees and to provide other means for public participation.



- LRRWMO Boundary
- Adjacent Watershed Management Districts and Organizations
- County Boundary
- Municipal Boundary
- Major River

Data Source: MDNR, BWSR

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:51 File: \\barr.com\gis\client\LRRWMO\Work Orders\2021_Watershed_Mgmt_Plans\Map\Figure 1-1_Location_of_the_LRRWMO.mxd User: cm13



LOCATION OF THE LRRWMO
2021 LRRWMO Watershed Management Plan

FIGURE 1-1

2 Land and Water Resource Inventory

This section summarizes the land and water resources located within the LRRWMO. It contains information on climate and precipitation, topography and drainage, land use, soils, geology, groundwater, surface waters, natural areas, habitat, and rare species, recreation, and potential pollutant sources. Land and water resource information is important because it describes the condition of the watershed and how those conditions impact decisions about infrastructure, development, and resource management.

2.1 Climate and Precipitation

The climate of the seven county Twin Cities Metropolitan Area is a humid continental climate, characterized by moderate precipitation (normally sufficient for crops), wide daily temperature variations, large seasonal variations in temperature, warm humid summers, and cold winters with moderate snowfall. Climate data is often presented according to 30-year “climate normal” periods, the most recent spanning the period from 1991-2020. Several of the wettest years on record have been observed since 2010. Deviation from climate normal and data since 2010 are discussed in Section 2.1.2. Climate data presented in this section is based on the 10-year period from 2011 through 2020, unless otherwise noted.

The mean annual temperature in the LRRWMO is 43.7°F, as measured at Andover 1N station (2011-2020). Mean monthly temperatures vary from 13.3°F in January to 72.1°F in July (2011-2020) (see Table 2-1). For the 1981-2010 climate normal period, the average frost-free period (growing season) was approximately 157 days.

Table 2-1 summarizes monthly precipitation data near the City of Anoka based on the Minnesota Climatology Working Group [gridded precipitation dataset](#) for the most recent complete climate normal period (1991-2020) and 10-year period (2011-2020). Average total annual precipitation is 33.4 inches (2011-2020). The mean monthly precipitation varies from 5.3 inches in May to 0.6 inches in February (2011-2020). From May to September, the growing season months, the average rainfall (2011-2020) is 21.3 inches, or about 65% of the average annual precipitation. Snowfall averaged 45.6 inches annually at the [Andover, MN station](#) during the between the 2010-2011 winter and 2020-2021 winter ([MDNR, 2021](#)).

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

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

Table 2-1 Climate and Precipitation Data

Month	2011-2020 Mean Temperature (F)	1991-2020 Precipitation (inches)	2011-2020 Precipitation (inches)
January	13.3	0.82	0.62
February	15.6	0.87	1.13
March	30.1	1.59	1.50
April	41.9	2.99	3.23
May	56.7	4.25	5.31
June	67.2	4.50	4.46
July	72.1	4.20	4.86
August	68.6	4.16	3.93
September	61.4	3.17	2.70
October	46.2	2.78	2.90
November	31.9	1.69	1.41
December	20.2	1.16	1.34
Total	43.7	32.2	33.4

Source: Minnesota Climatology Working Group [gridded precipitation dataset](#) (1991-2020 precipitation, 2011-2020 precipitation); [NWS, Andover 1N station](#) (2011-2020 temperature)

2.1.1 Precipitation-Frequency Data (Atlas 14)

The amount, rate, and type of precipitation are important in determining flood levels and stormwater runoff rates. While average weather poses little risk to human health and property, extreme precipitation events may result in flooding that threatens infrastructure and public safety. NOAA published Atlas 14, Volume 8, in 2013. Atlas 14 is the primary source of information regarding rainfall amounts and frequency in Minnesota. Atlas 14 provides estimates of precipitation depth (i.e., total rainfall in inches) and intensity (i.e., depth of rainfall over a specified period) for durations from 5 minutes up to 60 days. Atlas 14 supersedes publications Technical Paper 40 (TP-40) and Technical Paper 49 (TP-49) issued by the National Weather Bureau (now the National Weather Service) in 1961 and 1964, respectively. Atlas 14 improvements in precipitation estimates include denser data networks, longer (and more recent) periods of record, application of regional frequency analysis, and new techniques in spatial interpolation and mapping. Comparison of precipitation depths between TP-40 and Atlas 14 indicates increased precipitation depths for more extreme (i.e., less frequent) events. Table 2-2 lists selected rainfall events for the District.

Runoff from spring snowmelt is not provided in Atlas 14 and current regional snowmelt runoff data is not available (Minnesota Stormwater Manual, 2019). Older estimates of snowmelt runoff come from the

Hydrology Guide for Minnesota (USDA Soil Conservation Service – NRCS, 1975, see Table 2-2). Snowmelt and rainstorms occurring during snowmelt in early spring are significant in this region. The volumes of runoff generated, although they occur over a long period, can have significant impacts where the contributing drainage area to a lake or pond is large and the outlet is small.

Table 2-2 Selected Rainfall Events Used for Design Purposes

Type	Frequency	Duration	Depth (in)
Rainfall	2-year	24 hour	2.86
	5-year	24 hour	3.59
	10-year	24 hour	4.26
	25-year	24 hour	5.30
	50-year	24 hour	6.18
	100-year	24 hour	7.14
	10-year	10 day	6.85
	100-year	10 day	10.1
Snowmelt	10-year (10%)	10 day	4.7
	25-year (4%)	10 day	5.7
	50-year (2%)	10 day	6.4
	100-year (1%)	10 day	7.1

Source: NOAA Atlas 14 – Volume 8 interpolated to centroid of LRRWMO; depths reflect the 50% exceedance limit. Snowmelt values from Hydrology Guide for Minnesota (USDA Soil Conservation Service – NRCS) and reported as liquid water.

2.1.2 Climate Trends and Future Precipitation

There are typically wide variations in climate conditions in the District. However, climatologists have found four significant recent climate trends in the Upper Midwest (NOAA, 2013):

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

According to NOAA’s 2013 assessment of climate trends for the Midwest, annual and summer precipitation amounts in the Midwest are trending upward, as is the frequency of high intensity storms. Annual precipitation at the University of Minnesota-Saint Paul averaged 35.8 inches from 2011-2020, a

3.6-inch increase over the previous climate normal period (1981-2010). Annual precipitation exceeded the previous 1981-2010 climate normal average (32.2 inches) in 7 of 8 years since 2010.

Higher intensity precipitation events typically produce more runoff than lower intensity events with similar total precipitation amounts; higher rainfall intensities are more likely to overwhelm the capacity of the land surface to infiltrate and attenuate runoff. Precipitation data from the Mississippi River-Twin Cities basin dating back to 1895 (available from the MDNR climate trends website) indicates that annual precipitation, averaged over 30-year climate normal periods, is increasing (see Figure 2-1).

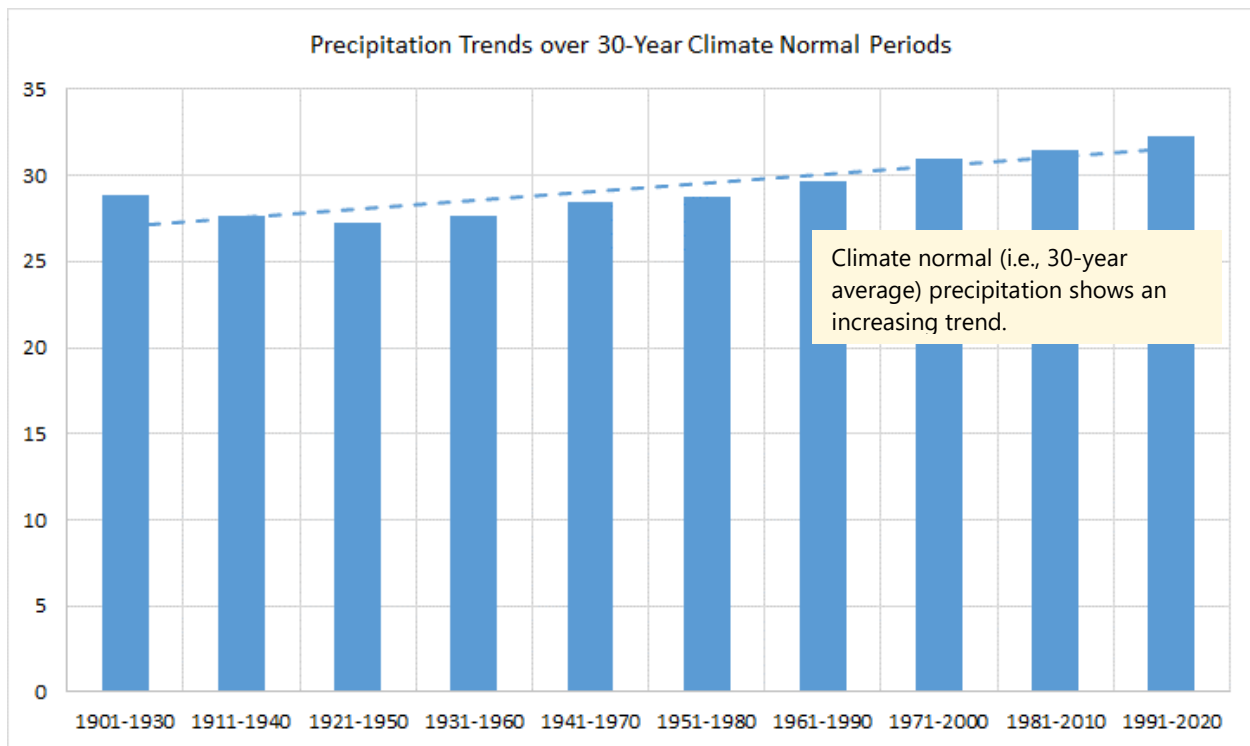


Figure 2-1 Trends in Average Annual Precipitation (Twin Cities Region)

The study of long-term extreme weather trends found that precipitation amounts are predicted to increase significantly over what is historically used in floodplain assessments and infrastructure design. Recent work completed by the University of Minnesota (Moore et al., 2016) provides information useful to consider long-term extreme weather trends in the region. A range of estimates for the mid-21st century 100-year 24-hour rainfall event was identified. The lower estimate for the mid-21st century 100-year, 24-hour rainfall estimate was approximately 7.3 inches, which is similar to the current mean 100-year rainfall depth published in Atlas 14 (7.8 inches). The middle estimate is 10.2 inches, which is similar to the upper limits of the Atlas 14 90-percent confidence limits for the 100-year rainfall depth (10.4 inches). Upper estimates of mid-21st century 100-year 24-hour rainfall exceed the 90-percent confidence limits of Atlas 14.

Additional information about climate change is available from NOAA and the Minnesota Department of Natural Resources (MDNR) at:

- <https://www.noaa.gov/news/new-us-climate-normals-are-here-what-do-they-tell-us-about-climate-change>
- https://www.dnr.state.mn.us/climate/climate_change_info/index.html

2.2 Topography and Drainage

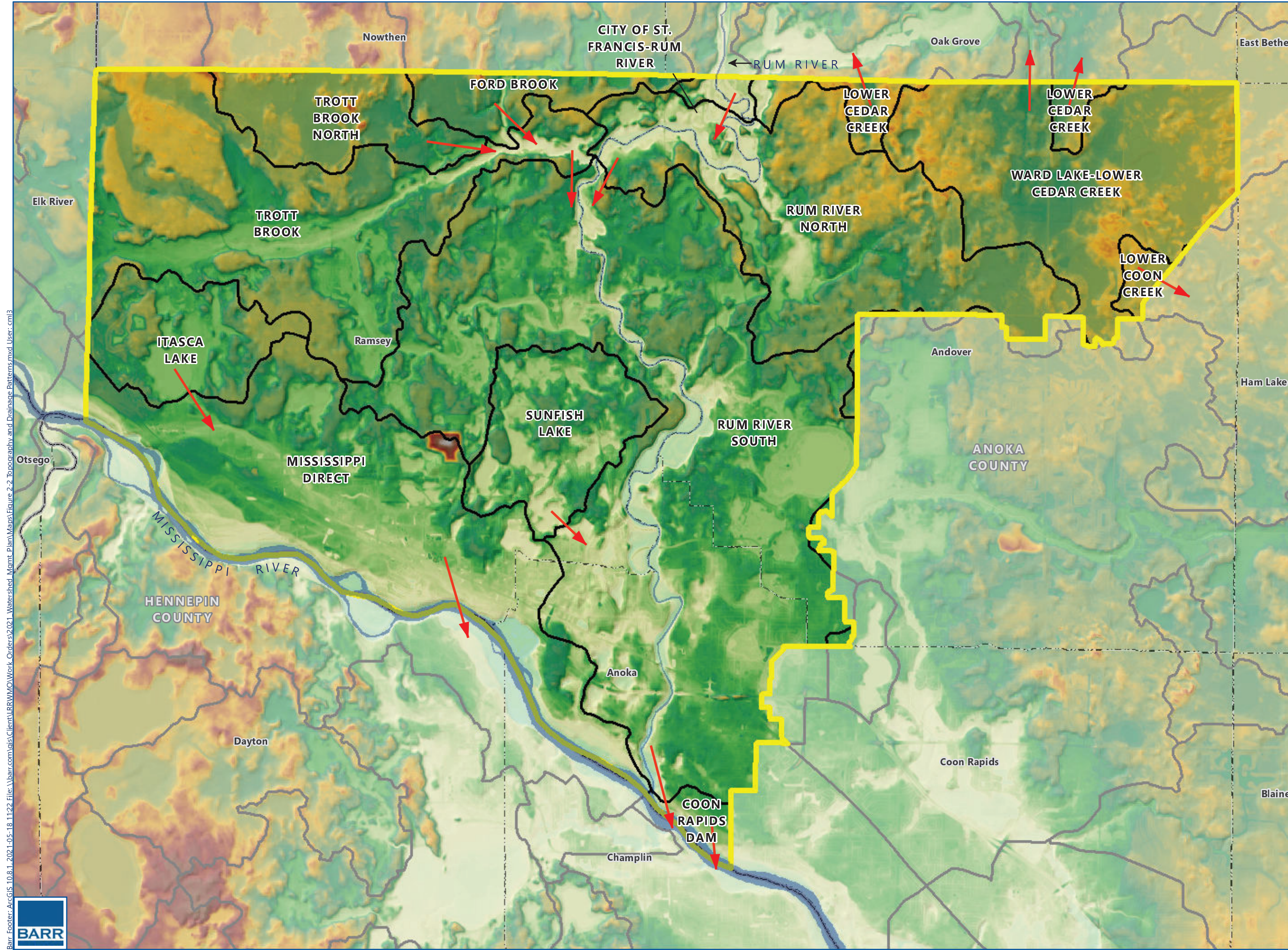
The topography of the watershed is gently rolling to flat. There are many shallow lakes, ponds, and wetlands in the watershed owing in part to a surficial water table that is generally close to the ground surface (see Section 2.6). The local topographic gradient slopes from the northwest and northeast portions of the watershed towards the Rum River, and from the northeast to the southwest towards the Mississippi River. High ground in the northwest and northeast portions of the watershed reach heights of approximately 920 feet MSL. The minimum elevation of approximately 830 feet occurs the downstream boundary with the Mississippi River. LiDAR elevation data collected in 2011 by the MDNR is presented in Figure 2-2.

The LRRWMO includes portions of 13 MDNR level 8 watersheds. MDNR level 8 watersheds located within the LRRWMO are shown in Figure 2-2 and summarized in Table 2-3. The Plan name refers to the name assigned to each level 8 watershed for LRRWMO resource management purposes; the HUC12 name assigned to each level 8 watershed is also noted. These watershed divides are generally consistent with those used for water quality modeling document in the Rum River WRAPS study (see Section 2.7.4.1).

Table 2-3 MDNR Level 8 Watersheds within the LRRWMO

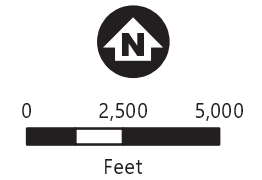
Plan Watershed	Area within LRRWMO (acres)	Catchment ID	HUC12 Name
Mississippi Direct	5,437	2004100	City of Anoka-Mississippi River
Itasca Lake	1,373	2004101	
Coon Rapids Dam	250	2005600	Coon Rapids Dam-Mississippi River
Lower Coon Creek	183	2005800	Lower Coon Creek
Trott Brook	4,993	2105200	Trott Brook
Trott Brook North	1,313	2109400	
Ford Brook	733	2109300	Ford Brook
City of St. Francis-Rum River	164	2109500	City of St. Francis-Rum River
Lower Cedar Creek	547	2109700	Lower Cedar Creek
Ward Lake-Lower Cedar Creek	3,739	2109900	
Rum River North	4,432	2110000	Rum River
Rum River South	11,418	2110100	
Sunfish Lake	1,677	2110101	

Source: MNDR level 8 watersheds (area reflects area within LRRWMO legal boundary)



- County Boundary
 - Municipal Boundary
 - LRRWMO Boundary
 - Watershed (MDNR Level 8)
 - Watershed (Level 8) Flow Direction
 - River
- Elevation (m)
- High (315 m)
 - Low (250 m)

Topography Source: USGS National Elevation Dataset 1-arc second DEM; Minnesota DNR Level 8 watersheds.



TOPOGRAPHY AND DRAINAGE PATTERNS
 2021 LRRWMO Watershed Management Plan

FIGURE 2-2

Barr Footer: ArcGIS 10.8.1, 2021-05-18, 11:22 File: \\barr.com\gis\client\LRRWMO\Work Orders\2021\Watershed_Mgmt_Plan\Map\Figure 2-2 Topography and Drainage Patterns.mxd User: cmj3



2.3 Land Use

The Lower Rum River Watershed, in south-central Anoka County, is on the northern edge of the metropolitan area. Land use within the watershed (2016 data provided by the Metropolitan Council) is summarized in Table 2-4 and Figure 2-3.

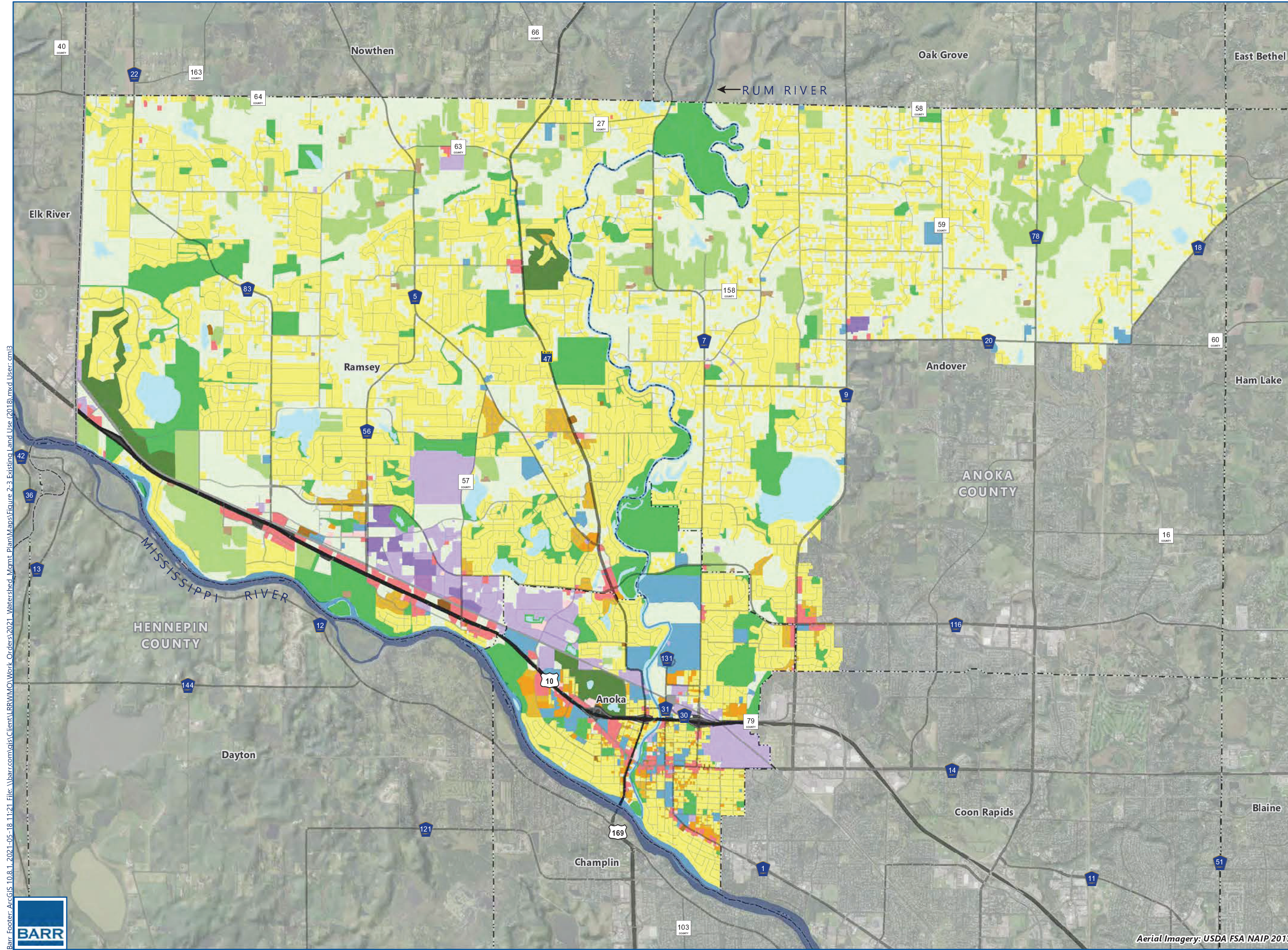
The development that has occurred within the LRRWMO boundary has generally consisted of from agricultural to rural residential land use. Agricultural land use now occupies less than 10% of the watershed, while single family residential land use occupies approximately 40% of the watershed. A significant portion (about 33%) of the watershed remains undeveloped.

Continued development of open space for residential, commercial, and other uses is anticipated over the next twenty years; additional information is available in the 2040 comprehensive plans for the cities of Andover, Anoka, and Ramsey. Estimated 2040 land use available from the Metropolitan Council is presented in Figure 2-4. The development of open space for residential or other land uses typically increases the amount of impervious surfaces (i.e., surfaces through which water cannot infiltrate), increasing the volume of stormwater runoff and associated pollutant loading. Thus, the continued implementation of stormwater performance standards for development (see Appendix E) continue to be an important means of mitigating future water quality and water quantity issues (see Section 5.3.2.1).

Table 2-4 Existing Land Use (2016)

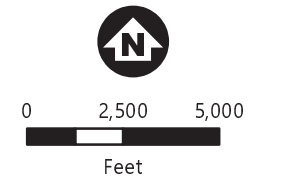
Land Use	Acres	Percent Area
Agricultural or Farmstead	2,976	8.2%
Commercial or Retail	478	1.3%
Golf Course	466	1.3%
Industrial and Utility	1,006	2.8%
Institutional	669	1.8%
Mixed Use	168	0.5%
Open Water	1,425	3.9%
Park, Recreational, or Preserve	2,955	8.1%
Residential, Single Family	13,582	37.3%
Residential, Multifamily	183	0.5%
Transportation (Highway, Rail)	389	1.1%
Undeveloped	12,019	33.0%
Other	78	0.2%
Total	36,394	100.0%

Source: Metropolitan Council



- County Boundary
- Municipal Boundary
- River
- Existing Land Use**
- Farmstead
- Single Family Detached
- Manufactured Housing
- Park
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Industrial and Utility
- Extractive
- Institutional
- Park, Recreational or Preserve
- Golf Course
- Major Highway
- Railway
- Agricultural
- Undeveloped
- Water

Data Source: Generalized Land Use 2016, Metropolitan Council, 2016.



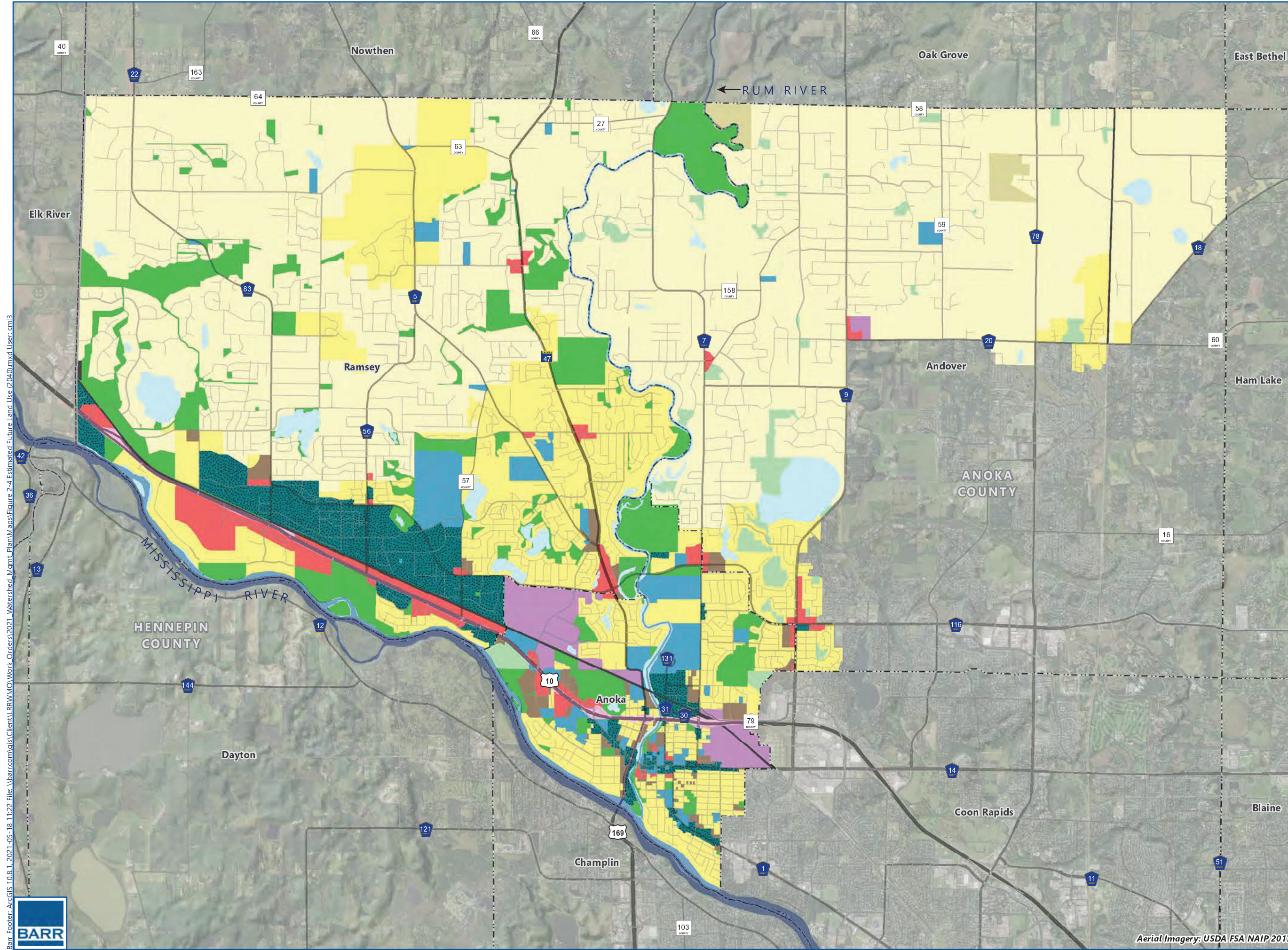
EXISTING LAND USE (2018)
 2021 LRRWMO Watershed Management Plan

FIGURE 2-3

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:21 File: \\barr.com\gis\client\LRWMO\Work Orders\2021\Watershed_Mgmt_Plans\Map\Figure 2-3 Existing Land Use (2018).mxd User: cm13

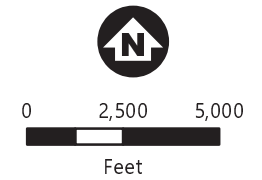


Aerial Imagery: USDA FSA NAIP 2017



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

Data Source: Regional Planned Land Use - Twin Cities Metropolitan Area, Metropolitan Council, 2020.



ESTIMATED FUTURE LAND USE (2040)
 2021 LRRWMO Watershed Management Plan
 FIGURE 2-4

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:22 File: \\barr.com\gis\client\LRWMO\Work Orders\2021\Watershed_Mgmt_Plan\Map\Figure 2-4_Estimated Future Land Use (2040).mxd User: cml3



Aerial Imagery: USDA FSA NAIP 2017

2.4 Soils

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

Soils present within the watershed generally belong to the following associations, as described in the Anoka County Soil Survey (There are two general soil associations in the watershed (Source: Anoka County Soil Survey), a description of each association follows.

The **Hubbard-Nymore association** is a nearly-level to gently sloping outwash plain which covers most of the watershed. The association is dissected by well-defined drainageways. Because it is sandy throughout, the association is well suited for urban development; in fact, most of the area covered by this soil is already developed.

The **Zimmerman-Isanti-Lino association** is level to undulating and dominated by fine sands. This association generally covers the City of Andover northeast of Round Lake. The sandplain has a naturally occurring high water table. Most of this association is urbanized, although the high water table has limited uses in some areas.

Soil infiltration capacity affects the amount of direct runoff resulting from rainfall. Higher infiltration rates result in lower potential for runoff, as more precipitation is able to enter the soil. Conversely, soils with low infiltration rates produce high runoff volumes and high peak discharge rates, as most or all of the rainfall moves as overland flow. The Natural Resources Conservation Service (NRCS – formerly the Soil Conservation Service) has established four general hydrologic soil groups (HSGs). These groups are:

Hydrologic Soil Group A—(Low runoff potential): Group A soils have a high infiltration rate and are typically composed of more than 90% sand and gravel.

Hydrologic Soil Group B—(Moderately low runoff potential): Group B soils have a moderate infiltration rate and are typically composed of 50-90% sand.

Hydrologic Soil Group C—(Moderately high runoff potential): Group C soils have a slow infiltration rate and are composed of less than 50% sand.

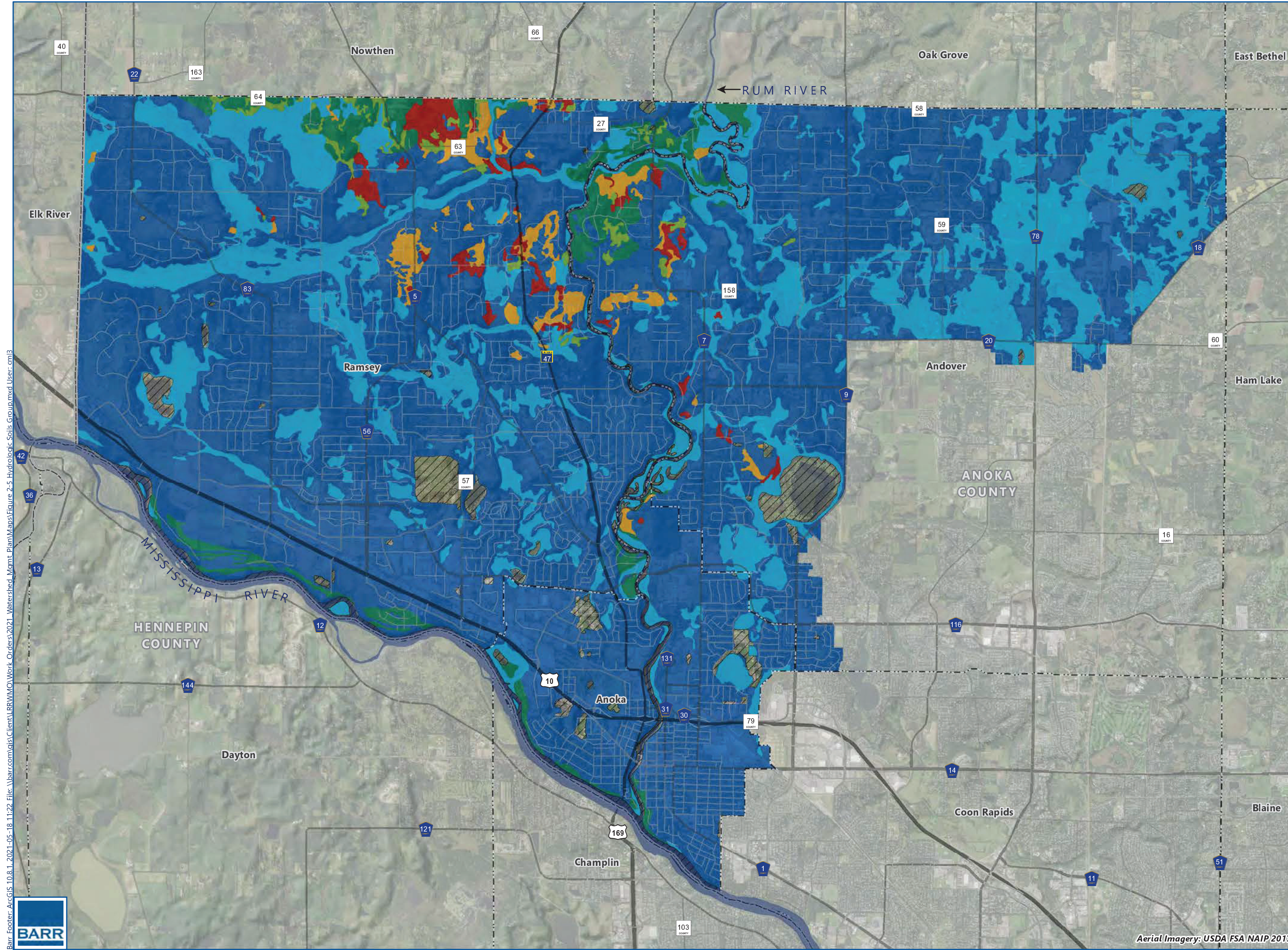
Hydrologic Soil Group D—(High runoff potential): Group D soils have a very slow infiltration rate and are composed of more than 40% clay. These soils have a combination of high swelling potential, a permanently high water table, and a clay layer at or near the surface.

Dual HSGs (types A/D, B/D, and C/D) are soils that are considered D soils primarily because of a high water table. However, if the soil were drained it would be classified into a different group. The second group listed for dual HSG soils is for an undrained condition. For the purpose of evaluating infiltration

capacity, dual HSGs are usually considered as D soils. The most current soils data within the watershed are based on the Soil Survey Geographic dataset (SSURGO) from the NRCS and are presented in Figure 2-5.

Portions of the watershed are not rated with respect to HSG. The “Not Rated/Not Available” classification is typically assigned to areas where development has altered the existing soil, or data were unavailable prior to development. Development may increase the potential for high volumes of runoff. As land is developed for urban use, much of the soil is covered with impervious surfaces, and soils in the remaining areas are significantly disturbed and altered. Development often results in consolidation of the soil and tends to reduce infiltration capacity of otherwise permeable soils, resulting in significantly greater amounts of runoff. Grading, plantings, and tended lawns tend to dominate the pervious landscape in urbanized areas and may become more important factors in runoff generation than the original soil type.

Figure 2-5 provides general guidance about the infiltration capacity of soils. Site specific data such as geologic borings, piezometers, and other engineering studies are necessary to evaluate soil infiltration capacity for individual project sites.



County Boundary
 Municipal Boundary
 River
Hydrologic Soil Group
 A
 A/D
 B
 B/D
 C
 C/D
 Not Rated

Data Source: Soil Survey Staff, NRCS
 USDA, Soil Survey Geographic (SSURGO)
 Database. Accessed 9/30/2020.

0 2,500 5,000
 Feet

**HYDROLOGIC
 SOIL GROUPS**
 2021 LRRWMO Watershed
 Management Plan
FIGURE 2-5

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:22 File: \\barr.com\gis\client\LRWMO\Work Orders\2021\Watershed_Mgmt_Plan\Map\Figure 2-5_Hydrologic Soils_Group.mxd User: cmj3



Aerial Imagery: USDA FSA NAIP 2017

2.5 Geology

2.5.1 Surficial Geology

The geology of the watershed includes consolidated bedrock formations overlain by unconsolidated glacial sediments (also known as quaternary deposits). Unconsolidated glacial sediments are from glacial deposits left from the quaternary geologic period and modified by post-glacial erosion and soil formation processes. Most of the quaternary deposits in the watershed were deposited approximately 12,000 to 20,000 years ago by the Des Moines lobe (Grantsburg sublobe) of the Wisconsin Glaciation (the most recent local glacial episode) (Meyer, 2012). The Grantsburg sublobe deposited a silty till that was reworked by glacial meltwater over much of the watershed into sand plain, sandy lacustrine and valley train deposits. These glacial deposits, along with older, buried glacial deposits, range from 100 to 250 feet in thickness within the watershed. The watershed is almost entirely located within the [Anoka sand plain](#), a flat, sandy lake plain and terraces along the Mississippi River. This is a highly permeable sand layer with generally high water table.

More information about the surficial geology of the LRRWMO is available from the Anoka County Geologic Atlas at: <https://conservancy.umn.edu/handle/11299/116119>

2.5.2 Bedrock Geology

Consolidated bedrock formations (bedrock deposits) are much older than, and lie below, the glacial deposits. They include overlapping sequence of sandstones, limestones, dolostones, and shales. The uppermost layer of bedrock varies with location but is generally belongs to the St. Lawrence formation or Tunnel City group (formerly Franconia formation). Buried bedrock valleys that cut down to the Wonewoc sandstone and Eau Claire formation occur in the north and southeast portions of the watershed (Mossler, 2011). The Eau Claire Formation acts as a confining unit between the overlying Wonewoc sandstones and the underlying Mt. Simon Sandstone-Hinckley Sandstone aquifer. Bedrock characteristics are summarized in Table 2-5.

Table 2-5 Bedrock geology characteristics

Geologic Unit	Approximate Thickness (feet)	Description	Water-Bearing Characteristics
Glacial Drift	100-250	Till, sand, gravel, lake deposits	May yield small supplies for domestic use
St. Lawrence Formation	40-50	Dolomitic siltstone and sandstone	Confining bed with little yield
Tunnel City Group	140-180	Fine to very fine grain	May yield small supplies for limited use
Wonewoc Sandstone	50-60	Fine to coarse grain, moderately sorted sandstone	A significant aquifer within the LRRWMO watershed
Eau Claire Sandstone	75-80	Fine grained sandstone, siltstone and shale	Confining bed with little yield
Mount Simon Sandstone	125-200	Medium to coarse grain	A significant aquifer in the Twin Cities metropolitan area

Source: Anoka County Geologic Atlas

More information about the bedrock geology of the LRRWMO is available from the Anoka County Geologic Atlas at: <https://conservancy.umn.edu/handle/11299/116119>

2.6 Groundwater

The glacial and bedrock deposits form layered sequence of aquifers and confining unit. An aquifer is a geologic formation capable of supplying sufficient quantities of water to a well. A confining unit is a geologic deposit that impedes the flow of water between aquifers (see also the *Anoka County Geologic Atlas* (Setterholm, 2013)).

The uppermost aquifers in the LRRWMO are glacial deposits. Glacial aquifers (also known as surficial aquifers) include the water table and buried glacial aquifers, which are primarily used for domestic purposes. Glacial aquifers are variable in location and yield. Groundwater quality in glacial aquifers is often correlated to the quality of the water that is infiltrating at the surface. The regional groundwater flow within the surficial aquifers and glacial drift is generally to the south, except near the Rum River where ground water tends to flow toward these surface waters. The Rum River is predominately a discharge area for groundwater. Areas not near the Rum River are predominately groundwater recharge areas (see Section 2.6.1).

Most high-capacity wells draw water from bedrock aquifers. The bedrock aquifers within the District include the following:

- **Tunnel City-Wonewoc Aquifer** (formerly Franconia-Ironton-Galesville Aquifer) – This aquifer includes three hydrogeologically connected layers. Groundwater flow in this aquifer is generally towards the Mississippi River. Within this aquifer, the hydraulic conductivity is variable. This

aquifer generally has moderate to low yield; wells completed within this aquifer may be capable of producing up to several hundred gallons of water per minute. Many wells within the LRRWMO utilize this source (MDNR, 2016), including some municipal wells.

- **Mt. Simon-Hinckley Aquifer** – This aquifer underlies all of Anoka County and is composed of fine- and coarse-grained sandstone. Groundwater flow is generally south towards a cone of depression formed by pumping in Hennepin County. The aquifer has moderate to high yield, low vulnerability to contamination, and is used in the watershed for municipal drinking water supplies. The MDNR has placed restrictions on the placement of wells within the Mt. Simon in the Metropolitan Area.

The Metropolitan Council completed the Regional Water Supply, Enhanced Groundwater Recharge, and Stormwater Capture and Reuse Study for the Northwest Metro Study Area in 2018. Groundwater modeling performed as part of the study estimates future impacts to local aquifers from continued development of groundwater sources, including up to 30 feet of decline in the Tunnel City-Wonewoc aquifer by 2040 that may limit the availability of groundwater resources in the future. Users of groundwater meeting certain use criteria are required to obtain a water appropriations permit from the MDNR; more information is available from:

https://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/index.html

Additional information about the aquifers within the watershed is available from the following sources:

- Regional Hydrogeologic Assessment (RHA) of the Anoka Sand Plain (MDNR, 1993), available at: https://www.dnr.state.mn.us/waters/programs/gw_section/mapping/platesum/rha_asp.html
- Anoka County Geologic Atlas, Part B – Hydrogeology (MDNR, 2016), available at: https://www.dnr.state.mn.us/waters/programs/gw_section/mapping/platesum/anokcga.html
- Metropolitan Council Water Supply Planning, available at: <https://metro council.org/Wastewater-Water/Planning/Water-Supply-Planning.aspx>

2.6.1 Groundwater Recharge

Recharge to groundwater occurs throughout the watershed. The local surficial geologic characteristics affect the rate, volume, and distribution of recharge. Water infiltrates most rapidly into sandy deposits and flows easily through sandy materials; clay deposits tend to slow and impede infiltration and subsurface flows. Relative to natural conditions, impervious surfaces (e.g., buildings, streets, parking lots) in developed areas have reduced the amount of open space and decreased the amount of land available to infiltrate runoff and recharge groundwater.

Surficial aquifers usually have higher static water levels than deeper aquifers, indicating that water flows downward into the aquifer system and that surficial aquifers help recharge deeper aquifer systems. Deeper bedrock aquifers are recharged through bedrock valleys, leakage through confining layers, fractures in tills and confining layers, improperly constructed wells, and other areas where good hydraulic connections and unforeseen flowpaths exist with upper aquifer units.

Groundwater recharge reaches the water table (i.e., quaternary or surficial aquifer) at a fast rate through sandy geologic deposits. The location of the watershed within the Anoka sand plain creates the potential for high infiltration rates throughout the LRRWMO and associated groundwater contamination from pollutants carried from the ground surface. The sensitivity of the surficial aquifer to contamination was assessed as part of the MDNR's 1993 Regional Hydrogeologic Assessment (RHA) and is presented in Figure 2-6. Management of stormwater runoff in the watershed must consider and the ease with which contaminants will enter the system and be transported through it (Meyer et al., 2013).

2.6.2 Drinking Water Supply, Wellhead Protection, and Pollution Prevention

Residents within the LRRWMO obtain their drinking water from municipal groundwater wells and private domestic wells. Approximately 50% of the cities of Andover and Ramsey, and all of Anoka, are served by municipal systems. Most private wells are located in the surficial aquifer, which is sensitive to contamination within the watershed (see Figure 2-6). Municipal wells within the LRRWMO tap the Mt. Simon aquifer, Tunnel City-Wonewoc aquifer, as well as the surficial aquifer.

In 1989 the state of Minnesota instituted the Minnesota Groundwater Protection Act, which identified the Minnesota Department of Health (MDH) as responsible for the protection of groundwater quality. Through its wellhead protection program, the MDH administers and enforces the Minnesota Water Well Code, which regulates activities such as well abandonment and installation of new wells. The MDH also administers the Wellhead Protection Program, which is aimed at preventing contaminants from entering the recharge zones of public well supplies. In 1997, the Wellhead Protection Program rules (Minnesota Rules 4720.5100 to 4720.5590) went into effect.

Some public water suppliers are required to prepare wellhead protection plans (WHPPs), including the Cities of Andover, Anoka, and Ramsey. Through these wellhead protection plans, public water suppliers delineate drinking water supply management areas (DWSMA) for groundwater wells, assess the water supply's susceptibility to contamination from activities on the land surface, and establish management programs, such as identification and sealing of abandoned wells and education/public awareness programs. The DWSMA represents the boundaries of the recharge area to the well and is the area to be protected and managed by the wellhead protection plan. DWSMAs located within the LRRWMO are presented in Figure 2-7.

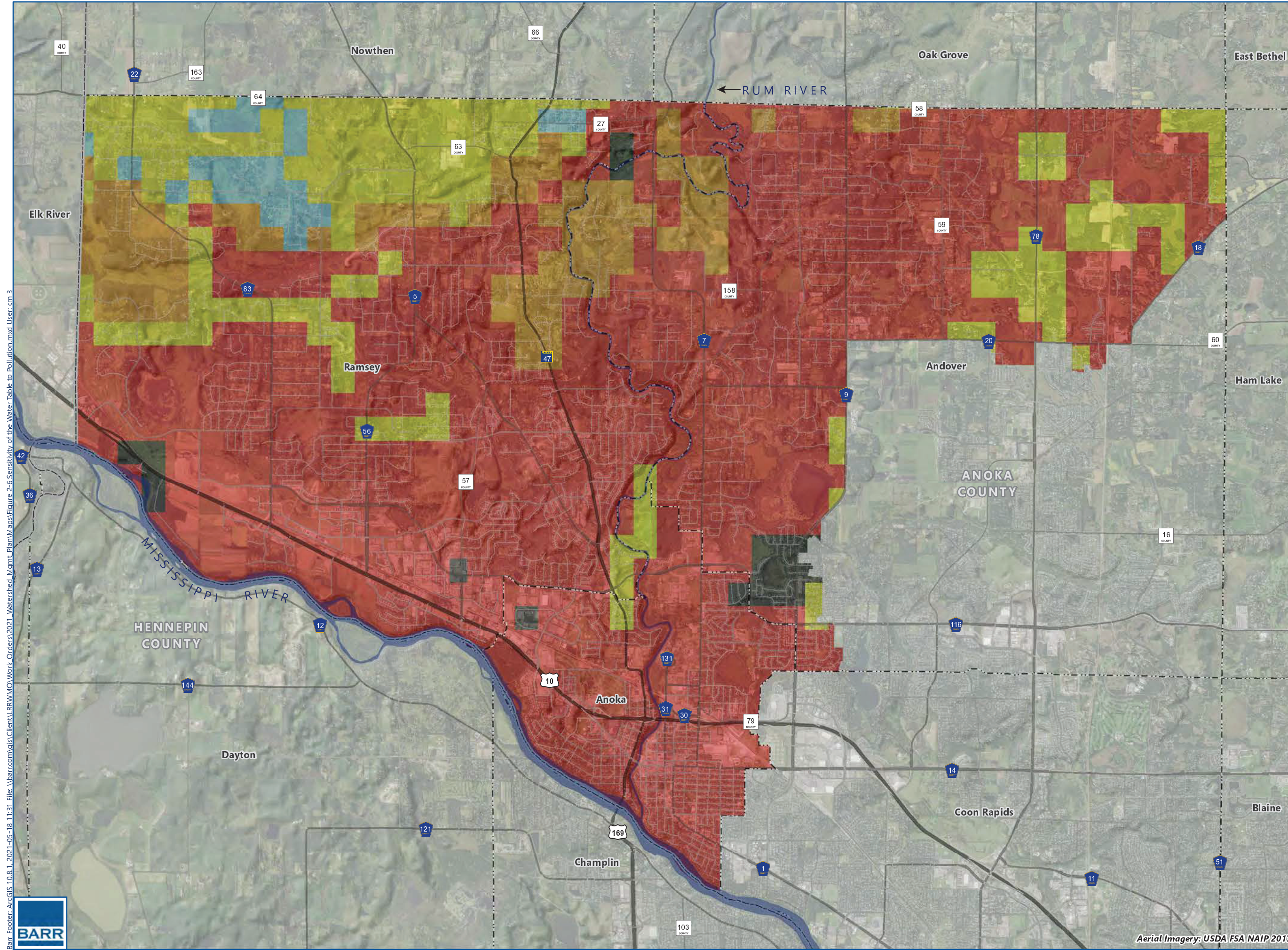
The LRRWMO and its cities rely on infiltration practices to improve water quality and reduce stormwater volumes. Thus, the LRRWMO will continue to consider the possible impacts of infiltrated stormwater on groundwater quality. The MDH and MPCA also provide guidance for evaluating infiltration projects in areas with vulnerable groundwater supplies; the guidance considers the presence of wellhead protection areas, aquifer characteristics, land use, and other factors. For example, infiltration is not allowed within DWSMA emergency response zones. Infiltration guidance is available from the MPCA website: https://stormwater.pca.state.mn.us/index.php/Stormwater_and_wellhead_protection

The LRRWMO is located within the source water protection area of the cities of Minneapolis and St. Paul. These cities draw drinking water from the Mississippi River approximately 16 miles downstream from the LRRWMO. Source water protection planning for these cities is being coordinated by the Minnesota Rural

Water Association (MRWA). The cities of Andover, Anoka, and Ramsey are members of the MRWA. The LRRWMO, through its policies, regulations, and implementation actions will continue to promote the protection and improvement of water drinking supplies downstream of the LRRWMO.

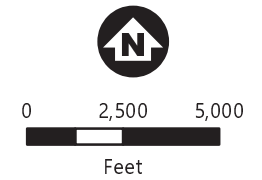
Additional information regarding groundwater resource protection and management is available from the following sources:

- 2020 Anoka County Water Resources Report, available at: <https://www.anokacounty.us/DocumentCenter/View/5631/Water-Resources-Report-2020>
- Metropolitan Council Water Supply Planning, available at: <https://metro council.org/Wastewater-Water/Planning/Water-Supply-Planning.aspx>



- County Boundary
 - Municipal Boundary
 - River
- Groundwater Contamination Susceptibility**
- Lowest Susceptibility
 - Low Susceptibility
 - Medium Susceptibility
 - High Susceptibility
 - Highest Susceptibility
 - Insufficient Data to Rank

Data Source: Ground Water Contamination Susceptibility in Minnesota, Minnesota Pollution Control Agency and Land Management Information Center, 1989.

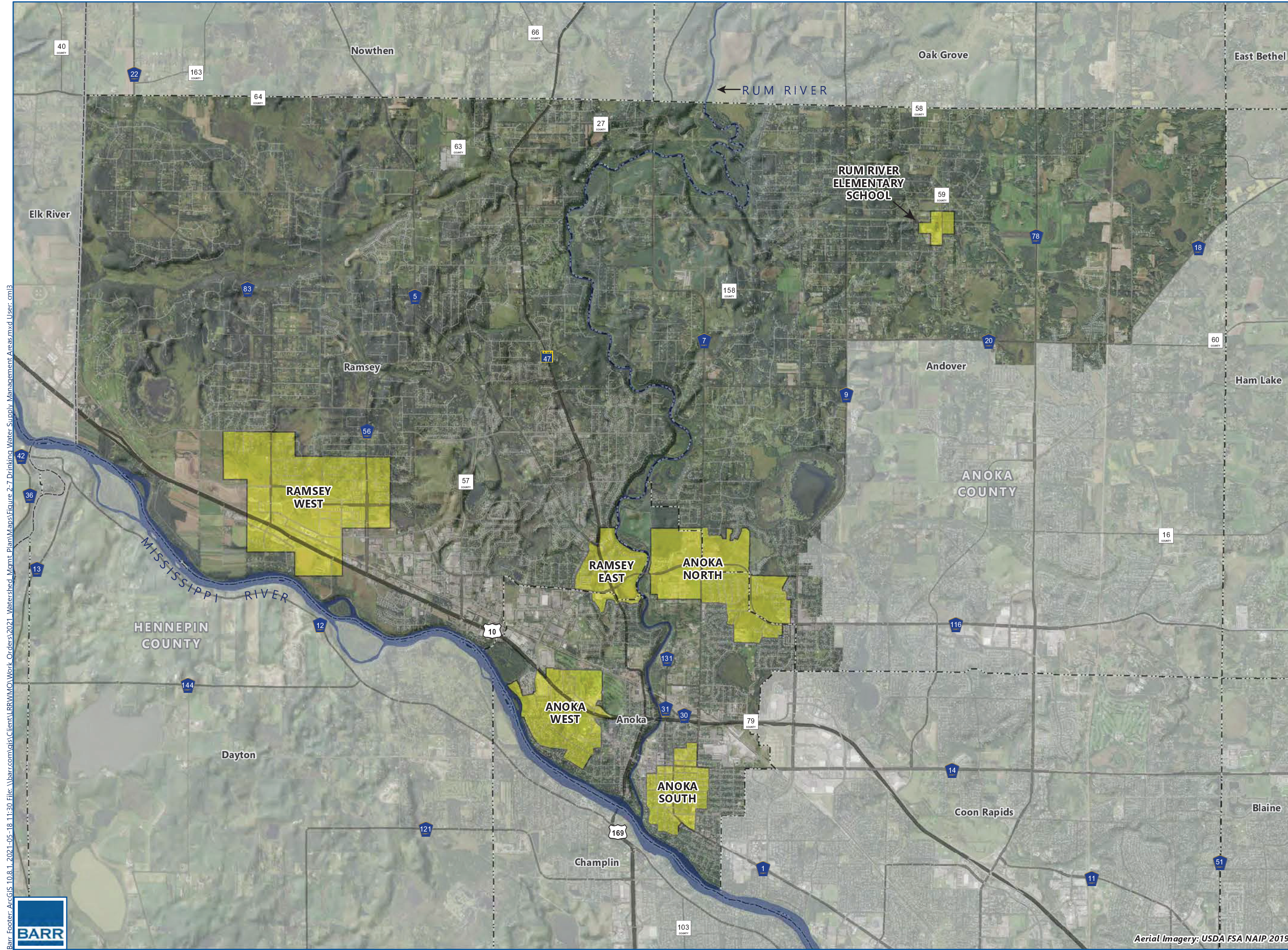






SENSITIVITY OF THE WATER TABLE TO POLLUTION
 2021 LRRWMO Watershed Management Plan
 FIGURE 2-6

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:31 File: \\barr.com\gis\client\LRWMO\Work Orders\2021\Watershed_Mgmt_Plan\Maps\Figure 2-6 Sensitivity of the Water Table to Pollution.mxd User: cm13

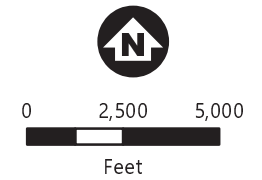


Aerial Imagery: USDA FSA NAIP 2017



-  County Boundary
-  Municipal Boundary
-  River
-  Drinking Water Supply Management Area

Data Source: Minnesota Department of Health, Drinking Water Supply Management Areas, 2019.



**DRINKING WATER SUPPLY
MANAGEMENT AREAS**
2021 LRRWMO Watershed
Management Plan

FIGURE 2-7

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:30 File: \\barr.com\gis\client\LRWMO\Work Orders\2021_Watershed_Mgmt_Plan\Map\Figure 2-7 Drinking Water Supply Management Areas.mxd User: cm13



Aerial Imagery: USDA FSA NAIP 2019

2.6.4 Groundwater Monitoring

Limited groundwater monitoring data is available within the watershed. The MPCA also implements a groundwater quality monitoring program; the program focuses on quaternary aquifers located throughout the state, including those used by private and municipal wells within the LRRWMO. Groundwater quality monitoring locations within the LRRWMO are presented in Figure 2-10. Groundwater quality monitoring information and data is available online from the MPCA at:

<https://www.pca.state.mn.us/water/groundwater-monitoring>

The MDNR also coordinates an observation well network and collects static groundwater-level data to assess groundwater resources, determine long term trends, interpret impacts of pumping and climate, plan for water conservation, and evaluate water conflicts. The observation well network includes one well located within the LRRWMO (see Figure 2-10). More information is available from the MDNR at:

<https://www.dnr.state.mn.us/waters/cgm/program.html>

2.6.5 Groundwater Quality

Long-term data for analyzing groundwater quality trends in the LRRWMO is limited. MDH tests water quality of several municipal drinking supply wells in Anoka County, but often only after treatment. Water quality testing for residential wells is available through Anoka County. Few studies have been completed, including the 1993 report "Effects of agricultural and residential land use on ground-water quality, Anoka Sand Plain Aquifer, east-central Minnesota" (USGS, 1993). Groundwater quality and data is available online from the MPCA at: <https://www.pca.state.mn.us/water/groundwater-monitoring>

Groundwater contamination has also been confirmed at landfill sites (e.g., the Anoka-Ramsey Landfill in Ramsey and the Waste Disposal Engineering Landfill in Andover) (Anoka County Human Services Division, 2020). Other potential sources of groundwater contamination in the watershed include commercial and industrial waste disposal, landfills, leaking petroleum tanks, unsealed wells, non-compliant subsurface sewage treatment systems (SSTS), fertilizer/pesticide applications, animal waste, and road salt application (see also Section 2.10). Emerging contaminants include pharmaceuticals, industrial effluents, personal care products, fire retardants, and other items that are washed down drains and not able to be processed by municipal wastewater treatment plants or septic systems.

2.7 Surface Water Resource

The LRRWMO is located upstream of the confluence of the Rum River and the Mississippi River. The Mississippi River forms much of the south and west boundary of the LRRWMO and is a major regional resource serving power generation, recreation, navigation, and ecological functions. Additionally, the Rum River is a significant regional resource serving recreational and ecological functions.

Development within the cities of Andover, Anoka, and Ramsey has resulted in alterations to the natural hydrologic system. To facilitate development, natural drainages have been diverted or piped, wetlands had been drained or filled, and stormwater infrastructure was constructed. Still, many natural hydrologic features remain in the watershed.

The natural and altered hydrologic features present in the watershed are divided into the subwatersheds (MDNR level 8) presented in Figure 2-2. Surface waters classified by the MDNR as public waters are presented in Figure 2-8. The MDNR designates certain water resources as public waters to indicate those lakes, wetlands, and watercourses over which the MDNR has regulatory jurisdiction. By statute the definition of public waters includes both “public waters” and “public waters wetlands.” The collection of public waters and public waters wetlands designated by the MDNR is generally referred to as the public waters inventory, or PWI.

Public waters are all water basins (i.e., lakes, ponds, wetlands) and watercourses (i.e., streams, rivers) that meet the criteria set forth in Minnesota Statutes, Section 103G.005, Subd. 15 that are identified on public water inventory maps and lists authorized by Minnesota Statutes, Section 103G.201. The regulatory boundary of public waters and public water wetlands is called the ordinary high water level (OHWL). For watercourses, the OHW is generally the elevation of the top of the bank of the channel. A MDNR permit is required for work within designated public waters. Additionally, shoreland development requirements may exist for public waters with shoreland classifications. Table 2-6 summarizes the public waters located within the watershed. PWI maps and lists are available on the MDNR’s website:

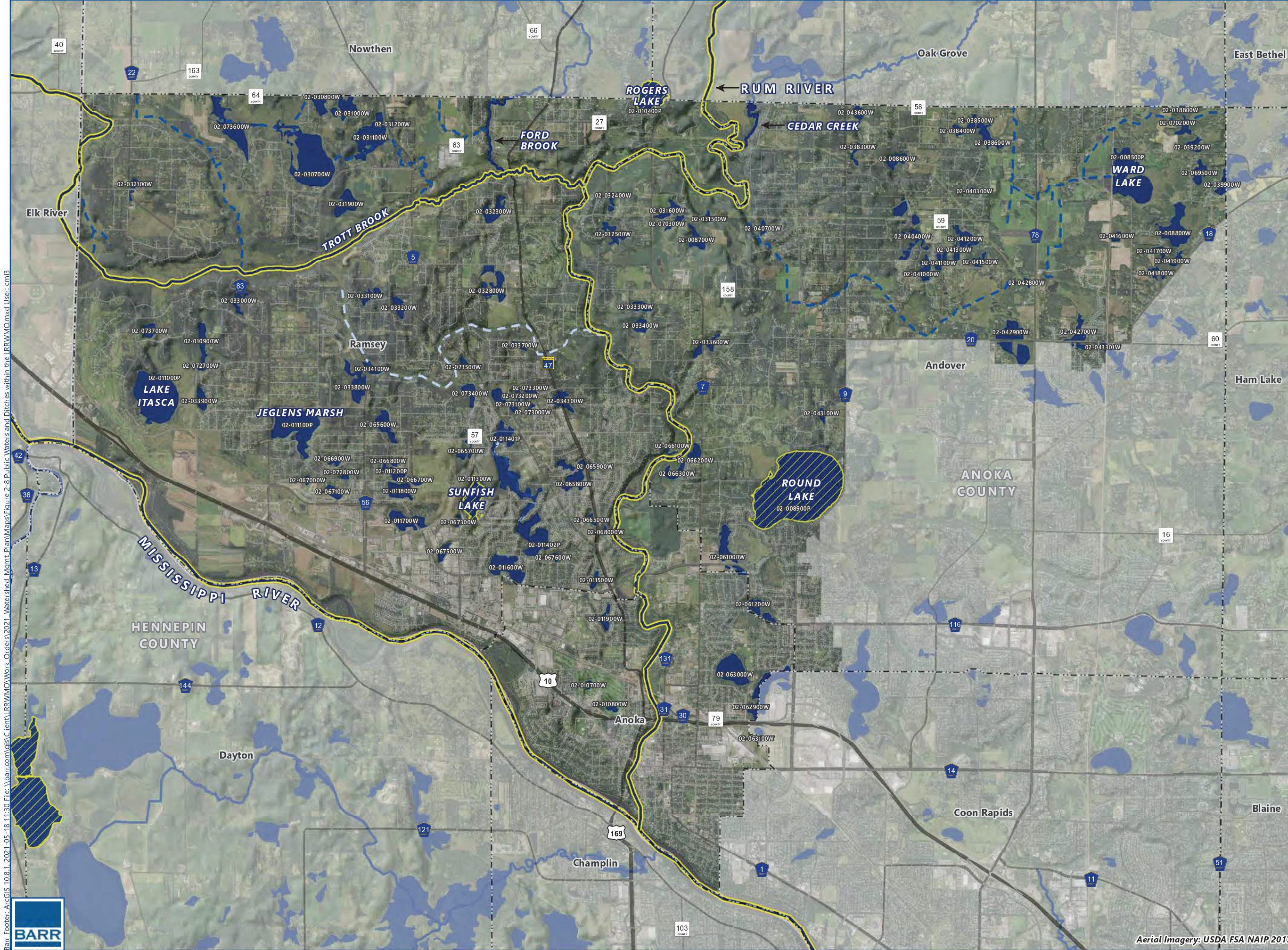
http://www.dnr.state.mn.us/waters/watermgmt_section/pwi/maps.html.

Table 2-6 Major Public Waters within the LRRWMO

Resource Name	MDNR ID Number	Area (acres)	Length ¹ (miles)	Lake (P) or Wetland (W)	MDNR Shoreland Classification	OHWL (feet)	LRRWMO Priority Water
Ward Lake	02-0085	93	--	P	Recreational Development	883.7	
Round Lake	02-0089	352	--	P	General Development	866.4	X
Rogers Lake	02-0104	45 2	--	p ³	Recreational Development	883.9	
Lake Itasca	02-0110	122	--	P	Natural Environment	871.4	
Jeglens Marsh	02-0111	89	--	P	Recreational Development	870.5	
Grass Lake (Sunfish Lake)	02-0113	36	--	W	Recreational Development	861.6	X
Unnamed	02-0114	131	--	P	Natural Environment	--	
Rum River	109010	--	13.8	--	Scenic or Recreation River	Varies	X
Trott Brook	109012	--	6.4	--	--	Varies	X
Ford Brook	109013	--	1.2	--	--	Varies	
Cedar Creek	109015	--	0.9	--	--	Varies	
Mississippi River	103383	--	9.2	--	-- ⁴	Varies	X

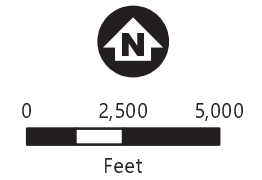
Source: MDNR Public Waters Inventory

- (1) Length within/adjacent to the LRRWMO
- (2) Approximately 15 acres of Rogers Lake is located within the LRRWMO
- (3) Rogers Lake does not meet the definition of a lake per the Minnesota Pollution Control Agency
- (4) Mississippi River is classified by MDNR as recreational immediately upstream of the LRRWMO



- County Boundary
- Municipal Boundary
- Public Water Inventory Basin¹
- Public Water Inventory Watercourse¹
- Ditch Owned By Anoka County²
- Ditch Owned By LRRWMO²
- LRRWMO Priority Waters (Basin)
- LRRWMO Priority Waters (Watercourse)

Data Sources:
 1. Minnesota Department of Natural Resources, Public Waters (PW) Basin and Watercourse Delineation, 2020.
 2. Anoka County Open Access GIS Data, Accessed 10/6/2020.



PUBLIC WATERS AND DITCHES WITHIN THE LRRWMO
 2021 LRRWMO Watershed Management Plan
 FIGURE 2-8



2.7.1 LRRWMO Priority Waters

There are many public waters within the LRRWMO (see Figure 2-8). The LRRWMO has classified a subset of these public waters as “priority waters” in order to prioritize monitoring and management actions. . LRRWMO priority waters are subdivided into level 1 (higher priority) and level 2 (lower priority). LRRWMO priority waters include:

Level 1 priority waters:

- Round Lake
- Grass Lake (Sunfish Lake)
- Rum River
- Mississippi River

Level 2 priority waters:

- Trott Brook

These waters have been classified as priority waters due to a combination of recreational use and value, ecological function and quality, water quality and impairments, and local priorities. As priority waters, the LRRWMO has established measurable goals for these resources (see Section 4.1) and identified implementation activities (see Table 5-2) to manage these resources. Cedar Creek, although impaired (see Table 2-7) is not identified as a priority water, as only a minor portion of the drainage area is located within the watershed.

The LRRWMO also cooperates with the Anoka Conservation District (ACD), MPCA, and others to monitor the water quality of these resources. Omission of a waterbody from the LRRWMO priority waters list does not necessarily prevent or prohibit the LRRWMO from taking action to monitor or manage these waterbodies, if need should arise (noting that a potential Plan amendment may be needed depending on the planned action).

2.7.2 Wetlands

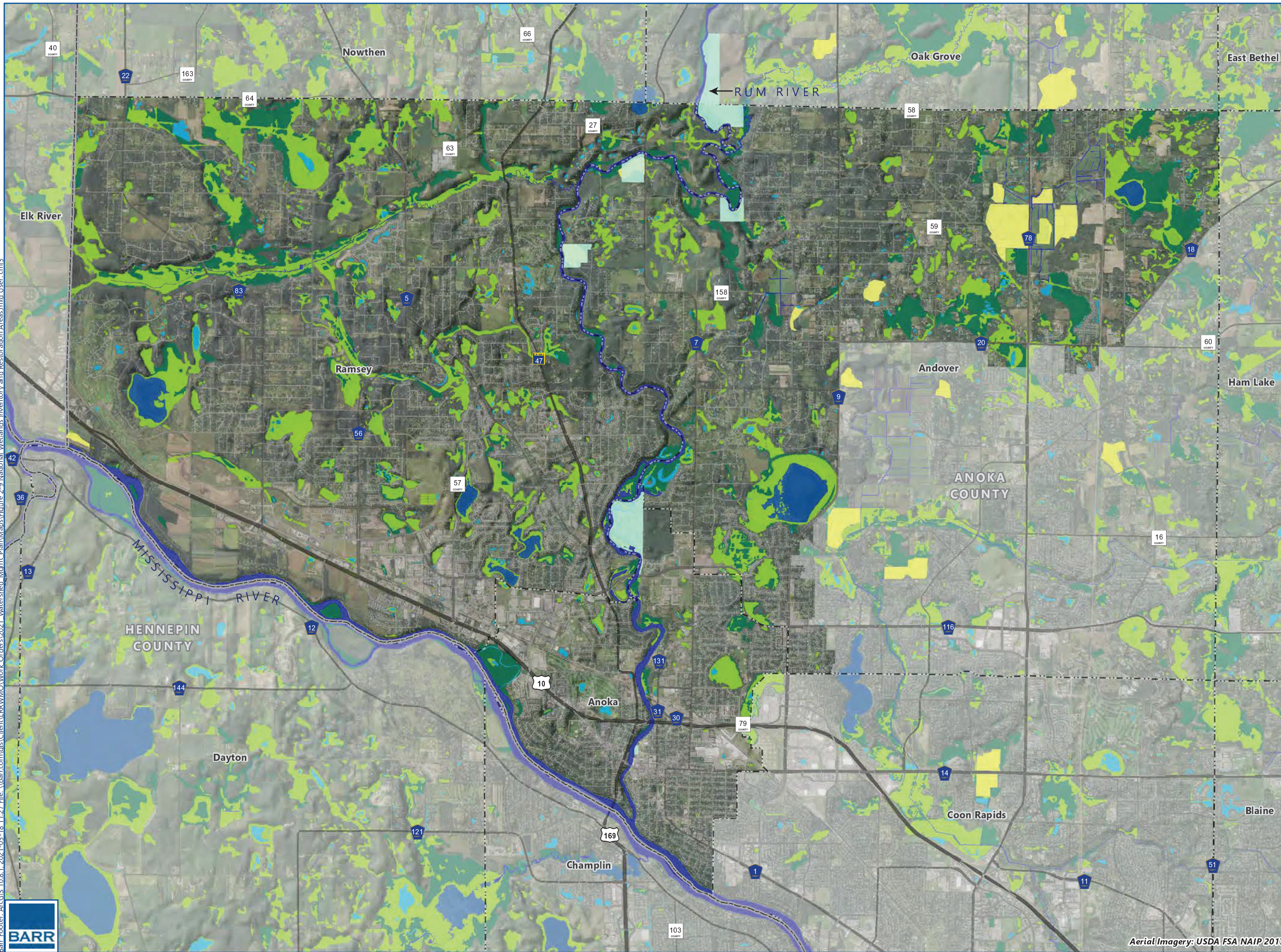
Wetlands in the LRRWMO are important community and ecological assets. Wetlands provide recreational value, runoff storage and retention, nutrient and sediment reduction, groundwater recharge, and wildlife habitat benefits. To protect these valuable resources, the LRRWMO and its member cities cooperate to manage wetlands to achieve no net loss of acreage, functions, and value. Within the watershed, the LRRWMO serves as the Local Government Unit (LGU) responsible for administration of the Wetland Conservation Act (WCA) (except for on Minnesota Department of Transportation projects). The LRRWMO’s wetland permitting role is discussed in greater detail in Section 5.3.2.1. More information about WCA guidance is provided at the BWSR website: <https://bwsr.state.mn.us/wetlands-regulation-minnesota>

The US Fish and Wildlife Service (USFWS) maintains an inventory of wetlands known as the National Wetland Inventory (NWI). Wetlands identified in the NWI are presented in Figure 2-9. The NWI is periodically updated and was last updated for the area of the LRRWMO in 2013. The ACD has identified

priority wetlands for potential restoration actions (see Figure 2-9) This delineation is supported by the LRRWMO. The LRRWMO encourages member cities to pursue wetland restoration at priority areas as opportunities and funding allows; the LRRWMO may partner with Cities and the ACD in these efforts.

The City of Ramsey has completed a detailed wetlands inventory (284 wetlands), including functions and values assessment (using MnRAM 3.0 methodology). Additional detail is available in the Ramsey Surface Water Management Plan (2018). Wetlands within the cities of Andover and Anoka are inventoried on an individual basis as part of development proposals.

The LRRWMO requires functional values of wetlands to be assessed on a case-by-case basis, by each municipality, for any wetland impacts proposed in the watershed, including projects requiring an LRRWMO permit (see Section 5.3.2.1.). The LRRWMO requires the Minnesota Routine Assessment Method for Evaluating Wetland Functions (MnRAM), version 3.2 or the most current version, is to be used to identify the functional value of wetlands within the watershed. Information about wetland functional assessment is available from BWSR at: www.bwsr.state.mn.us/wetlands/mnram/index.html.



- County Boundary
- Municipal Boundary
- Rum River Conservation Opportunities (ACD)
- Wetland Restoration Opportunities (ACD)
- National Wetlands Inventory**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine
- Freshwater Pond
- Lake

Data Sources: National Wetlands Inventory, U.S. Fish and Wildlife Service. Conservation/restoration opportunities, Anoka Conservation District (ACD)



0 2,500 5,000
Feet

NATIONAL WETLANDS INVENTORY AND RESTORATION AREAS
2021 LRRWMO Watershed Management Plan

FIGURE 2-9



Aerial Imagery: USDA FSA NAIP 2017

2.7.3 Surface Water Monitoring and Modeling

Surface water quality data exists for many of the water bodies within the watershed. Several agencies have instituted programs based on particular needs, including:

- Anoka Conservation District (ACD)
- Metropolitan Council
- Minnesota Pollution Control Agency (MPCA)
- U.S. Geological Survey (USGS)

Monitoring parameters vary by monitoring program, but may include:

- Water chemistry (e.g., phosphorus, total suspended solids, chloride)
- Biological data (e.g., indices of biological integrity, macroinvertebrates, fish inventories)
- Hydrologic data (e.g., flow, water level)

Monitoring locations within the watershed are presented in Figure 2-10. Much of the historical monitoring data for the watershed is available from the MPCA's Environmental Data Access (EDA) database at:

<https://www.pca.state.mn.us/eda-surface-water-data>

The LRRWMO financially supports monitoring of water chemistry, biological, and physical parameters of several LRRWMO priority waters including Round Lake, Grass (Sunfish Lake) and two locations on the Rum River. Monitoring is performed by ACD staff and/or volunteers and funded by the LRRWMO. The ACD monitors the water quality of Round Lake and the Rum River annually, while Grass (Sunfish) Lake water quality is monitored on a three-year cycle. The LRRWMO also sponsors biomonitoring of invertebrates of the Rum River facilitated by the ACD and performed in the spring and fall of each year. Ongoing monitoring activities planned for the duration of this Plan are described in Section 5.3.4.

Additional detail regarding the ACD monitoring programs, methods, and results is available from the ACD website at: <https://www.anokaswcd.org/technical-support.html>

Historical lake level data for Grass (Sunfish) Lake, Rogers Lake, Round Lake, and Lake Itasca is also available from the MDNR's Lakefinder website at: <https://www.dnr.state.mn.us/lakefind/index.html>

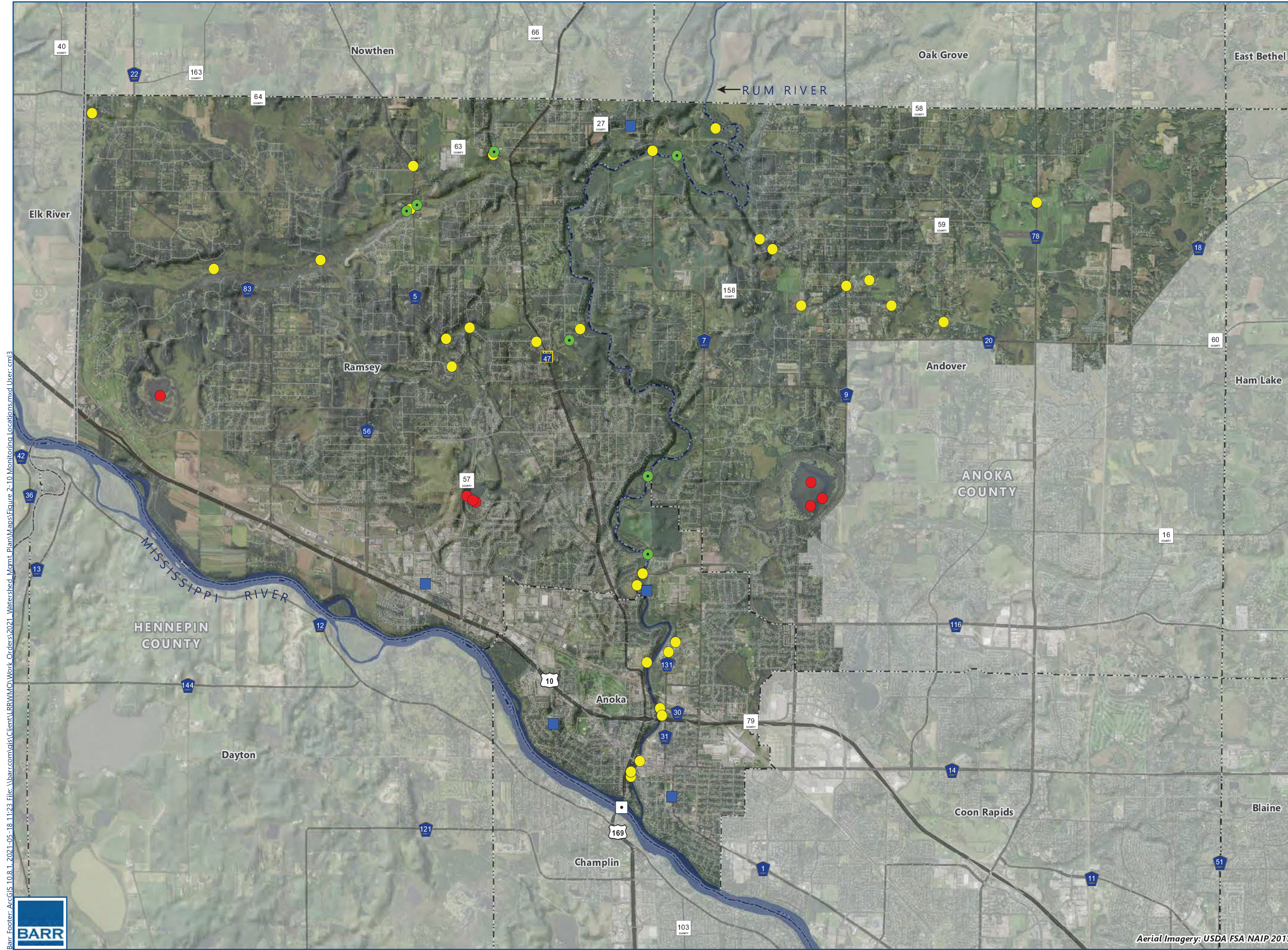
Data collected for the Mississippi River in the Twin Cities Metro Area has been summarized by the MPCA and is available at: <https://www.pca.state.mn.us/water/watersheds/mississippi-river-twin-cities>









Water quality modeling performed in support of the Rum River Watershed Restoration and Protection Strategies Report (MPCA, 2017, see Section 2.7.4.1) includes most of the area of the LRRWMO (excluded areas include those areas draining directly to the Mississippi River). An HSPF model was used to estimate unit area pollutant loading estimates (e.g., lbs of total phosphorus/acre/year) at approximately the HUC12 subwatershed level. Estimates of total phosphorus loading and sediment loading are presented in Figure 2-11 and Figure 2-12, respectively. Areas of higher sediment and phosphorus loading exist adjacent to the Rum River in the southern portion of the watershed. This information may be used to broadly focus

LRRWMO and City activities, although the modeling resolution is insufficient for targeting specific projects.

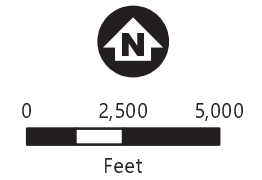
Historically, the LRRWMO has not performed watershed-wide water quality, hydrologic, or hydraulic modeling. During the implementation of this Plan, the LRRWMO seeks to leverage watershed-based implementation funding (WBIF) and/or other funding to support water quality modeling of areas in Anoka draining to the Mississippi River and areas of Andover draining to the Rum River as part of subwatershed analyses (see Table 5-2). These areas have been tentatively selected based on a combination of factors including HSPF modeling results showing relatively high sediment and phosphorus loading, lack of higher resolution pollutant loading estimates (i.e., more specific than the HSPF modeling), and City staff input.

Additional information about water quality analyses performed in the larger Rum River watershed is available from the MPCA at: <https://www.pca.state.mn.us/water/watersheds/rum-river>



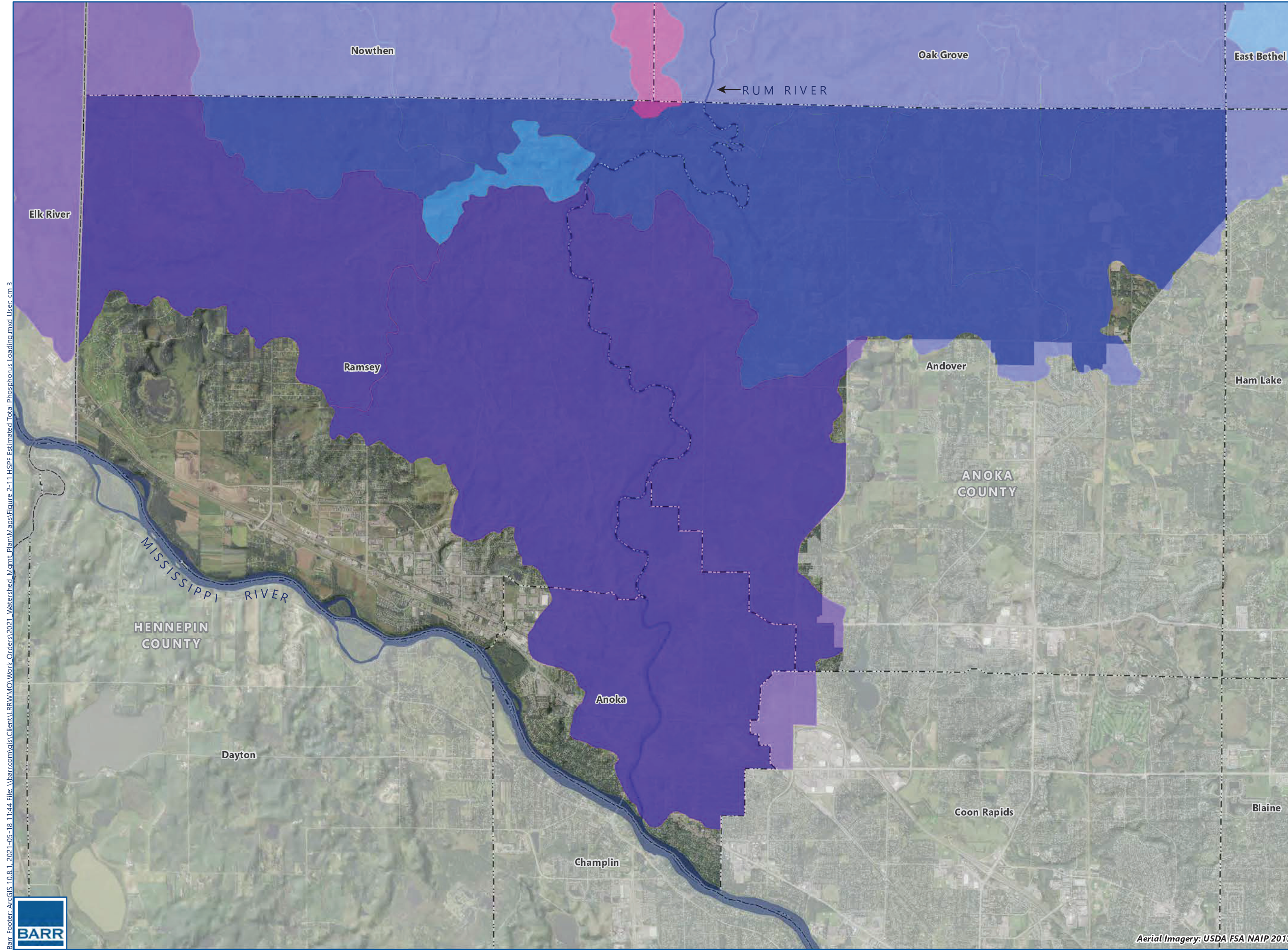
-  County Boundary
-  Municipal Boundary
-  River
- Surface Water Monitoring Station**
-  Biological
-  Discharge
-  Lake
-  Stream
-  USGS










Data Source: Minnesota Pollution Control Agency, Surface Water Stations - MPCA Environmental Data Access, Accessed 9/30/2020.

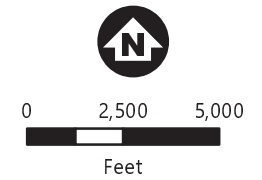


MONITORING LOCATIONS
 2021 LRRWMO Watershed Management Plan
 FIGURE 2-10





 County Boundary
 Municipal Boundary
 River
 Phosphorus Loading
 lbs/acre/yr
 less than 0.15
 0.15 to 0.18
 0.18 to 0.21
 0.21 to 0.24
 0.24 to 0.27
 more than 0.27
 Data Source: Rum River
 WRAPS - HSPF Model
 provided by MPCA 11/2020

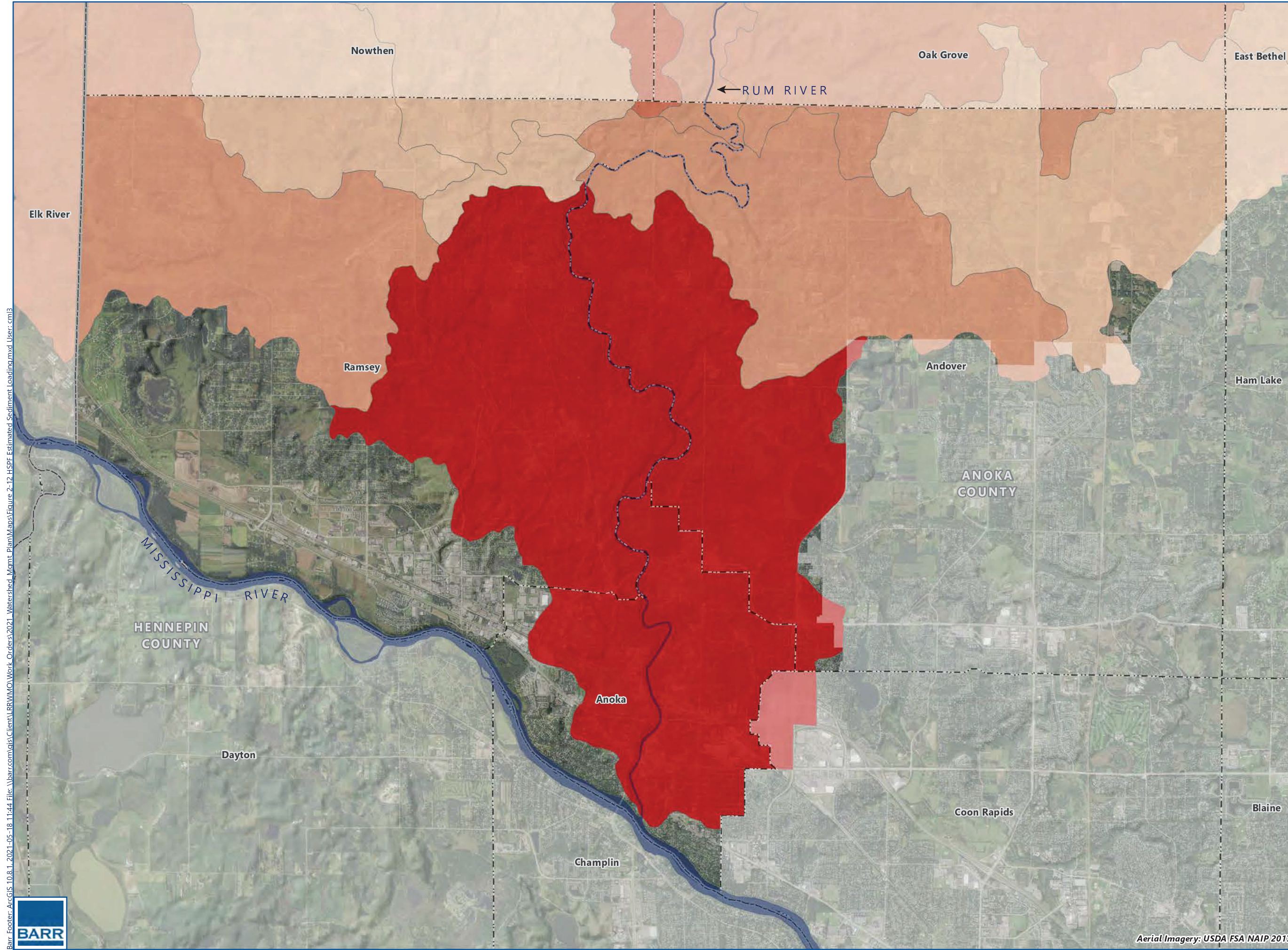











**HSPF ESTIMATED
 TOTAL PHOSPHORUS
 LOADING**
 2021 LRRWMO Watershed
 Management Plan
FIGURE 2-11

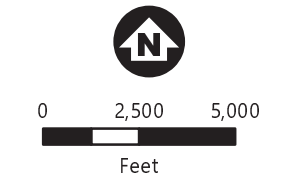
Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:44 File: \\barr.com\gis\client\LRWMO\Work Orders\2021_Watershed_Mgmt_Plan\Map\Figure 2-11 HSPF Estimated Total Phosphorus Loading.mxd User: cml3



Aerial Imagery: USDA FSA NAIP 2017



 County Boundary
 Municipal Boundary
 River
Sediment Loading lbs/acre/year
 less than 60
 60 to 80
 80 to 100
 100 to 120
 120 to 140
 more than 140
Data Source: Rum River WRAPS - HSPF Model provided by MPCA 11/2020



**HSPF ESTIMATED
 SEDIMENT LOADING**
 2021 LRRWMO Watershed
 Management Plan

FIGURE 2-12

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:44 File: \\barr.com\gis\client\LRWMO\Work Orders\2021_Watershed_Mgmt_Plan\Maps\Figure 2-12_HSPF Estimated Sediment Loading.mxd User: cml3



Aerial Imagery: USDA FSA NAIP 2017

2.7.4 Water Quality and Impaired Waters

The federal Clean Water Act (CWA) requires states to adopt water quality standards to protect the nation's waters. Water quality standards establish criteria that must be met to support its designated use(s). The criteria differ depending on the waterbody's classification as a wetland, shallow lake, deep lake, or river. Per the CWA, the state of Minnesota must identify and establish priority rankings for impaired waters that do not meet the water quality standards. The list of impaired waters, sometimes called the 303(d) list, is maintained by the MPCA and updated every 2 years.

For impaired waterbodies, the CWA requires an assessment that addresses the causes and sources of the impairment. This process is known as a total maximum daily load (TMDL) analysis. A TMDL is a threshold calculation of the amount of a pollutant that a waterbody can receive and still meet water quality standards. A TMDL establishes the pollutant loading capacity for a waterbody and develops an allocation scheme amongst the various contributors, which include point sources, nonpoint sources and natural background, as well as a margin of safety. As a part of the allocation scheme, a waste load allocation (WLA) is developed to determine allowable pollutant loadings from individual point sources (including loads from storm sewer networks in MS4 communities), and a load allocation (LA) establishes allowable pollutant loadings from nonpoint sources and natural background levels in a waterbody.

Within the LRRWMO, Cedar Creek, Trott Brook, the Rum River, and the Mississippi River are listed on the 2020 MPCA impaired waters 303(d) list for a variety of impairments (see Table 2-7). Completed TMDLs and associated implementation plans may contain actionable steps for the cities within the LRRWMO to address these impairments. The Rum River Watershed TMDL (MPCA, 2017) addresses the Trott Brook dissolved oxygen impairment and the Cedar Creek *E. coli* impairment. The Rum River TMDL identifies the cities of Ramsey and Andover as MS4 communities (see Section 2.7.5) tributary to Trott Brook and Cedar Creek, respectively. The Rum River Watershed TMDL identifies required reductions of 50% of the oxygen demand in Trott Brook overall and 58% of the *E. coli* loading in Cedar Creek overall. The Rum River TMDL assigns an allowable oxygen demand (i.e., wasteload allocation, or WLA) of 72 lbs/day to the City of Ramsey MS4 and an *E. coli* allocation of 8.5% of allowable load to the City of Andover MS4. Source-specific waste load reductions are not specified for either city in the TMDL (MPCA, 2017). The Rum River TMDL identifies decomposition of organic matter (e.g., from human and animal waste and plant matter) and stream sediments as sources of oxygen demand contributing to low dissolved oxygen in Trott Brook. Monitoring data for Trott Brook suggests low dissolved oxygen is a chronic condition driven by persistent watershed sources. BMPs identified in the Rum River TMDL to reduce oxygen demand in Trott Brook include:

- Urban BMPs to reduce phosphorus, sediment, and organic material loading (including source controls on lawn clippings, fertilizer, and pet waste)
- Buffers and streambank stabilization
- Education

The LRRWMO coordinates with its member cities, ACD, and other partners to identify activities to address impairments and associated waste load reductions, where appropriate (see goals addressing bacterial, TSS, and nutrient loading to the Mississippi River in Table 4-1 and associated implementation items in Table 5-2).

Current impaired waters listings are available from the MPCA website:

<https://www.pca.state.mn.us/water/minnesotas-impaired-waters-list>

Select state water quality standards for LRRWMO priority waterbodies are presented in Table 2-8. Water quality standards vary according to lake depth and location (the LRRWMO is located in the North Central Hardwood Forest, or NCHF, ecoregion and central river nutrient region). Note that the LRRWMO has more stringent water quality goals for priority waterbodies (see Section 4.1)

Table 2-7 Impaired Waters within the LRRWMO

Waterbody	Impaired Use	Pollutant or Stressor	Year Listed	TMDL Study Target Completion	TMDL Study Approved
Cedar Creek	Aquatic Recreation	<i>E. Coli</i>	2016	2018	2017 ¹
Trott Brook	Aquatic Life	Dissolved Oxygen	2016	--	2017 ¹
		Fishes bioassessments,	2016	2027	
		Invertebrate bioassessments	2016	2027	--
Rum River	Aquatic Life	Mercury in fish tissue	1998	--	2007 ¹
Mississippi River	Aquatic Consumption	Mercury in fish tissue	1998	--	2007 ¹
		PCB in fish tissue	2002	2020	--
	Aquatic Life	Nutrients/ Eutrophication	2016	2018	--
	Aquatic Recreation	Fecal coliform	2006	2024	--

Source: 2020 (draft) MPCA Impaired Waters 303(d) List.

PCB = Polychlorinated Biphenyl

- (1) Addressed by the Final Rum River Watershed Total Maximum Daily Load (MPCA, 2017)
- (2) Addressed by the *Minnesota Statewide Mercury Total Maximum Daily Load* (MPCA, 2007, as revised)

Table 2-8 State water quality standards applicable to LRRWMO Priority Waterbodies

MPCA Lake Classification	LRRWMO Priority Waterbodies	Select Water Quality Standards ¹				
		Total Phosphorus (µg/L)	Chlorophyll-a (µg/L)	Secchi Disk Depth (m)	Chloride (mg/l) ²	Total Suspended Solids (mg/L)
Shallow Lake	Round Lake, Grass (Sunfish) Lake	< 60	< 20	> 1.0	230	--
Deep Lake	None	< 40	< 14	> 1.4	230	--
Central Region River	Rum River, Mississippi River, Trott Brook	< 100	--		230	<30

Source: [Minnesota Rules 7050](#) for NCHF eco-region; note that water quality standards for additional parameters are also applicable to District water resources

- (1) Standards for total phosphorus, chlorophyll-a, and Secchi Disk Depth are summer average (June – September)
- (2) The 230 mg/L chloride standard is the chronic standard, where two or more exceedances within a three-year period are considered an impairment (as opposed to the acute standard which deems one exceedance over 860 an impairment).

2.7.4.1 Water Quality Data and Trend Analysis

The ACD annually publishes a water almanac including monitoring data for waterbodies located within the LRRWMO. The ACD water almanacs include comparison of the most year’s data to prior conditions. Current and past iterations of the ACD water almanac are available from the ACD website at: <https://www.anokaswcd.org/water-almanac.html>

Water quality monitoring data collected since 2000, current as of the writing of this Plan, is summarized for LRRWMO priority lakes and streams in Table 2-9 and Table 2-10, respectively. Data collected for LRRWMO lakes (including LRRWMO priority lakes Round Lake and Grass (Sunfish) Lake) demonstrate that summer averages (June through September) of eutrophication parameters (total phosphorus, chlorophyll-a, Secchi disc transparency) meet applicable MPCA shallow lakes criteria (see Table 2-8).

Data from the most recent 10-year period do not indicate any statistically significant water quality trends in LRRWMO priority lakes (assessed using the method of least squares with 95% confidence), although total phosphorus in Round Lake exhibits a decreasing (i.e., improving) trend with approximately 90% confidence. The LRRWMO and ACD will continue to examine water quality trends to determine if additional actions (e.g., more frequent or detailed monitoring) are needed. The LRRWMO considered the absence of eutrophication impairments and existing water quality meeting applicable standards in continuing to focus on pollution prevention through its permitting program (see Section 5).

Table 2-10 summarizes water quality data collected for LRRWMO priority streams. Total phosphorus concentrations in the Rum River are similar to the applicable MPCA standard for central region streams (see Table 2-8), while concentrations in Trott Brook and the Mississippi River slightly exceed the standard based on limited recent sampling. Recent water quality data for LRRWMO priority streams do not exhibit statistically significant trends.

Table 2-9 Summary of water quality for LRRWMO lakes

Resource	Monitoring Location ID	Sampled years for average	Average Water Quality ¹				Water Quality Trends ³
			Total Phosphorus (µg/L)	Chlorophyll-a (µg/L)	Secchi Disk Depth (m)	Chloride ² (mg/L)	
Round Lake (LRRWMO priority lake)	02-0089-00-201	2009,2010, 2012, 2014, 2016, 2019	22	4.4	3.6	--	None
Grass Lake (LRRWMO priority lake)	02-0113-00-201	2012, 2013, 2016, 2017, 2018	50	4.9	1.3	--	None
Rogers Lake	02-0104-00-201	2000, 2003, 2006, 2008, 2009	55	19	1.1	--	None

Source: MPCA Environmental Data Access website

- (1) Values presented are summer average (June through September)
- (2) Chloride not analyzed in sampled years
- (3) Trends based on most recent 10 years using method of least squares with 95% confidence (alpha = 0.05)

Table 2-10 Summary of water quality for LRRWMO priority streams

Resource	Monitoring Location ID	Sampled years for average ¹	Average Water Quality				Water Quality Trends
			Total Phosphorus ² (µg/L)	Total suspended solids (mg/L)	Chloride (mg/L)	<i>E. coli</i> (MPN/100 mL)	
Trott Brook	S003-176	2003, 2006, 2012-2015	118	7.3	22	77	None
Rum River at Co Rd 7	S004-026	2015-2019	83	8.2	12	--	None
Rum River at Anoka Dam	S003-183	2010, 2015-2019	99	7.0	11	--	None
Mississippi River at Anoka	S000-025	2000-2002, 2006, 2010-2011, 2014, 2017	117	16	16	212	None

Source: MPCA Environmental Data Access website; ACD Water Almanacs 2015-2019

- (1) Not all parameters analyzed in all years of available data
- (2) Values presented are summer average (June through September)
- (3) Trends based on most recent 10 years using method of least squares with 95% confidence (alpha = 0.05)

2.7.4.2 Watershed Restoration and Protection Strategies (WRAPS)

The LRRWMO is within the area included in the MPCA’s *Rum River Watershed Restoration and Protection Strategies* report (Rum River WRAPS, 2017). In support of this study, the MPCA and its partners conducted intensive watershed monitoring in the Rum River Watershed in 2013 and 2014 to determine the overall health of water resources, identify impaired waters, and to identify waters in need of additional protection. This data was combined with other available data collected in the previous 10 years for the purpose of waterbody health assessment. This information is documented in the MPCA’s *Rum River Watershed Monitoring and Assessment Report* (October, 2016) and the MPCA’s *Rum River Watershed Stressor Identification Study* (August, 2016).

As part of the WRAPS analysis, the MPCA performed water quality modeling of the watershed to estimate phosphorus, nitrogen, and sediment loading throughout the watershed (including the LRRWMO). Relative to the greater Rum River watershed, the watersheds in the LRRWMO contribute lower phosphorus, moderate nitrogen, and greater sediment loads (MPCA, 2017). The analysis included in the WRAPS is performed at spatial resolution that is too coarse to be used to target specific projects. Generally, however, the WRAPS identifies strategies to be implemented within the Lower Rum River watershed to reduce pollutant loading and protect or improve water quality. Strategies applicable in the south Rum River watershed (including the LRRWMO) include:

- streambank protection,
- urban stormwater management prioritizing retention/infiltration.

The LRRWMO has considered these strategies in developing and prioritizing its implementation program (see Section 5). The Plan implementations schedule (Table 5-2) includes streambank restoration projects as well as continued implementation of the LRRWMO permit program, which requires volume reduction through infiltration to treat urban stormwater. The implementation schedule further includes subwatershed analysis to identify priority areas for additional stormwater treatment.

More information about the MPCA's water quality analysis of the Rum River watershed is available at: <https://www.pca.state.mn.us/water/watersheds/rum-river>

2.7.5 Stormwater Systems

The area within the LRRWMO includes a mix of urban, suburban, and rural land use (see Section 2.3). In developed areas, pre-settlement drainage patterns have been significantly altered as part of development activity, resulting in networks of stormwater management infrastructure designed to collect stormwater and convey it downstream. The stormwater system includes pipes, ponds, lakes, wetlands, ditches, streams, swales, and other drainageways. Ultimately, all stormwater in the LRRWMO is routed to the Mississippi River, either directly or via the Rum River.

Various units of government and private entities have jurisdiction over different parts of the stormwater system within the watershed. The Minnesota Department of Transportation (MNDOT) is responsible for maintaining the stormwater systems within their rights-of-way, such as U.S. highways (e.g., Highway 10), and state highways (e.g., Highway 47). Anoka County is responsible for maintaining at least part of the stormwater systems within their rights-of-way, such as county roads and county state aid highways.

Each city within the LRRWMO has jurisdiction and maintenance responsibility over its own stormwater management systems. These systems include lateral (also called primary) stormwater systems (i.e., street gutters, pipes, and ditches) and outflow (also called main, trunk, or secondary) conveyors, which collect flows from city lateral systems and move the water downstream. Cities generally design lateral stormwater systems with capacity to convey runoff from 5- or 10-year frequency storms without significant flooding and protecting public health and safety for storms up to the 100-year frequency interval (these design levels are sometimes referred to as "level of service" and "level of protection"). City stormwater management systems are described in greater detail in each City's local water management plan. Additional information may be requested from member cities through their websites and/or from City offices.

Each city within the LRRWMO must obtain Municipal Separate Storm Sewer System (MS4) permit coverage from the MPCA. The MS4 Stormwater Program is designed to reduce the amount of sediment and pollution that enters surface water and groundwater from storm sewer systems. As a requirement of the permit, each city must develop and maintain a stormwater pollution prevention program (SWPPP) which outlines programs and practices to minimize pollutant loading and water quality impacts resulting from stormwater management. The SWPPP contains six areas of focus, known as minimum control measures, including:

- Public Education and Outreach
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management
- Pollution Prevention/Good Housekeeping For Municipal Operations

A new general MS4 permit was issued by the MPCA in November, 2020. Each member city will revise its MS4 program, if needed, to meet current MS4 permit and SWPPP requirements. Each MS4 permittee submits a report to the MPCA annually documenting the implementation of its SWPPP. Presently, the LRRWMO is not required to obtain MS4 permit coverage because it does not own stormwater management infrastructure. The MPCA periodically updates the MS4 General Permit. More information is available from the MPCA at: <https://www.pca.state.mn.us/water/municipal-stormwater-ms4>

Owners of private stormwater systems in the LRRWMO are generally responsible for maintaining their facilities. Member cities require maintenance agreements for private systems as part of project permitting.

2.7.6 Flooding and Floodplain Management

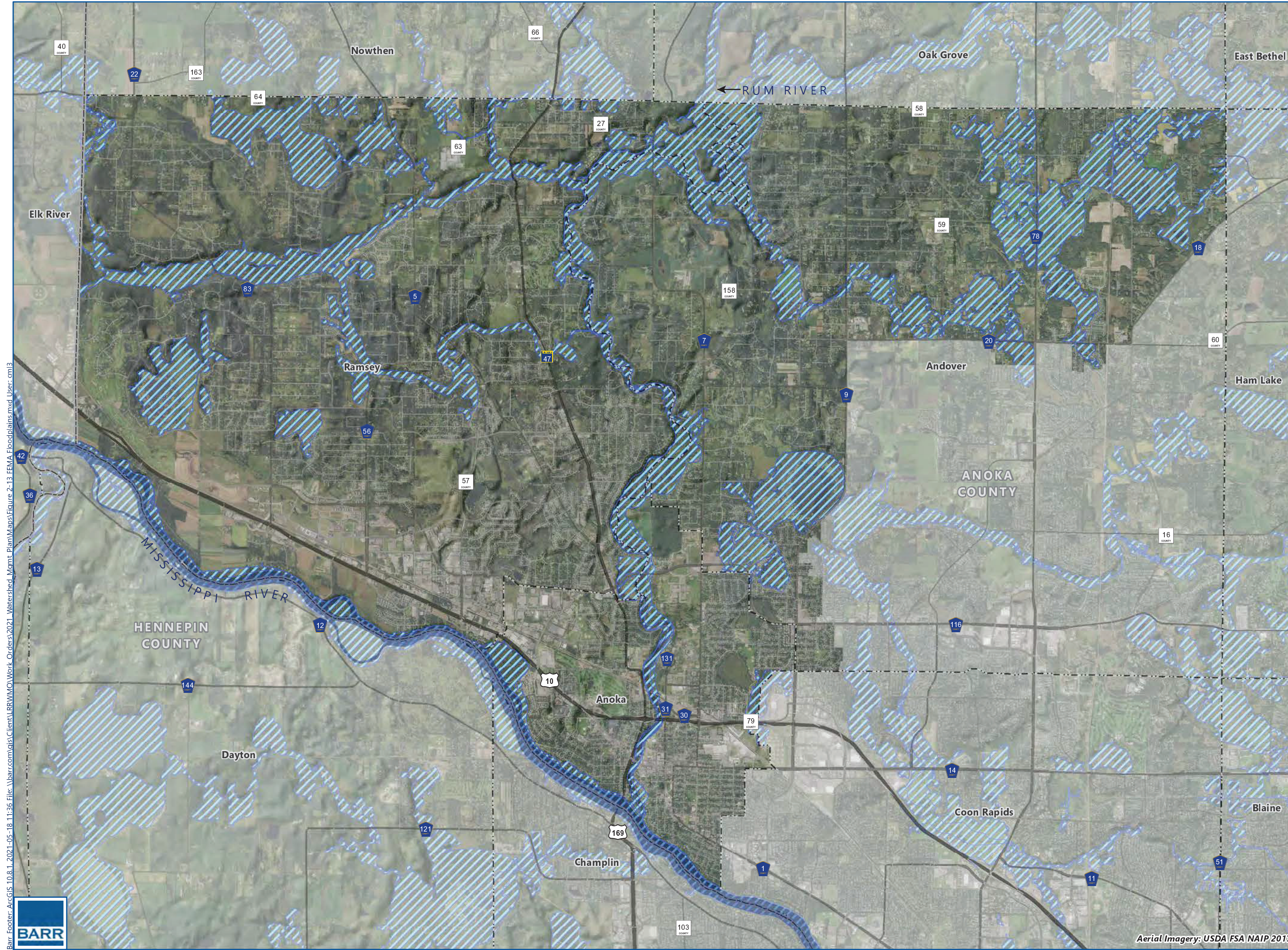
Floodplains are lowland areas adjacent to lakes, wetlands, and rivers that are susceptible to inundation of water during a flood. For regulatory purposes, the term "floodplain" refers to the area inundated during a flood or storm event with a 1 percent chance of occurring in any year (i.e., a 100-year event).




The Federal Emergency Management Agency (FEMA) performs flood insurance studies (FIS) and develops Flood Insurance Rate Maps (FIRMs) to identify areas prone to flooding during 100-year storm events. The water level corresponding to the 100-year flood event is referred to as the Base Flood Elevation (or BFE) and is the basis for the mapped floodplain extent. Figure 2-13 presents floodplains delineated by FEMA.

Each of the cities within the District has a FIS. The FIS, together with a city's floodplain ordinance, allow the city to take part in the national flood insurance program (NFIP). Homeowners within FEMA-designated floodplains are required to purchase flood insurance. NFIP is implemented independently of the District and are described herein for informational purposes. FEMA-established floodplains and 100-year flood levels are available from FEMA at: <https://msc.fema.gov/portal/home>

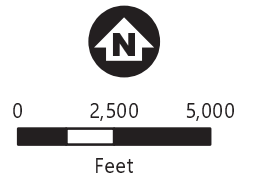
In addition to flooding adjacent to waterbodies, excessive runoff can overwhelm storm sewer infrastructure, resulting in more localized, and nuisance flooding issues (e.g., standing water in streets, flooding in backyard swales). The LRRWMO member cities have prepared local water management plans containing more detailed information regarding localized flooding issues and management actions. In the LRRWMO, flooding problems in the watershed are mostly confined to those areas identified on FEMA floodplain maps.

The LRRWMO permit program includes stormwater volume and rate control requirements to limit negative flooding impacts. The permit requirements also include criteria for minimum building elevations relative to the 100-year flood levels.



-  County Boundary
-  Municipal Boundary
-  FEMA 100-Year Floodplain

Data Source: National Flood Hazard Layer, Federal Emergency Management Agency.



FEMA FLOODPLAINS
 2021 LRRWMO Watershed Management Plan
 FIGURE 2-13

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:36 File: \\barr.com\gis\client\LRWMO\Work Orders\2021\Watershed_Mgmt_Plan\Map\Figure 2-13 FEMA Floodplains.mxd User: cml3



Aerial Imagery: USDA FSA NAIP 2017

2.7.7 Shorelands and Shoreland Management

Protection and management of shoreland areas is key to maintaining the beneficial uses of surface waters in the LRRWMO. Stable, vegetated shoreland areas preserve filter pollutants, slow runoff, and create habitat. The LRRWMO member cities implement shoreland protections through standalone shoreland ordinances and/or zoning requirements. The MDNR has established minimum shoreland protection requirements based on lake classifications (see Table 2-6):

- **Natural Environment Lakes (NE)** – Usually have less than 15 total acres, less than 60 acres per mile of shoreline, and less than three dwellings per mile of shoreline. They have some winterkill of fish; may have shallow, swampy shoreline; and are less than 15-feet deep.
- **Recreational Development Lakes (RD)** – Usually have between 60 and 225 acres of water per mile of shoreline, between 3 and 25 dwellings per mile of shoreline and are more than 15-feet deep.
- **General Development Lakes (GD)** – Usually have more than 225 acres of water per mile of shoreline, between 3 and 25 dwellings per mile of shoreline and are more than 15-feet deep.

The MDNR lake shoreline classification system is intended to help local governments appropriately regulate development in shoreland areas adjacent to each lake.

The LRRWMO member cities also maintain “Wild and Scenic River Ordinances” that serve similar purposes to shoreland ordinances specific to the Rum River. More information about the management of Wild and Scenic Rivers is available from the MDNR at:

https://www.dnr.state.mn.us/waters/watermgmt_section/wild_scenic/index.html

The cities of Ramsey and Anoka also maintain local controls to regulate development activity within the Mississippi River Critical Corridor Area (MRCCA), a 72-mile stretch of the Mississippi River including the LRRWMO. MRCCA protections established by the MDNR are implemented through local governments. More information about the MRCCA and associated critical area regulations is available at:

https://www.dnr.state.mn.us/waters/watermgmt_section/critical_area/index.html

2.8 Natural Areas, Habitat, and Rare Features

The Rum River and adjacent lands provide habitat for many species. White-tailed deer, gray and fox squirrels, cottontail rabbits, snowshoe hares, beavers, minks, muskrats, raccoons, loons, great blue herons, songbirds, and waterfowl are a few of the animals found along the Rum River. Smallmouth Bass, Northern Pike, and Walleyes can be found in the Rum River.

Through its Natural Heritage and Nongame Research Program (NHNRP), the MDNR collects, manages, and interprets information about rare natural features, native plants and plant communities, and nongame animals, including endangered, threatened, and special concern species. As part of the NHNRP, the MDNR maintains the Natural Heritage Information System (NHIS) as a statewide database of these resources. The MDNR limits publication of spatial attributes and locations of these items to protect rare features or species from damage or collection.

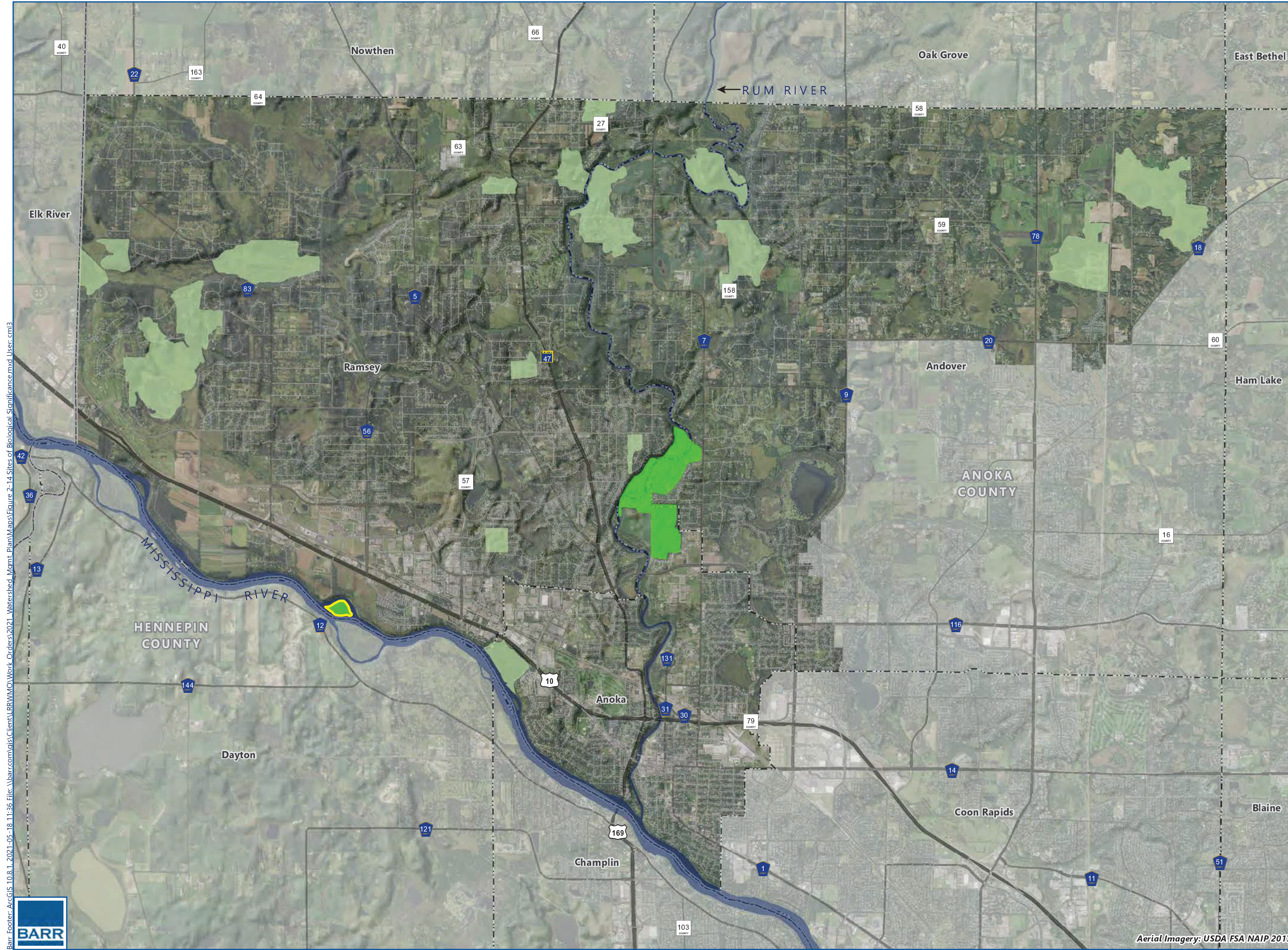
The Lower Rum River Watershed provides habitat for a significant number of Blanding's turtles (*Emydoidea blandingii*), a state threatened species. In addition to Blanding's turtles, several other state threatened species of reptiles, birds, and rare plants have been identified and listed in the NHIS Rare Features Data. Additional information about rare, threatened, and endangered species is available from the NHNRP at: <https://www.dnr.state.mn.us/nhnrp/index.html>






None of the lakes in the LRRWMO are MDNR-managed fisheries. The MDNR and its partners have periodically performed fishery surveys of the Mississippi River and Rum River. The Lower Rum has been periodically managed as a smallmouth bass and walleye fishery by the MDNR but is not consistently stocked. More information is available from the MDNR at: <https://www.dnr.state.mn.us/areas/fisheries/eastmetro/rivers/rum.html>

The MDNR's Minnesota County Biological Survey for Anoka County (1994, with Ramsey County) identified pre-settlement vegetation. Prior to settlement, the LRRWMO was covered primarily by oak savannah. River bottom forests occurred near the confluence of the Mississippi River and Rum River in Anoka. Portions of wet prairie occurred throughout the watershed, most heavily concentrated within Andover in the northeast.

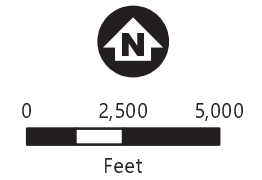
In 2007, the City of Anoka established the Anoka Nature Preserve (ANP). The preserve includes over 200 acres of forested oak savanna, meadow and grassland, wetland backwaters, and includes a mile of Rum River shoreline. The ANP is protected by a conservation easement; the ANP is cooperatively managed by the ACD and City of Anoka. Anoka County has also established a conservation area at the confluence of the Rum River and Cedar Creek. The area is preserved for nature-based outdoor recreation such as hiking, bird watching, fishing, and hunting by permit.

Minnesota County Biological Survey also identifies sites of biodiversity significance. Sites of moderate biodiversity significance occur along portions of the Rum River within the ANP and Mississippi River. Additional areas of biodiversity that do not meet MDNR threshold criteria are present throughout much of the watershed (see Figure 2-14). Additional information is available from the Minnesota Biological Survey at: <https://www.dnr.state.mn.us/mbs/index.html>



-  County Boundary
-  Municipal Boundary
-  River
-  Native Plant Community¹
- MBS Sites of Biodiversity Significance²
 -  Site Below Minimum Biodiversity Significance Threshold
 -  Site With Moderate Biodiversity Significance

Data Sources: 1. MDNR Native Plant Communities, Minnesota Department of Natural Resources- Division of Ecological and Water Resources- Biological Survey, 2020.
 2. MBS Sites of Biodiversity Significance, Minnesota Department of Natural Resources- Division of Ecological and Water Resources- Biological Survey, 2020.



SITES OF BIOLOGICAL SIGNIFICANCE
 2021 LRRWMO Watershed Management Plan
 FIGURE 2-14



2.9 Open Space and Recreation Areas

Approximately 8% of the watershed is occupied by park, open space, or preserve land uses. Open space and recreational areas are presented in Figure 2-15 and include regional and municipal parks located, as well as conservation areas like the Anoka Nature Preserve and Rum River/Cedar Creek conservation area (see Section 2.8). These areas provide opportunities for residents and people who recreate in the watershed to appreciate and connect with local water and natural resources. Major county parks located within the watershed include:

- Rum River Central Regional Park
- Rum River South County Park (Anoka County)
- Mississippi River West Regional Park (Anoka County)

Popular recreational opportunities within the District include activities like boating, fishing, hiking, walking, biking, and others. There are several public water access points within the watershed, including those on Round Lake, the Rum River, and the Mississippi River. The Mississippi River and Rum River are also State Canoe Routes operated by the MDNR Division of Trails and Waterways. The Rum River is also designated as a Regional Trail. The Anoka County Parks and Recreation Department has a listing and maps of trail systems throughout the county.

Parks and other open spaces may also provide stormwater management opportunities for the District and its partners. In addition to providing physical space for BMPs, these spaces are often in an ideal location situated between the non-point pollutant source (e.g., urban development) and the receiving water (e.g., lakes, ponds, wetlands). Implementing BMPs in parks and other areas frequented by the public can further enhance demonstration and education benefits.

2.9.1 Wild, Scenic, and Recreational River District

The Rum River is classified by the MDNR as a wild, scenic, and recreational river dating back to 1978. This designation covers the stretch of the Rum River in Mille Lacs, Sherburne, Isanti, and Anoka Counties. Minnesota's Wild and Scenic Rivers Program seeks to protect rivers which have outstanding natural, scenic, geographic, historic, cultural, and recreational values. Each wild and scenic river has a management plan that outlines the rules and goals for that river applicable within a specific area (see Figure 2-15). These rules are administered through local zoning ordinances to protect the rivers from water and visual

pollution, erosion, over-development, and degradation. Additional information is available from the MDNR at: https://www.dnr.state.mn.us/waters/watermgmt_section/wild_scenic/index.html

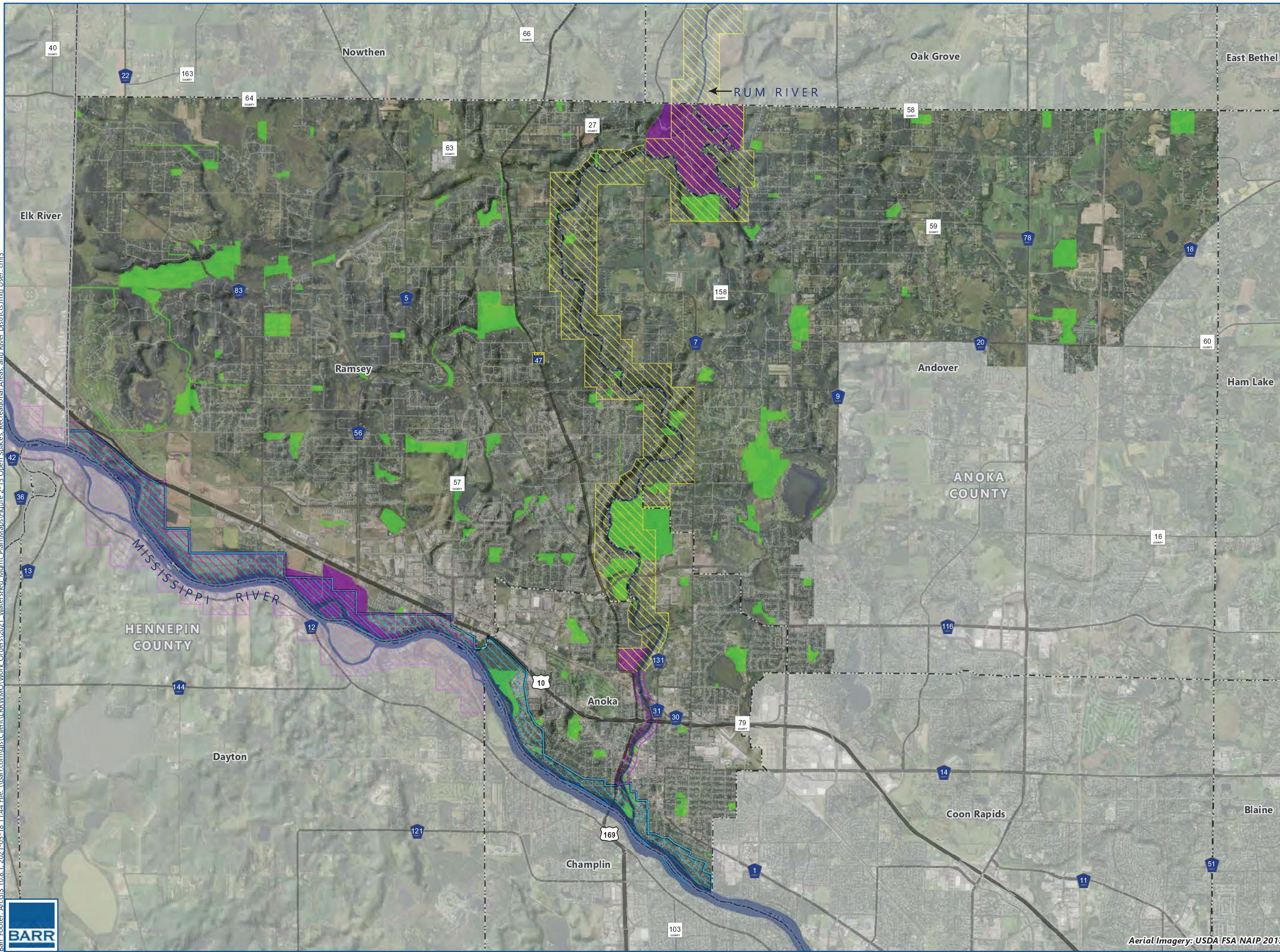
2.9.2 Mississippi National River and Recreational Area (MNRRA)









The Mississippi National River and Recreational Area (MNRRA) is a 72-mile corridor of the Mississippi River that stretches through the Minneapolis-St. Paul metropolitan area (see Figure 2-15). The MNRRA was established by the federal government Congress to develop policies and programs for:

- the preservation and enhancement of the environmental values of the area
- enhanced public outdoor recreation opportunities in the area
- the conservation and protection of the scenic, historical, cultural, natural, and scientific values of the area
- the commercial use of the area and its natural resources, consistent with the protection of the values for which the area was established

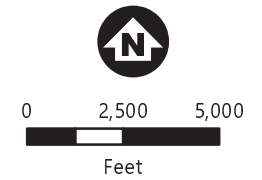
The extent of the MNRRA coincides with the Mississippi River Corridor Critical Area (MRCCA) Program. The MRCCA Program is a joint state, regional and local government program that provides coordinated land planning and regulation within the MNRRA. Within this area, management plans, ordinances, and zoning regulations limit development activity. Regulations are administered by local government units, including the Cities of Anoka and Ramsey. More information is available from the MDNR at: https://www.dnr.state.mn.us/waters/watermgmt_section/critical_area/index.html

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:44 File: \\barr.com\gis\client\LRWMO\Work Orders\2021\Watershed_Mgmt_Plans\Map\Figure 2-15 Open Spaces, Recreational Areas, and River Districts.mxd User: cml3



-  County Boundary
-  Municipal Boundary
-  River
-  City Park¹
-  County Park¹
- Minnesota DNR Wild and Scenic River Districts
-  Recreational District²
-  Scenic District²
- National River And Recreation Area Boundary³
- 

Data Sources:
 1. Anoka County Open Access GIS Data, Accessed 10/1/2020.
 2. Minnesota Department of Natural Resources, Minnesota Wild and Scenic River Districts, Accessed 10/6/2020.
 3. US National Park Service



**OPEN SPACES,
 RECREATIONAL AREAS
 AND RIVER DISTRICTS**
 2021 LRRWMO Watershed
 Management Plan
FIGURE 2-15



Aerial Imagery: USDA FSA NAIP 2017

2.10 Potential Pollutant Sources

The potential sources of water pollution in the LRRWMO are many and varied. Potential pollutant sources in the watershed include permitted pollutant sources, potentially contaminated sites, leaking above- and below-ground storage tanks, unsealed wells, and non-point sources.

The MPCA maintains a database of potential environmental hazards, which includes permitted sites (air, industrial stormwater, construction stormwater, wastewater discharge), hazardous waste generating sites, leak sites, petroleum brownfields, tank sites, unpermitted dump sites, and sites enrolled in the Voluntary Investigation and Cleanup (VIC) program. This information is available online through the MPCA's What's In My Neighborhood program. Sites identified in this database are presented in Figure 2-16.

The LRRWMO has no plans to remediate sites identified as potential pollutant sources. However, the LRRWMO, member cities and developers should consider the presence of potentially contaminated or hazardous waste sites as sites are redeveloped and BMPs are implemented. The presence of soil contamination at many of these sites, if not removed, may limit or prevent infiltration as a stormwater management option.

More information about potential pollutant sources is available from the MPCA website:

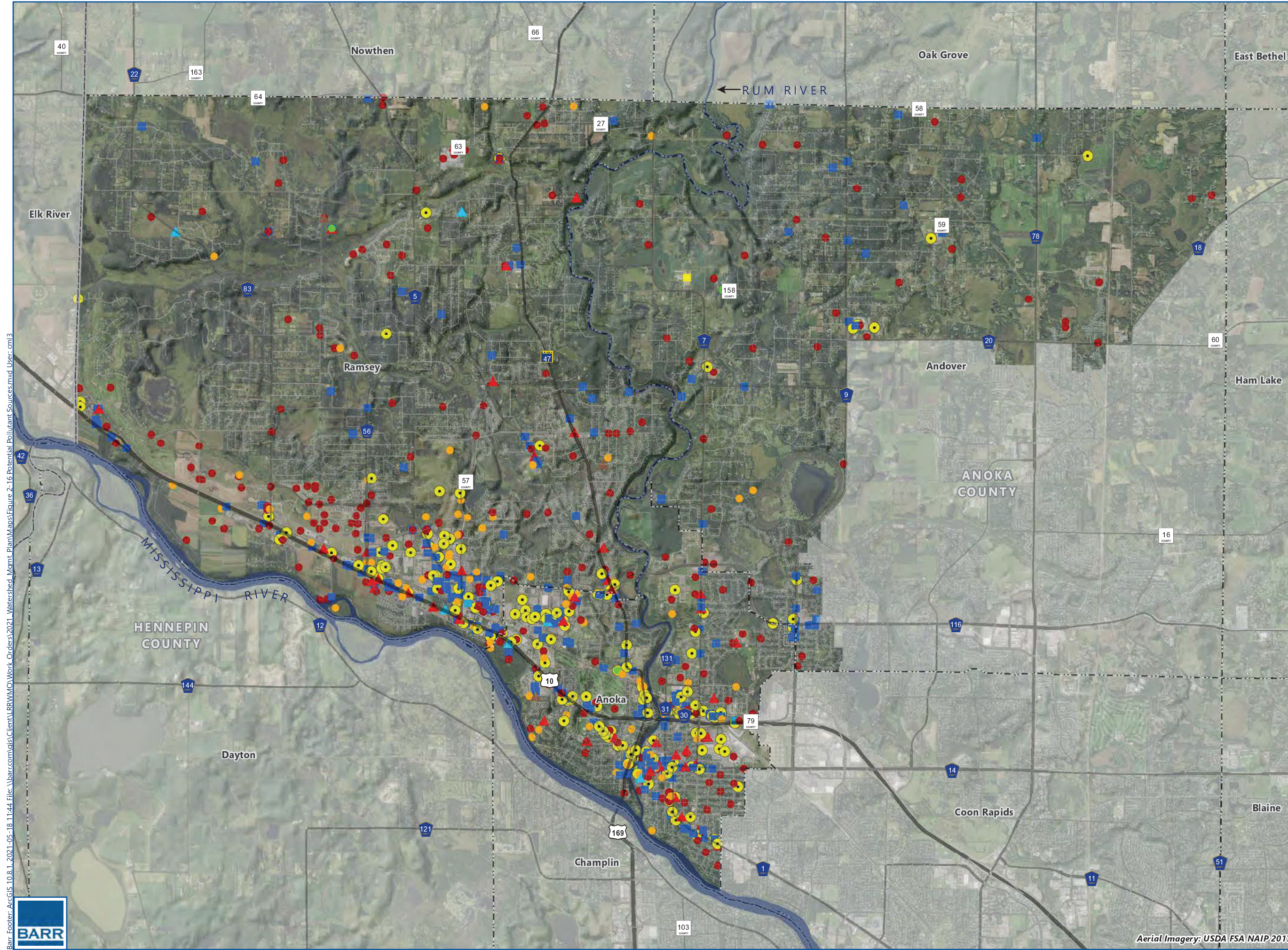
<http://www.pca.state.mn.us/index.php/data/wimn-whats-in-my-neighborhood/whats-in-my-neighborhood.html>

In addition to point sources of pollution, stormwater runoff can be a significant source of some pollutants (see Table 2-11). Each city within the LRRWMO maintains a stormwater pollution prevention program (SWPPP) which outlines programs and practices to minimize pollutant loading and water quality impacts resulting from stormwater management (see Section 2.7.5).

Table 2-11 Pollutants Commonly Found in Stormwater

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

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



County Boundary
 Municipal Boundary
 River

Potential Pollution Sources

- Air Quality
- Feedlots
- Hazardous Waste
- Investigation and Cleanup
- Solid Waste
- Stormwater
- SSTS
- Tanks
- Water Quality
- Multiple Programs

Data Source: What's In My Neighborhood Sites, Minnesota Pollution Control Agency, 2020.



0 2,500 5,000
Feet

POTENTIAL POLLUTANT SOURCES
2021 LRRWMO Watershed Management Plan

FIGURE 2-16

Barr Footer: ArcGIS 10.8.1, 2021-05-18 11:44 File: \\barr.com\gis\client\LRWMO\Work Orders\2021\Watershed_Mgmt_Plan\Map\Figure 2-16 Potential Pollutant Sources.mxd User: cmj3



Aerial Imagery: USDA FSA NAIP 2017

3 Issues Assessment

This section summarizes the priority issues identified by the Lower Rum River Watershed Management Organization (LRRWMO) during development of this Plan. Many of the priority issues to be addressed during the life of this Plan are similar to those described in the Third Generation Plan (e.g., ongoing challenges of stormwater management, maintaining and improving water quality) and reflect the statutory responsibilities of WMOs (see Section 1.1).

3.1 Stakeholder Engagement and Issue Identification

As part of Plan development, the Board of Managers solicited input on issues relevant to the Lower Rum River watershed through a variety of stakeholder engagement and data review activities. These included:

- Public kickoff meeting hosted on June 26, 2019
- Citizen Advisory Committee (CAC) issue identification meeting on August 28, 2019
- Technical Advisory Committee (TAC) issue identification meeting on October 29, 2019
- Resident survey (online and in person) completed summer 2019
- Analysis of potential 2011 Plan gaps (Gaps Analysis)
- Review of responses to the Plan notification letter
- Review of engagement and issue identification from Rum River One Watershed, One Plan Project

The Gaps Analysis, summary of responses to the Plan update notification letter, and minutes from the TAC and CAC issue identification meetings are included in Appendix D. The stakeholder engagement and issue identification activities yielded general and specific issues, as well as suggestions for implementation action. Some of the issues identified through engagement efforts, listed by source, include:

Citizen Advisory Committee:

- Streambank erosion (particularly the Rum River)
- Untreated discharges to streams
- Trash accumulation
- Opportunities for education and youth outreach
- Opportunities for resident engagement (volunteer activities)
- Need for increased grant/state funding
- Enforcement of existing regulations (e.g., scenic river buffer areas)
- Chloride loading

Technical Advisory Committee:

- Increased emphasis on groundwater quality
- Streambank erosion
- Trott Brook dissolved oxygen impairment
- Untreated discharges to streams
- Improving efficiency of LRRWMO permit program

- Need for additional information/data to target water quality projects

Resident Survey:

- Streambank erosion
- Rum River water quality/water clarity
- Maintaining/improving water quality in Round Lake
- Minimizing development and associated impacts
- Focus on Rum River, Round Lake, Mississippi River

Responses to notification letter:

- Emphasis on measurable goals and actions
- Increased emphasis on groundwater quality
- Rum River water quality
- Opportunities for education and outreach
- Opportunities for local collaboration
- Chloride loading
- Need for continued water quality monitoring
- Round Lake water quality

3.1.1 Rum River One Watershed, One Plan

Concurrent with the development of the LRRWMO Plan, the Counties and SWCDs of Aitkin, Anoka, Benton, Crow Wing, Isanti, Kanabec, Mille Lacs, Morrison, and Sherburne, as well as the Upper Rum River WMO and LRRWMO are collaborating to develop a comprehensive watershed management plan through the One Watershed, One Plan (1W1P) framework. The 1W1P Partners performed stakeholder engagement activities to identify priority issues applicable within the greater Rum River watershed. Although some specific issues identified have limited applicability within the LRRWMO (e.g., ditch maintenance issues), many of the more general issues are relevant to the LRRWMO and are consistent with the issues identified through the LRRWMO engagement activities. These include:

Groundwater Issues

- Impacts to groundwater quality from pollutants
- Sustainability of groundwater sources and overuse
- Need for increased infiltration

Surface Water Issues

- Managing sources of pollution (e.g., septic systems, agriculture, stormwater)
- Improving quality in waterbodies (e.g., less algae, increased clarity, recreational uses)
- Excess erosion and sedimentation
- Impacts of climate change on runoff, streamflow, and lake levels

Natural Resources Issues

- Need for healthy, connected habitats for fisheries
- Invasive fish and other invasive species
- Preserving water quality and ecological functions of natural areas

Social System Issues (i.e., non-resource based)

- Emphasis on public awareness and education
- Incentives and technical assistance for projects
- Need for policy to mitigate impacts of development, where occurring

The LRRWMO Board of Managers reviewed the draft issues and goals develop for the Rum River 1W1P in February 2020 for consistency with this Plan. As a Partner in the development and future implementation of the Rum River 1W1P, the LRRWMO will continue to promote consistency between this Plan and the actions of the Rum River 1W1P Partnership

Additional information about the Rum River 1W1P is available from the Mille Lacs SWCD at:

<https://www.millelacsswcd.org/rum-river-one-watershed-one-plan/>

3.2 Issue Identification and Prioritization

The LRRWMO Board of Managers participated in a workshop on November 21, 2019 to review issues identified through the activities listed in Section 3.1 (previously presented to the Board of Managers) and discussed their priorities to be addressed in the 2021-2030 Watershed Management Plan. The Board generally concurred that those issues prioritized in the 2011 Plan remain of ongoing and high priority, with the most relevant issues including:

- Adverse impacts from **stormwater runoff**
- Degraded **water quality** of lakes, streams, and rivers

Additional water and natural resource issues that were identified as important for the LRRWMO to address in this Plan include:

- **Flood risk and water quantity** issues
- Excessive **erosion and sedimentation**
- Integrity of **wetlands, shoreland, and natural areas**
- **Groundwater contamination**

In addition to natural resource issues, organizational and/or administrative issues were also identified during Plan development; these include:

- Efficacy and efficiency of the **LRRWMO permit program**
- Limited **funding and capacity**
- Opportunities for **education and engagement**

The priority issues areas and associated specific issues identified by the Board of Managers are summarized in Table 3-1 and discussed in greater detail in the following sections. Issues have been categorized as:

- Resource Level 1
- Resource Level 2
- Organization

Issues categories as “resource” issues apply directly physical resources (e.g., stormwater, Rum River, wetlands) managed by the LRRWMO or its partners. Issues identified as “organization” issues apply to administrative or operational functions of the LRRWMO (e.g., funding, education). Organization issues are critical to the function of the LRRWMO and are a similar priority level to “resource (level 1)” issues.

The LRRWMO Board of Managers will use issue priority levels as a guide for work planning and allocation of funding. Correlation of implementation activities (see Table 5-2) to level 1 and level 2 issues was considered in classifying implementation activities as high or medium priority.

Note that many of the resource issues identified in this Plan are interrelated (e.g., erosion and sedimentation lead to degraded water quality). Thus, many of the goals, policies, and activities included in this Plan address multiple resource issues.

Table 3-1 Summary of Priority Issues and Resources

Issue Area	Priority Level	Specific Issues	Issue ID	Associated Goal(s)
Stormwater Management	Resource Level 1	<ul style="list-style-type: none"> • Untreated discharges to the Rum River • Maintenance of aging municipal infrastructure • Maintenance of private infrastructure • Adequacy of stormwater regulatory controls 	SW-1 SW-2 SW-3 SW-4	SW-A; SW-C SW-D SW-D; RP-B SW-B; RP-B
Surface Water Quality	Resource Level 1	<ul style="list-style-type: none"> • Chloride loading in stormwater • Sediment and other pollutant loading to the Rum River and Mississippi River • Protecting water quality in priority waterbodies • Cedar Creek impairment due to <i>E. coli</i> • Trott Brook impairment due to dissolved oxygen, fish bioassessments, and invertebrate bioassessments 	WQ-1 WQ-2 WQ-3 WQ-4 WQ-5	WQ-H WQ-B/C/D/E/F WQ-A; RP-B RP-B WQ-G; RP-B
Flood Risk and Water Quantity	Resource Level 2	<ul style="list-style-type: none"> • Nuisance flooding identified by cities • Addressing impacts of climate change • Adequacy of floodplain regulatory controls 	FL-1 FL-2 FL-3	FL-B; SW-B FL-C; FL-D FL-A; FC-A
Erosion and Sedimentation	Resource Level 2	<ul style="list-style-type: none"> • Eroded streambanks along the Rum River • Adequacy of erosion and sedimentation controls 	ES-1 ES-2	ES-A; WQ-C RP-A; FC-A
Wetlands, Shorelands, and Natural Areas	Resource Level 2	<ul style="list-style-type: none"> • Need for education regarding wetland buffers and protection • Lack of buffers along Rum River, wetlands, and developed lakes • Coordination with partners on future AIS issues 	NA-1 NA-2 NA-3	NA-B; FC-A ES-A; ED-B NA-A; FC-C
Groundwater Contamination and Supply	Resource Level 2	<ul style="list-style-type: none"> • Need for education addressing drinking water quality and groundwater conservation • Coordination with partners on groundwater planning 	GW-1 GW-2	GW-A; ED-B GW-A; FCC
Regulatory Program Efficacy	Organization	<ul style="list-style-type: none"> • Adequacy of regulatory program to protect resources • Efficiency and coordination of permit program 	RP-1 RP-2	RP-A; FC-A FC-A; FC-C
Funding and Capacity	Organization	<ul style="list-style-type: none"> • Limited funding and staff capacity to implement projects and programs 	FC-1	FC-B; FC-C;
Education and Engagement	Organization	<ul style="list-style-type: none"> • Need for additional education addressing specific topics • Opportunity for engaging schools and youth groups • Opportunity to engage CAC in ongoing roles • Opportunities for coordination with cities 	ED-1 ED-2 ED-3 ED-4	ED-A; ED-B ED-A; ED-B EDA; ED-B FC-C; FC-D

Note: Issue ID is used to correlate specific issues to goals and/or implementation actions

3.3 Resource Issues

3.3.1 Stormwater Runoff Management

Over time, much of the naturally vegetated, wetland-rich landscape of the Lower Rum River watershed has been converted to residential and other developed land uses (see Section 2.3). Development and the associated increase in impervious surface (i.e., surfaces through which water cannot infiltrate) results in increased stormwater runoff rates and volumes. Imperviousness and land disturbance (e.g., construction) result in increased amounts of nutrients, chloride, sediment, and other pollutants carried in stormwater runoff (i.e., loading). Increased stormwater runoff rates and volumes resulting from impervious area also contribute to erosion, threaten existing infrastructure, and increase flood risk. During Plan development, the CAC identified direct (i.e., untreated) stormwater discharges to the Rum River as a concern.

Development also limits the natural ability of the landscape to mitigate the negative environmental impacts of stormwater runoff by reducing infiltration and retention. Infiltration or retention of stormwater runoff is the most effective means of limiting the impacts of urbanization, as these methods reduce the total volume of runoff to the downstream receiving waterbodies. In areas of concentrated development, existing structures, utilities, and land ownership further restrict the opportunities for the LRRWMO and cities to implement cost-effective stormwater best management practices (BMPs). Redevelopment provides an opportunity to retrofit stormwater BMPs in areas that may not currently receive adequate treatment.

Further development and urbanization of the LRRWMO is anticipated into the future (see Section 2.3), emphasizing the need for systems to mitigate the negative impacts of stormwater runoff, including regulation, education, and projects (e.g., best management practices, or BMPs). Each of the Cities within the LRRWMO maintains a Municipal Separate Storm Sewer System (MS4) permit that details measures that the cities use to mitigate the negative impacts of stormwater runoff (see Section 2.7.5). In addition, the LRRWMO implements performance standards to mitigate the impacts of development of stormwater runoff.

Private developers, cities, the LRRWMO, and other partners have constructed BMPs to improve the quality and reduce the volume of stormwater runoff. Proper operation and maintenance of these BMPs is necessary to achieve the intended benefits. As stormwater management infrastructure continues to age, maintenance, repair, and eventual replacement of infrastructure may place additional financial burden on cities and owners of private infrastructure.

3.3.2 Surface Water Quality

The lakes, streams, and rivers within the LRRWMO are valued resources that provide recreational and ecological benefits. Protecting the water quality of these resources by reducing pollutant loading is key to ensuring these benefits.

The sources of water pollution in the LRRWMO are many and varied. Potential pollutant sources in the watershed include permitted sources, potentially contaminated sites, leaking above- and below-ground storage tanks, unsealed wells, and non-point sources such as stormwater runoff (see Section 3.3.1). For

many waterbodies in the LRRWMO, stormwater runoff is a major contributor of pollutants. Pollutants in stormwater runoff include phosphorus and other nutrients, sediment, chlorides, oil, grease, chemicals (including hydrocarbons), metals, litter (e.g., plastics, Styrofoam), and pathogens which can severely reduce water quality. Nutrient and sediment loading to waterbodies from stormwater runoff can far exceed what would be expected from an undeveloped watershed. Chloride loading from runoff carrying road salt applied to roadways, parking lots, sidewalks, and other developed areas throughout the winter months is also a significant pollutant source.

In LRRWMO lakes and wetlands, phosphorous is the pollutant of most concern. As total phosphorus (TP) loads increase, it is likely that water quality degradation will accelerate, resulting in unpleasant consequences such as profuse algae growth or algal blooms (reflected in high chlorophyll-*a* concentrations). Algal blooms, overabundant aquatic plants, and nuisance/exotic species, such as Eurasian watermilfoil, purple loosestrife, and curly-leaf pondweed, will flourish and interfere with ecological function as well as recreational use and the aesthetics of waterbodies. Sediment is also a pollutant of concern. Sediment contributes to poor water clarity that affects vegetation growth and deposits onto stream and lake beds, impacting aquatic habitat. It is also a substrate to which phosphorus and other pollutants bind.

The Minnesota Pollution Control Agency (MPCA) is the state regulatory agency primarily tasked with protecting and improving water quality in Minnesota. In administering the CWA in Minnesota, the MPCA also maintains a list of impaired waters (see Section 2.7.4). Often pollutant loading from tributary watersheds must often be reduced to control or reverse water quality degradation in impaired water bodies. TMDL and/or WRAPS implementation presents an opportunity for the LRRWMO to coordinate water quality improvement efforts between cities and other partners.

Regular water quality monitoring performed by the ACD, MPCA, and other partners is necessary to identify water quality issues and trends (see Section 2.7.3). Specific water quality issues identified within the LRRWMO include:

- Cedar Creek is impaired for aquatic recreation due to *E. coli*
- Trott Brook is impaired for aquatic life due to dissolved oxygen, fish bioassessments, and invertebrate bioassessments
- Protection of good water quality conditions observed in LRRWMO priority lakes
- Sediment and other pollutant loading to the Rum River and Mississippi River

Addressing water quality issues in the Rum River and Mississippi River is challenging because of the size and location of the LRRWMO within the respective watersheds of these resources. While the LRRWMO focuses on reducing the pollutant loading to the Rum River and Mississippi River within its jurisdiction, the benefits of its actions may not be observable in river water quality data.

3.3.3 Flood risk and water quantity issues

In a natural, undeveloped setting, pervious ground cover allows water, including stormwater runoff, to infiltrate the soil. Land development and increased impervious areas alter natural drainage patterns and

increase the rate and volume of stormwater runoff. The additional volume of runoff can increase water levels in ponds, lakes, streams, and wetlands, which increases the potential for erosion and flooding. It also causes large, flashy flows in storm sewers, which increases the potential for flooding and property damage. Increased precipitation also results in high water tables and increased groundwater flow to springs, potentially threatening the stability and capacity of downstream structures.

Managing the risk of flooding is a focus of the LRRWMO and its cities due to the potential threat to public health and safety, infrastructure, and the environment. In addition to property damage, flooding may cause other impacts that are harder to quantify, including the following:

- Flooding of roads making them impassable to emergency vehicles and residents
- Shoreline erosion
- Destruction or alteration of riparian habitats
- Restricted recreational use of waterbodies, trails, and adjacent lands
- More strain on budgets and personnel for repairing flood-damaged facilities and controlling public use of facilities during flooding events

The Federal Emergency Management Agency (FEMA) has identified areas prone to flooding during 100-year flood events to assist cities and residents in managing flood risk. FEMA-mapped floodplains within the LRRWMO are generally limited to areas surrounding lakes, ponds, and streams and may not reflect localized flood risk related to stormwater conveyance systems (see Figure 2-13).

During plan development, member cities were polled and did not identify significant flood risk issues for which LRRWMO assistance is requested. Minor local flooding issues (e.g., temporary street flooding) are described in the local water management plans of Andover, Anoka, and Ramsey.

While there are few existing flood risk issues, precipitation patterns are trending towards larger, more intense storms (see Section 2.1.2). [NOAA's 2013 assessment](#) of climate trends for the Midwest found that precipitation amounts are predicted to increase significantly over what is historically used in floodplain assessments and infrastructure design. Median estimates of mid-21st century 24-hour precipitation events with a 1% chance of occurring in a given year (i.e., 100-year event) exceed 10 inches, a significant increase over current design values (which vary from approximately 7.0" to 7.4" across the watershed for the 100-year event, see Section 2.1.1). Understanding the hydrologic response of the watershed to large precipitation events is critical to identifying areas of flood risk and evaluating strategies to reduce flood risk or damages. The CAC identified flood risk and water quality impacts (e.g., increased erosion) resulting from increased precipitation as high priority to be addressed in the LRRWMO Plan.

Existing development in portions of the LRRWMO limits the available physical space for capital improvements to address local flooding issues. Appropriate rate and volume control applied throughout the watershed are necessary to minimize future flooding issues. The LRRWMO's regulatory program includes criteria intended to limit adverse impacts to floodplains and minimize flooding. The negative

impacts of flooding may be further minimized by thoughtful management of the floodplain achieved through education and other activities.

3.3.4 Erosion and Sedimentation

Sediment is a major contributor to water pollution. Stormwater runoff from streets, parking lots, and other impervious surfaces carries suspended sediment consisting of fine particles of soil, dust, and dirt.

Abundant amounts of suspended sediment are carried by stormwater runoff from actively eroding areas, including unstable or degraded stream and lake shorelines.

Although erosion and sedimentation are natural processes, they are often accelerated by human activities, including development and other land use changes. Loss of vegetation limits the ability of the landscape to intercept rainfall and slow stormwater runoff, limiting the opportunity for runoff to infiltrate into the soil. Land development may also result in the grading and filling of natural depressions that previously provided temporary storage of rainfall and opportunities for infiltration and sediment removal. Increased precipitation volumes and intensities can also result in increased stormwater runoff, further accelerating upland erosion and contribute to higher flows in downstream resources, accelerating streambank erosion. Erosion along the banks of the Rum River was identified as an issue by the TAC and CAC during Plan development and is identified as a source of sediment in the Rum River WRAPS (see Section 2.7.4.1).

Regardless of its source, sediment deposition can decrease water depth, degrade water quality, smother fish and wildlife habitat, and impact aesthetics. Excessive sediment deposition in wetlands, detention ponds, and other infrastructure can impact stormwater system performance by reducing conveyance and water quality treatment performance. As erosion and sedimentation increase, the stormwater management systems (e.g., ponds, pipes) require more frequent maintenance, repair, and/or modification to ensure they will function as designed.

The LRRWMO implements a permit program and associated performance standards to limit the opportunity for excessive erosion and sedimentation. In addition, owners and operators of construction sites disturbing 1 or more acres of land must obtain a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit from the MPCA. A key permit requirement is the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) with appropriate best management practices (BMPs) that address erosion and sediment control.

3.3.5 Wetlands, Shoreland, and Natural Areas

Healthy wetland systems, shoreland areas, riparian areas, and natural spaces are critical components of the hydrologic system and positively affect soil health, groundwater, surface water quality and quantity, wildlife, fisheries, aesthetics, and recreation. Development of the watershed for residential, commercial, and other land uses (see Section 2.3) has resulted in the loss of wetlands and natural vegetation. However, many wetlands, areas of biological significance, and other natural areas remain (see Figure 2-9, Figure 2-14, and Figure 2-15). Most natural and semi-natural areas are located within city and regional parks and are protected from future development. Within the watershed, the LRRWMO protects wetlands

from further loss and degradation through administration of the Wetland Conservation Act (WCA) and LRRWMO permit program (see Section 5.3.2.1.).

Many of the hydrologic, water quality, and habitat benefits achieved by wetland and shoreland areas are dependent on the presence of buffers – upland, vegetated areas located adjacent to wetlands and shoreland areas. Establishing buffers in developed areas may be difficult, as existing structures may be located within the desired buffer area. Redevelopment offers an opportunity to establish adequate buffers in areas that are already developed. The LRRWMO requires buffers to be maintained around wetlands during construction but does not require permanent wetland buffers (although some developers do this independently). Wetland buffer standards were considered during Plan development; ultimately, the Managers elected to defer adoption of more stringent buffer requirements to member cities. During Plan development, the TAC noted a need for continued wetland education.

The development and preservation of buffers along the Rum River and Mississippi River are regulated by state shoreland requirements (see Section 2.9.1 and Section 2.9.2) and enforced by cities at the local level. The CAC cited lack of adequate vegetated buffers along portions of the Rum River as a specific concern. The LRRWMO assists member cities, as requested, in addressing buffer and shoreline issues on a case-by-case basis.

The ecological functions, quality, and recreational benefits of natural resources may be negatively impacted by aquatic and terrestrial invasive species – non-native plants and animals that outcompete and displace native species. The MDNR established the Invasive Species Program in 1991. The program is designed to implement actions to prevent the spread of invasive species and reduce the impacts caused by invasive species to Minnesota’s ecology, society, and economy. The MDNR provides technical support to counties, local governments, and their partners to develop AIS prevention strategies. The MDNR also maintains a list of waters infested with specific AIS – no LRRWMO waterbodies are listed as of 2020. The LRRWMO will continue to work with its member cities, Anoka County, and the MDNR to identify, track, and manage future AIS issues within the watershed as they arise.

During Plan development, member cities were polled and did not identify known invasive species within the watershed.

3.3.6 Groundwater Contamination and Supply

Maintaining clean, safe groundwater supplies is critical to human and environmental health and to the economic and social vitality of communities. Residents within the LRRWMO obtain their drinking water from municipal groundwater wells and private domestic wells. Most private wells are located in the surficial aquifer, which is sensitive to contamination within the watershed (see Figure 2-6). Potential sources of contamination include leaking underground storage tanks, unsealed wells, failing or non-performing subsurface sewage treatment systems (SSTS), infiltration of contaminated surface water, and others (see Section 2.10). Owners of private wells may not be aware of water quality issues (which may include elevated concentrations of nitrates, arsenic, and the presence of pesticides) due to the lack of any required testing.

Prevention of groundwater contamination through best management practices is critical. Once contaminated, groundwater may remain contaminated for long periods of time. Groundwater clean-up is expensive and technically complex, even when feasible. Increased public awareness of the importance of drinking water protection on the public's general health and well-being is critical to promote practices that protect the quality of groundwater.

While the LRRWMO promotes infiltration as a preferred method of stormwater treatment, it may have negative consequences in areas with vulnerable groundwater resources. To protect these resources, the LRRWMO requires that infiltration practices be implemented with consideration of guidance provided by the MPCA MS4 general permit (2020, as amended), NPDES General Construction Stormwater permit (2018, as amended) and MIDS guidance (2013, as amended). For example, infiltration is prohibited in DWSMA emergency response zones (and alternative water quality treatment methods are required).

During the development of this Plan, the ACD identified groundwater protection education and increased understanding of groundwater quality and quantity as specific issues of concern. The MDNR also cited groundwater conservation as a priority issue and suggested potential LRRWMO roles in relation to groundwater. The CAC further identified SSTS management as priority issues related to groundwater contamination. The LRRWMO considered TAC and CAC input in the development of the policies, goals, and implementation actions to address groundwater included in this Plan.

3.4 Organizational Issues

3.4.1 Efficacy of the LRRWMO Permit Program

Since its inception, the LRRWMO permitting program has been the primary focal point of the LRRWMO's activities and means by which the LRRWMO pursues its goals. The program requires the review and approval of projects that disturb or alter an area of more than 1 acre. During Plan development, the TAC identified permit program efficiency as an issue. Member city staff met to discuss the efficacy of the permit program, consider potential updates to performance standards, and identify modifications to improve permitting efficiency.

Concurrent with the development of this Plan, the LRRWMO updated its permitting process to include separate permit applications for:

- Wetland impacts
- Stormwater management and erosion control

The updated permit application also clarifies the sequence for review and coordination between member cities, the LRRWMO, and the LRRWMO engineer. The updates to the permit application and process should reduce city staff time spent coordination with applicants and ultimately reduce costs to implement the program.

During Plan development, the LRRWMO and city staff concurred that the current performance standards and permit program appropriately balance environmental protection with community development needs with consideration for observed water quality (i.e., no declining trends, see Section 2.7.4.1), comparison to

other local and regional guidance, and feedback from cities and developers. The LRRWMO performance standards are generally aligned with the MPCA's NPDES construction stormwater general permit to further promote efficiency.

3.4.2 Funding and Capacity

The LRRWMO is funded by public dollars collected by its member cities, permit review fees paid by project applicants, and through grants from government agencies (which are also ultimately taxpayer-funded). Thus, the extent to which the LRRWMO may implement projects and programs to pursue its goals is balanced against a reasonable tax burden to its member cities, similar to several Joint Powers Organizations (i.e., watershed management organizations) in the outer Twin Cities metropolitan area. The LRRWMO seeks to spend its funds in a responsible manner that considers the relative benefits and efficiency of its actions. The benefits of effective water and natural resource management actions are difficult to quantify – especially when achieved in the form of pollution prevention as is the focus of the LRRWMO permitting program. Effective use of resources can generally be accomplished by avoiding redundancy with partners (e.g., avoiding duplication of City MS4 responsibilities), financially supporting partner activities to leverage existing expertise/roles (e.g., leveraging ACD for monitoring and education roles) and focusing on core WMO programs (e.g., project permitting, wetland roles).

During Plan development, both the TAC and CAC cited generally cited funding limitations (i.e., total dollars available at the state level) as barriers to implementing resource protection projects and programs of the size and scope to restore and protect priority resources. Current LRRWMO capacity is appropriate to its revenue and expenses. Additional grant funding and BWSR's recently implemented watershed-based implementation funding (WBIF) may provide additional resources to achieve the LRRWMO goals in the future. The LRRWMO Board of Managers will seek to leverage additional funding sources and adjust its planned implementation as resources allow (see Section 5.4 and Table 5-2). In addition, the LRRWMO will continue to rely on member city and partner staff, as appropriate, in collaborative actions. The LRRWMO continues to review its accomplishments and expenses to evaluate the value of its projects and programs as part of its biennial assessment (see Section 5.5), using best professional judgment and available data.

3.4.3 Education and Engagement

Public education and engagement are important pathways to protect water and natural resources. Pollution prevention and other behaviors practiced by businesses and residents can cumulatively mitigate negative impacts to resources, limiting the need for expensive restoration action. Through education and engagement, the LRRWMO and its partners can empower local advocates for natural resource stewardship in their neighborhoods and communities.

During Plan development, the TAC and CAC cited the need for increased education regarding specific environmental issues, including, but not limited to:

- Chloride and salt application
- Groundwater conservation
- Buffers and shoreline management

-
- Drinking water quality and well testing

The CAC noted the opportunity for increased outreach to schools and youth groups to increase community capacity. The ACD also noted the importance of consistent and coordinated messaging to promote resident action.

Because the LRRWMO does not have full time staff, LRRWMO performs its education and engagement duties primarily through its member cities and the ACD (through the ACD education coordinator). Activities included in the LRRWMO education program, as executed through its partners, are described in Section 5.3.3. The LRRWMO also maintains a website containing meeting minutes, contact information, and reports and studies, including the watershed management plan. The LRRWMO website also contains links to other reference and educational material. More information is available at the LRRWMO website: <http://www.lrrwmo.org/>

4 Goals and Policies

The Lower Rum River Watershed Management Organization (LRRWMO) has established goals to address the water and natural resource management issues described in Section 3. LRRWMO goals are aligned with the broad statutory purposes listed in Minnesota Statutes 103B.201 but are more specific in their application to LRRWMO resources. The LRRWMO has also adopted policies to support the achievement of LRRWMO and partner goals. Goals and policies are described in this section.

4.1 Goals

LRRWMO goals are presented in Table 4-1. Goals are generally grouped according to issue area (see Section 3) although many of the goals address multiple issues. Measures and/or outputs have been identified for each goal to assist in evaluating progress. Where appropriate, goals contain measurable quantities to evaluate progress (see Section 5.5.2). While effort has been made to provide quantifiable metrics to assess pace of progress, progress towards some goals may also be evaluated based on the completion of specific activities (e.g., CAC meetings held) or qualitatively assessment based on member city and other partner input.

The LRRWMO acknowledges that implementation of this Plan and partner activities may provide additional data to inform LRRWMO goals (e.g., additional monitoring data). The LRRWMO, as part of reporting and assessment (see Section 5.5), will consider whether revision to LRRWMO goals are needed.

Table 4-1 LRRWMO goal statements and associated metrics

Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output
Stormwater Management	Level 1	SW-A	Reduce phosphorus loading by 10 lbs/year and sediment loading by 10 tons/year to the Rum River through retrofit or redevelopment of stormwater systems with limited or no existing water quality treatment	Retrofit/redevelopment projects: 5 over 10 years; TP reduction: 10 lbs/year total; TSS reduction: 10 tons/year total
		SW-B	Manage stormwater runoff with practices that mimic natural hydrology by infiltrating a volume equivalent to 1.0 inches over new and redeveloped or existing impervious surfaces for at least 90% of permitting projects	Reviewed projects: 90% of projects achieving goals through abstraction/infiltration
		SW-C	Infiltrate an additional 5 acre-feet per year through retrofit or redevelopment of existing stormwater systems with limited or no volume reduction	Retrofit/redevelopment projects: 5 over 10 years; Volume reduction: 5 acre-feet/year total;
		SW-D	Achieve intended water quality and quantity function from stormwater infrastructure through required inspection and maintenance of City facilities and establishment of maintenance agreements for 100% of LRRWMO-permitted projects	Summary of maintenance agreements submitted with SWPPPs; Review of annual reports from cities
Surface Water Quality	Level 1	WQ-A	Maintain or improve existing water quality in priority LRRWMO waterbodies: - Grass (Sunfish) Lake (TP= 14 µg/L, Chl <i>a</i> = 5.8 µg/L, SD = 1.3 m) - Round Lake (TP = 31 µg/L, Chl <i>a</i> = 7.9 µg/L, SD = 2.9 m) - Rum River (TP = 100 µg/L, TSS = 30 mg/L)	Water quality monitoring results
		WQ-B	Maintain TP in the Rum River below 100 µg/L by reducing phosphorus loading to the Rum River from the LRRWMO by 100 lbs/year through non-structural and structural improvements (e.g., streambank stabilization) (supporting the 5% TP load reduction of the Rum River 1W1P)	Water quality monitoring results; TP reduction: 100 lbs/year; at least 2 capital improvements/ restoration projects

Table 4-1 LRRWMO goal statements and associated metrics

Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output
Surface Water Quality	Level 1	WQ-C	Maintain TSS in the Rum River below 30 mg/L by reducing TSS loading to the Rum River by 75 tons/year through non-structural and structural improvements (e.g., streambank stabilization) (see also goal ES-A) (supporting the 5% sediment load reduction of the Rum River 1W1P)	TSS reduction: 75 tons/year; at least 2 capital improvements/ restoration projects
		WQ-D	Promote practices to reduce bacteria loading to the Mississippi River and Rum River through targeted outreach and education to achieve bacterial water quality standards (126 CFU/mL monthly geometric mean, April–October) in the Mississippi River (Upper Mississippi River Bacteria TMDL)	Educational distributions (at least 1 per year) targeting shoreline owners addressing topics (e.g., pet waste, vegetated buffers, SSTS maintenance)
		WQ-E	Work towards achieving MPCA water quality standards applicable to the Mississippi River (TP < 100 mg/L, TSS < 30 mg/L) by reducing phosphorus loading to the Mississippi River from the LRRWMO by 30 lbs/year through non-structural and structural improvements (e.g., streambank stabilization)	Water quality monitoring results; TP reductions from projects in the Mississippi River watershed
		WQ-F	Work towards achieving MPCA water quality standards applicable to the Mississippi River (TP < 100 mg/L, TSS < 30 mg/L) by reducing sediment loading to the Mississippi River from the LRRWMO by 25 tons/year through non-structural and structural improvements (e.g., streambank stabilization)	Water quality monitoring results; TSS reductions from projects in the Mississippi River watershed
		WQ-G	Promote increased dissolved oxygen concentrations in Trott Brook (towards 75% of samples above 5 mg/L) over 10 years through education for riparian landowners, targeted pollution prevention practices (to reduce phosphorus and organics), and identification of shoreline restoration opportunities.	Water quality monitoring results; Targeted education materials; projects implemented in Trott Brook watershed; review of riparian restoration opportunities
		WQ-H	Achieve 100% of member communities implementing MPCA recommended best practices for chloride management	City MS4 practices; education distributions (at least 1 per year) addressing topics

Table 4-1 LRRWMO goal statements and associated metrics

Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output
Flood Risk and Water Quantity	Level 2	FL-A	Maintain existing floodplain volume and function (i.e., no net loss)	LRRWMO performance standards enforced on permitted projects; city official controls maintained
		FL-B	Limit flood risk to structures through the implementation of minimum building elevations and rate control standards for new development and redevelopment	LRRWMO performance standards enforced on permitted projects; city official controls maintained
		FL-C	Mitigate negative impacts of climate change by considering present and future climate and precipitation trends when evaluating LRRWMO performance standards at least once during Plan implementation	Review of LRRWMO performance standards
		FL-D	Evaluate water levels in LRRWMO priority waterbodies to evaluate hydrologic impacts of climate change, development, and other drivers	Water level and hydrology monitoring data
Erosion and Sedimentation	Level 2	ES-A	Reduce sediment loading from streambank erosion along the Rum River by approximately 75 tons/year through streambank stabilization and restoration actions over an estimated 500 feet. (see also goal WQ-C) (supporting the 5% sediment load reduction of the Rum River 1W1P)	2+ projects totaling 500 feet of shoreline and 75 tons/year TSS reduction over 10 years
Wetlands, Shorelands, and Natural Areas	Level 2	NA-A	Work with partners to minimize the spread and negative impact of aquatic invasive species	Cooperative opportunities; education distribution (at least 1 per year) addressing topics; supporting programming of the Anoka County aquatic invasive species coordinator
		NA-B	Minimize negative impacts to wetlands through continued administration of the Wetland Conservation Act	Wetland permitting process and LRRWMO performance standards; wetland education and outreach efforts

Table 4-1 LRRWMO goal statements and associated metrics

Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output
Groundwater Contamination and Supply	Level 2	GW-A	Limit pollutant loading to groundwater in cooperation with partners to through coordinated education efforts and providing technical assistance, as requested	Cooperative opportunities (coordinate with Anoka County at least annually); education distribution (at least 1 per year) addressing topics
Regulatory Program Efficacy	Organiz-ation	RP-A	Improve regulatory efficiency and environmental benefits through regular (annual) review and in-depth review/updates to the LRRWMO rules and permit program at least once every five years	Review of performance standards; % of complete applications acted on in prescribed timeframe; % of permits inspected consistent with City requirements; % of applicable maintenance agreements filed with Cities;
		RP-B	Minimize increases in loading of nutrients, sediment, and other pollutants to downstream water resources resulting from development and redevelopment through the continued implementation of the LRRWMO rules and permit program	% of permits meeting standards without exceptions/ variances; Reviewed projects: 100% of applicable projects (est. 150 over 10 years); estimated TP prevention: 800 lbs/year total; estimated TSS prevention: 80 tons/year total
Funding and Capacity	Organiz-ation	FC-A	Evaluate the implementation and effectiveness of LRRWMO programs and activities and adjust activities using an adaptive management approach	Review of performance standards; annual meeting with city staff; annual report/progress assessment; plan amendments (as needed)
		FC-B	Increase the use of grant funding and cost-share opportunities to achieve LRRWMO goals by pursuing at least 5 grant opportunities and/or cost-share projects over 10 years	5 grants/cost-share applications over 10 years

Table 4-1 LRRWMO goal statements and associated metrics

Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output
Funding and Capacity	Organization	FC-C	Coordinate with cities and partners to most efficiently achieve LRRWMO goals through shared expertise and resources	TAC meetings (at least 1 per year)
		FC-D	Work with partners to consider and incorporate recreational benefits in coordination with LRRWMO programs and projects	Meetings with partners (1+ per year); review of partner projects for recreational benefits
Education and Engagement	Organization	ED-A	Increase public awareness and support for LRRWMO actions through education and engagement activities (see Section 5.3.3)	ACD education coordinator actions; city articles (4 per year); CAC meetings (2 per year); Education Plan; Events attended, stakeholder group meetings (adapted from Rum River 1W1P); See Section 5.3.3
		ED-B	Increase community capacity to engage in behaviors and practices to improve the quality of water and natural resources through education and at least 1 volunteer opportunity per year (see Section 5.3.3)	ACD education coordinator actions; city articles (4 per year); CAC meetings (2 per year); Volunteer opportunities (1 per year); Education Plan; Events attended, stakeholder group meetings (adapted from Rum River 1W1P); See Section 5.3.3

Note: Goal ID is used to correlate implementation actions to applicable goal(s)

4.2 Strategies and Policies

The LRRWMO uses four primary strategies to implement this Plan and achieve its organizational goals and statutory obligations. These strategies include:

- Regulation
- Education
- Cooperation
- Operations

Generally, these strategies include all of the LRRWMO’s activities. Different strategies are emphasized for different target audiences of this Plan, as follows:

		Target Audiences			
		Residents, Businesses, Public	City Staff and Governments	Developers	Regulatory Agencies
Strategy	Regulation	X	X	X	
	Education	X	X	X	
	Cooperation		X		X
	Operation		X		

These strategies are supplemented by policies established by the LRRWMO. These policies apply to one or more target audiences and promote the achievement of LRRWMO goals. Policies and strategies are described in greater detail in the following the following sections.

4.2.1 Cooperation

The LRRWMO is one of many organizations with authorities and responsibilities for the management and protection of water and natural resources. These organizations may implement rules, permits, programs, and projects within, or applicable to, the LRRWMO’s jurisdiction. Coordination of planning, programs, and projects between the LRRWMO and existing and potential partner organizations is important to efficiently achieve shared goals while avoiding redundancy. Working with partners also allows sharing of knowledge, innovative methods, and new technologies.

Organizations the LRRWMO will cooperate or partner with during Plan implementation include:

- Anoka Conservation District: www.anokaswcd.org/
- Anoka County Public Health and Environmental Services: www.anokacounty.us/522/Public-Health-and-Environmental-Services
- Metropolitan Council www.metrocouncil.org

-
- Minnesota Board of Water and Soil Resources www.bwsr.state.mn.us
 - Minnesota Department of Agriculture www.mda.state.mn.us
 - Minnesota Department of Health www.health.state.mn.us
 - Minnesota Department of Natural Resources www.dnr.state.mn.us
 - Minnesota Pollution Control Agency www.pca.state.mn.us
 - US Army Corps of Engineers www.mvp.usace.army.mil

Generally, the content of this Plan is consistent with the guidance of cooperating agencies. Many of the potential partner organizations listed above were consulted during the development of this Plan through a Technical Advisory Committee (see Section 3.1). The implementation schedule (see Table 5-2) identifies potential partners for specific activities, where appropriate. The LRRWMO will continue to seek opportunities to leverage partnerships to more effectively and efficiently implement its programs and projects.

The primary focus of the LRRWMO will be on water resource management issues that cross municipal boundaries (i.e., intercommunity issues). The LRRWMO is well-positioned to convene local stakeholders including city and county governments, residents, and property owners. Regular communication and coordination between member cities, the LRRWMO, and local stakeholders will occur throughout Plan implementation. Examples of this coordination may include stormwater BMPs implemented in cooperation with city parks, street reconstruction efforts, and other infrastructure programs.

4.2.2 Education

Education and public engagement are important strategies for protecting and improving water and natural resources. Through education, the LRRWMO can empower local advocates for watershed stewardship, effectively increasing the LRRWMO's capacity for action. Pollution prevention and other behaviors practiced by residents can limit degradation of natural resources.

Effective communication and engagement are necessary to establish and develop relationships between the District and the communities in which the District and its partners serve. The LRRWMO has established several education and public engagement policies to foster responsible water quality management practices by educating residents, business owners, member communities, and developers. Education and public engagement policies are presented in Table 4-2.

Table 4-2 LRRWMO Education Policies

No.	Policy	Target Audience(s)	Implementing Entities
1	The LRRWMO will continue to work with the Anoka Conservation District, member cities, and other partners to develop and distribute educational materials to inform stakeholders regarding water and environmental issues and promote responsible environmental practices.	Residents, Developers, Business owners, City staff, City councils	LRRWMO, ACD, Cities
2	The LRRWMO will continue to maintain its website as a primary source of information and communication tool.	Residents, Developers, Business owners, City staff, City councils	LRRWMO, ACD
3	The LRRWMO will leverage new technology platforms communication tools, as appropriate, to engage residents and other stakeholders.	Residents, Developers, Business owners,	LRRWMO
4	The LRRWMO will engage with member cities, developers, and project applicants to communicate permit requirements and promote consistency and efficiency in program implementation.	Developers, City staff, City councils	City staff, LRRWMO Administrator
5	The LRRWMO will work with ACD to solicit volunteers to participate in LRRWMO monitoring, outreach, and other Plan activities.	Residents	LRRWMO, ACD

4.2.3 Regulation

The LRRWMO has adopted policies that leverage its own, and its member cities', regulatory authority with respect to water and natural resources. Implementation of some policies is delegated to the LRRWMO member cities. The LRRWMO will review the implementation of these policies with the member communities annually to assess applicability and compliance (see Section 5.7). The LRRWMO regulatory policies are presented in Table 4-3.

Table 4-3 LRRWMO Regulation Policies

No.	Policy	Target Audience(s)	Implementing Entities
6	The LRRWMO requires water quality treatment through volume reduction for development and redevelopment projects disturbing at least 1 acre. Volume reduction must be consistent with the LRRWMO Stormwater Standards included in Appendix E.	Developers, Cities	LRRWMO
7	<p>The LRRWMO requires infiltration practices to be implemented in accordance with the guidance for determining the feasibility of infiltration included in Appendix E and consistent with:</p> <ul style="list-style-type: none"> • NPDES General Construction Stormwater Permit (2013, as amended) • Minimal Impact Design Standards (MIDS) Design Sequence Flow Chart (2013, as amended) • Minnesota Department of Health’s Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas (MDH, 2007) <p>The LRRWMO requires that infiltration practices be designed consistent with the guidance included in the Minnesota Pollution Control Agency’s Minnesota Stormwater Manual</p>	Developers, Cities	LRRWMO
8	The LRRWMO requires that stormwater management practices constructed as a condition of development or redevelopment shall be placed in drainage and utility easements dedicated to the member city.	Developers	LRRWMO Cities
9	The LRRWMO will cooperate with member cities, the MPCA, and other stakeholders in the preparation of total maximum daily load (TMDL) studies for waterbodies on the MPCA’s current or future impaired waters 303(d) list. The LRRWMO will incorporate TMDL implementation items into its Watershed Management Plan as applicable to promote efficiency, coordinate intercommunity projects, and more effectively pursue grant/partner funding to implement TMDL projects.	Cities MS4s Residents	LRRWMO Cities MPCA
10	For development and redevelopment projects triggering a LRRWMO permit, the LRRWMO requires the establishment of temporary, vegetated buffers adjacent to wetlands of at least 16.5 feet. The LRRWMO encourages member cities to adopt more stringent wetland buffer requirements for new development.	Developers	LRRWMO Cities
11	The LRRWMO will serve as the Local Government Unit (LGU) for administering Wetland Conservation Act (WCA) within its member cities (excluding MNDOT jurisdiction).	Developers Cities	LRRWMO

Table 4-3 LRRWMO Regulation Policies

No.	Policy	Target Audience(s)	Implementing Entities
12	The LRRWMO requires the submission and implementation of erosion and sediment control plans for land disturbance activities of 1 acre or more in size (unless the project is for agricultural purposes, as defined by the Municipal Comprehensive Land Use Plans). These plans shall conform to the general criteria set outlined in the Minnesota Pollution Control Agency "Protecting Water Quality in Urban Areas," Municipal Ordinances, and the NPDES Construction General permit .	Developers Cities	LRRWMO
13	Member cities shall continue managing erosion and sediment control permitting programs and ordinances as required by their MS4 general permit and the NPDES Construction Stormwater General Permit . These programs must address: <ul style="list-style-type: none"> • Permitting and inspection of erosion controls • Erosion and sediment control at individual building sites • Requirements and procedures for reviewing, approving, and enforcing erosion control plans 	Developers	Cities
14	The LRRWMO requires that member cities maintain floodplain ordinances that are consistent with the LRRWMO Stormwater Standards (see Appendix E), including minimum building elevations (including basements) at least 2 feet above the 100-year floodplain elevation.	Developers Residents	Cities
15	The LRRWMO requires compensatory storage for impacts to floodplain storage (i.e., no net loss in floodplain storage) and prohibits filling/encroachment of FEMA-delineated floodways.	Developers Residents	Cities
16	The LRRWMO allows only land uses in the LRRWMO-established or FEMA-delineated floodplain that will not be damaged by floodwaters and will not increase flooding. Allowable types of land use that are consistent with the floodplain include recreation areas, parking lots, temporary excavation and storage areas, public utility lines, agriculture, and other open spaces.	Developers Residents	Cities
17	The LRRWMO requires member cities to maintain ordinances that are consistent with Minnesota Rules, Chapter 6120.5000 and LRRWMO performance standards included in the LRRWMO Rules. Member cities must submit updates to floodplain ordinances to the LRRWMO for review.	Developers Residents	Cities

4.2.4 Operations

The operations strategy refers to administrative and organizational roles of the LRRWMO and its member cities. These policies address ongoing programs (e.g., monitoring), reporting and assessment, funding, BMP maintenance, planning, and other activities associated with water resource management within the LRRWMO. The operations policies adopted by the LRRWMO are presented in Table 4-4.

Table 4-4 LRRWMO Operations Policies

No.	Policy	Target Audience(s)	Implementing Entities
18	The LRRWMO will continue to work with the Anoka Conservation District, member cities, and other partners to perform water quality and water quantity monitoring of priority resources.	Public Cities MPCA	LRRWMO ACD
19	The LRRWMO will continue to engage the Anoka Conservation District acting as the depository and coordinator for the collection of water quality data to assure consistency and comparability of data.	Public Cities MPCA	ACD
20	The LRRWMO will assess priority water resources relative to applicable water quality standards annually; where declining trends and/or water quality standard exceedances are identified, the LRRWMO will work with the appropriate member cities to evaluate the situation and develop resource specific water quality improvement or protection strategies.	Public Cities LRRWMO	LRRWMO Cities
21	The LRRWMO requires that each member city perform all duties required as part of its NPDES MS4 stormwater permit.	Public Cities	Cities
22	Member cities are responsible for maintenance of their public drainage systems to ensure intended functions (excepting County ditches and other public ditches for which the City is not the ditch authority).	Public Developers Cities	Cities
23	Owners of private stormwater facilities shall be responsible for maintenance to ensure the intended function of those facilities, except where documented maintenance agreements exist. Maintenance of private ditches and other stormwater facilities are subject to LRRWMO permit requirements, if applicable.	Public Developers	Cities LRRWMO
24	The LRRWMO recognizes Anoka County's jurisdiction over public ditches in the LRRWMO (except for County Ditch 3/66 and Ditch 43 the responsibility of the City of Ramsey, per Joint Powers Agreement dated April 18, 2002).	Anoka County	LRRWMO
25	The LRRWMO defers management authority of the Rum River Dam to the City of Anoka. The LRRWMO will collaborate on management decisions, as requested by the City of Anoka.	City of Anoka	LRRWMO
26	Member cities are required to develop local water management plans consistent with Minnesota Rules 8410. All local water management plans shall be consistent with the LRRWMO Plan and Rules. The LRRWMO shall review local water management plans.	Public Cities	LRRWMO Cities
27	The LRRWMO will work with member cities to periodically review and update its permit program to improve consistency, efficiency, and ensure the intended benefits are achieved.	Cities	LRRWMO
28	The LRRWMO will continue to track excess stormwater retention volume (i.e., "banking") and seek opportunities for future banking sites and projects.	Developers Cities	LRRWMO

Table 4-4 LRRWMO Operations Policies

No.	Policy	Target Audience(s)	Implementing Entities
29	The LRRWMO will collaborate with the URRWMO, Rum River 1W1P Partnership, and other entities to provide guidance (and funding via watershed-based implementation fund) for upstream projects and programs designed to address water quality, flooding, and ecological issues in the Rum River.	Rum River 1W1P Partners	LRRWMO, ACD
30	<p>The LRRWMO will collaborate with local and state agencies if/when these agencies develop a groundwater action plan in an effort to gain a better understanding of groundwater-surface water interaction and develop management strategies that consider the protection of both resources. The role of the LRRWMO may include:</p> <ul style="list-style-type: none"> • Collaborate with local and state agencies to identify data gaps and attempt to fill those gaps through collection of groundwater level data and/or surface water flow data. • Coordinate with appropriate local and state agencies to develop a groundwater budget for the watershed. • Coordinate with appropriate local and state agencies to develop and utilize tools to assess surface water impacts and groundwater impacts of groundwater use 	MDNR MDH Anoka County	LRRWMO
31	The LRRWMO will prepare an annual report consistent with the requirements of Minnesota Statutes 103B. The LRRWMO will submit the annual report to BWSR and make the annual report available on its website at www.lrrwmo.org	BWSR Cities	LRRWMO ACD
32	Member communities shall prepare and submit an annual status report to the LRRWMO by January 1 of each year reviewing the status of their local plans, the status of the implementation of their plans, and a review of the implementation of the policies outlined in the LRRWMO plan. Annual status reports shall be prepared using the LRRWMO template.	LRRWMO Cities	LRRWMO Cities
33	The LRRWMO will assess progress towards Plan goals and implementation at least every two years. As part of this assessment, the LRRWMO will review its implementation program prioritization and consider City implementation programs. The LRRWMO will revise its implementation plan, if necessary, through the Plan amendment process.	BWSR	LRRWMO ACD
34	The LRRWMO will continue to pursue external (i.e., non-city) sources of funding to support implementation of the LRRWMO Plan, including grants, cost-share opportunities, and in-kind services.	--	LRRWMO ACD

5 Implementation Program

The LRRWMO implementation program summarizes the activities the LRRWMO plans to perform over the next 10 years. The implementation program includes administrative activities, programs (e.g., monitoring, permitting), studies, and projects necessary to pursue LRRWMO goals. Methods for prioritizing and funding programs, projects, and capital improvements are also discussed in this section. The implementation of this plan will be through the LRRWMO, the member communities, Anoka Conservation District, or a joint effort between the LRRWMO and other state, local or federal agencies.

5.1 Implementation Plan Structure

The District's implementation plan is organized into the following major categories:

- Administration
- Programs, including:
 - Engineering, Permitting, and Planning
 - Education
 - Monitoring
- Projects, including studies and Capital Improvements

Proposed LRRWMO activities are listed and described in Table 5-2 according to the above categories. Table 5-2 includes the following planning-level information:

- Activity category
- Activity title
- Priority level (see Section 5.2)
- Goals addressed by the activity (see Table 4-1)
- Potential partners
- Estimated total cost over the 10-year Plan life (planning level)

Estimate costs broken down by year of planned implementation are presented in Table 5-3 (in 2021 dollars) and Table 5-4 (with inflation).

5.2 Prioritization and Targeting

The LRRWMO acknowledges that reductions in anticipated funding and capacity may prevent the scheduled completion of all planned activities. To further guide implementation, activities presented in Table 5-2 are therefore identified as having "high" or "medium" priority with consideration for several factors.

High Priority – high priority activities include those actions necessary for the LRRWMO to exist and operate and activities required by Minnesota Statute 103B and Minnesota Rules 8410 (e.g.,

plan development, annual reporting). High priority activities also include those that address level 1 priority issues of stormwater management and water quality (see Table 3-1).

Medium Priority – medium priority activities include those that are not required by statute or rule and are not essential to addressing level 1 resource issues (see Table 3-1). Examples include non-water quality monitoring activities and coordination of a citizen advisory committee.

This classification system is qualitative and intended to serve as a guide for annual work planning and budgeting. Activities in the annual work plan may be accelerated, delayed, or delegated relative to the 10-year implementation plan. For example, activities led by partners may be implemented earlier or later than planned due to changing partner priorities, funding, and schedules. Factors considered in the development of the annual work plan may include the following:

- Annual budget commitments from previous years (i.e., ongoing responsibilities)
- Available revenues, grants, and cost-share funding (e.g., from cities or agencies)
- Activity priority
- Feasibility
- Risk (of performing or not performing the activity)
- Results of monitoring or studies
- Input from member cities, CAC, and other partners
- Consideration of balance with other proposed projects and programs

The implementation plan (Table 5-2) is a statement of intent by the LRRWMO. Final decisions on implementation activities rest with the Board of Managers to budget for and authorize via the annual work plan. During implementation, the Board of Managers may add additional projects, programs, studies, or other activities to Table 5-2 via a Plan amendment (see Section 5.6), as needed. The Board of Managers will give priority to projects according to factors including:

- Estimated pollutant loading within the project watershed (e.g., based on HSPF or other modeling)
- Drainage to impaired waters
- Estimated pollutant reduction achieved by the project (as applicable to Plan goals)
- Potential to address multiple issues/goals
- Opportunities for partner cooperation (e.g., City, landowner)
- Anticipated funding availability

The programs and projects identified in Table 5-2 are also targeted, where applicable, to specific geographies, resources, and audiences within the watershed. Water quality monitoring and management activities are targeted to the following **LRRWMO priority waters**:

- Round Lake
- Grass (Sunfish) Lake
- Rum River
- Mississippi River
- Trott Brook

5.2.1 Subwatershed Assessments (SWAs)/Stormwater Retrofit Analyses (SRAs)

Subwatershed assessments (SWAs) are analyses of minor drainage areas performed with the intent to identify opportunities to implement additional stormwater treatment. ACD recently completed two studies of this type (referred to as Stormwater Retrofit Analyses, or SRAs) for drainage areas within the LRRWMO (a third study examining additional area draining to the Rum River is planned for 2022):

- [The City of Anoka Stormwater Retrofit Analysis](#) (ACD, August 2016)
- [The City of Ramsey Stormwater Retrofit Analysis](#) (ACD, June 2016)

The Anoka and Ramsey SRAs identify potential projects within the target area to increase pollutant removal through stormwater retrofits. Stormwater retrofits refer to best management practices (BMPs) constructed in an already developed landscape with little open or undeveloped space. The Anoka and Ramsey SRAs considered total phosphorus (TP), total suspended sediment (TSS), and volume as target pollutants. Potential BMPs were conceptually sited (note that site-specific designs must be prepared for each project prior to construction). Existing pollutant loading and treatment achieved by potential BMPs were estimated using the WinSLAMM water quality model. Planning level project cost estimates were developed for potential BMPs. Estimated pollutant removals and life-cycle project costs were used to estimate cost/benefit ratios for ranking potential BMPs.

The Anoka SRA examined approximately 1,500 acres draining to the Rum River. This area was subdivided into four drainage networks include 17 catchments and contributing approximately 150 tons/year of TSS and 800 lbs/year of TP. The Anoka SRA examined 48 potential BMPs.

The Ramsey SRA examined 320 acres divided into seven catchments draining to the Mississippi River and 128 acres among nine catchments draining to the Rum River. These areas contribute approximately 14 tons/year of TSS and 85 lbs/year of TP to the Mississippi River and 10 tons/year of TSS and 63 lbs/year of TP to the Rum River. The Ramsey SRA evaluated 13 potential BMPs in the Mississippi River drainage area and 15 potential BMPs in the Rum River drainage area.

Implementation of potential BMPs identified in the Anoka SRA, Ramsey SRA, and future analyses depends on many factors including willing landowners (note that many of the potential projects are located on private land), available funding, and site-specific that can limit feasibility (e.g., utility issues). Many of the

proposed retrofits (e.g., new ponds) will require a more detailed feasibility analysis and engineering design prior to implementation.

The LRRWMO and member cities will pursue opportunities to implement these projects as part of Plan implementation (see Table 5-2). Complete lists of the potential BMPs evaluated in the Anoka SRA and Ramsey SRA are included in Appendix G.

5.3 Implementation Categories

5.3.1 Administration

The LRRWMO administration work includes ongoing activities that recur annually to satisfy Minnesota Rules for watershed management organizations and those that pertain to the organization, administration, and operation of the LRRWMO. This includes time and expenses for an administrator, recording secretary, and legal counsel. This category also includes activities related to annual work planning, reporting, and progress assessment, as well as activities performed in pursuit of external funding (e.g., grant) opportunities.

5.3.2 Engineering, Permitting, and Planning

Engineering, permitting, and planning implementation activities include the implementation of the LRRWMO permit program. These activities also include review of local water management plans (see Section 5.7.2), periodic review and update to LRRWMO standards, coordination with partner planning efforts (e.g., Rum River 1W1P), and updates and amendments to the LRRWMO Plan (this document).

5.3.2.1 LRRWMO Permit Program

Since its inception, the LRRWMO permitting program has been the primary focal point of the LRRWMO's activities and the primary means of pollution prevention within the watershed. The LRRWMO requires project proposers to apply for and obtain a LRRWMO permit (see Appendix B and Appendix C) prior to performing activities that disturb one or more acres of land or have potential wetland impacts, regardless of size, that meet the requirements of the Wetland Conservation Act (WCA).

Prior to submitting an LRRWMO permit application, project proposers should coordinate with applicable City staff and confirm that all local requirements (i.e., City controls) are satisfied. The project proposer must then submit a:

1. Grading, Stormwater Management, and Erosion/Sediment Control Permit Application
and/or
2. Permit Application for Wetland Conservation Act Decision

The LRRWMO engineer reviews permit applications for compliance with LRRWMO stormwater and wetland performance standards (see Appendix E and Appendix F) and makes a recommendation for approval, approval with conditions, or disapproval to the LRRWMO Board. The Board may issue a permit based on the recommendation of the engineer. The procedures for permit review, approval, and enforcement are described in greater detail in Appendix B and Appendix C.

The LRRWMO tracks the estimated stormwater volume reduction and estimated pollutant reductions achieved by these projects. From 2019 through 2020, the LRRWMO reviewed over 40 projects which prevent an estimated 175 lbs/year total phosphorus loading and 18 tons/year sediment loading from development and redevelopment.

The LRRWMO updated its permit application process concurrent with the development of this Plan. The LRRWMO will continue to periodically meet with City staff to evaluate the efficacy and efficiency of LRRWMO performance standards and permit program. Placeholder activities for anticipated updates to performance standards and permit applications during the next 10 years are included in Table 5-2.

The LRRWMO will continue to assess its project review and permit program to promote efficiency and effectiveness (see goal RP-A). To this end, the LRRWMO has established the following targets for performance:

- 100% pre-project review of land-disturbance activities requiring a LRRWMO permit
- 100% of applicable maintenance agreements filed with Cities for permitted projects
- 90% of complete permit applications acted on within the prescribed timeline
- 90% of active permits inspected consistent with City requirements

5.3.3 Education Program

Education activities include those activities performed by LRRWMO and its contracted staff. These activities are generally identified in Table 5-2. The LRRWMO carries out much of its educational programming through the member cities and ACD (through the ACD education coordinator). Member cities distribute articles and newsletters that address water and natural resource information, including, but not limited to:

- Pollution prevention stewardship practices
- Wetland protection
- Invasive species prevention and management
- Groundwater quality
- Water conservation
- Hazardous waste disposal
- Reducing winter salt application
- Small-scale BMP cost-share opportunities

Consistent with Minnesota Rules 8410.0160, the LRRWMO maintains a website that contains the LRRWMO meeting information, Manager and staff contact information, regulatory (i.e., permit) program information, planning documents, annual reports, and links to additional information. The website is hosted and maintained by the ACD. The LRRWMO website is: <http://www.lrrwmo.org/>

The LRRWMO also supports education and public engagement activities through an ACD Outreach and Engagement Coordinator. The ACD Outreach and Education Coordinator position is a recent addition and

provides shared services to the ACD, LRRWMO and other WMOs in Anoka County. In support of the LRRWMO goals and implementation plan, the ACD Outreach and Education Coordinator:

- Prepares educational material for distribution by the LRRWMO, ACD, and member cities,
- Represents LRRWMO interests at public events by:
 - advertising the LRRWMO and its role
 - seeking volunteers for planned clean-up, monitoring, or other activities
 - soliciting stakeholder input for planning and other activities
- Performs targeted outreach to schools and other organizations to promote water and natural resource stewardship actions
- Coordinating with member cities to develop targeted materials/programs for areas tributary to impairments (e.g., Trott Brook watershed)

Due in part to the recency of the ACD Outreach and Education Coordinator position, the capacity of scope of services available to the LRRWMO are not yet finalized. As part of Plan implementation, the LRRWMO, its administrator, and the ACD will develop an Education and Engagement Plan with specific actions and measurable targets for ongoing outreach efforts. To the extent feasible and appropriate, the LRRWMO Education and Engagement Plan and subsequent engagement efforts will be coordinated with education and outreach strategies described in the Rum River 1W1P: <https://www.millelacsswcd.org/rum-river-one-watershed-one-plan/>

The LRRWMO will continue to provide watershed education for local government officials, city staff, and new managers through is pontoon tours of the Rum River. The LRRWMO plans to conduct these tours every two years, as river conditions allow.

Anoka County also hosts a water resources management initiative called “Know the Flow” that provides water resources information and promotes coordination among Anoka County governmental entities. provides information about well testing, The program also includes well water sampling. More information is available at: <https://www.anokacounty.us/1421/Water-Information-and-Management>

As part of Plan development, the LRRWMO convened a citizen advisory committee (CAC). The LRRWMO plans to leverage the CAC in ongoing opportunities during Plan implementation. These opportunities may include monitoring data collection, public engagement at events, or input/review of LRRWMO activities.

5.3.4 Monitoring Program

The LRRWMO monitors the water quality of the following priority water resources in order to assess trends and identify the need for potential management actions:

- Rum River
- Grass (Sunfish) Lake
- Round Lake

Monitoring data is compiled by the ACD and available from the LRRWMO website:

<http://www.lrrwmo.org/monitoring>

Hydrologic and water quality monitoring data is also supplemented by data collected by the Minnesota Pollution Control Agency (MPCA), Minnesota Department of Natural Resources (MDNR), US Geological Survey (USGS) and others. Monitoring data is available from the MPCA environmental database at:

<https://www.pca.state.mn.us/eda-surface-water-data>

In addition to the water quality and water level monitoring described in greater detail in the following sections, the LRRWMO also sponsors:

- Biological (macroinvertebrate) monitoring in the Rum River at Anoka High School. Monitoring is performed by students and facilitated ACD staff.
- Wetland hydrology (groundwater levels) at multiple wetland sites within the watershed.

Additional information is available from the Anoka Water Almanac (ACD, 2019). The LRRWMO waterbody monitoring schedule is presented in Table 5-1.

Table 5-1 LRRWMO monitoring schedule (2022-2031)

Monitoring Type / Waterbody	Entity	Year										
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Water chemistry: Round Lake Grass (Sunfish) Lake	ACD	X X	X	X	X	X	X	X	X	X	X	X
Rum River chemistry	ACD, Met Council	X	X	X	X	X	X	X	X	X	X	X
Lake Level Grass (Sunfish) Lake Round Lake Rogers Lake Lake Itasca	ACD	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	

5.3.4.1 Lake Water Quality Monitoring

The LRRWMO supports water quality monitoring of Round Lake and Grass (Sunfish) Lake. Round Lake is sampled annually, while Grass (Sunfish) Lake is sampled every three years (i.e., 2022, 2025, 2028, 2031, see Table 5-1). Water quality monitoring is performed by the ACD and/or Metropolitan Council through the Citizen Assisted Monitoring Program (CAMP). Volunteers or ACD staff collect water samples from the top 0-2 meters of the lake and measure water clarity approximately 7 to 14 times between April and October. Collected samples are analyzed by the Metropolitan Council for nutrients and other parameters. The LRRWMO will work with ACD and Metropolitan Council with the intent of adding chloride analysis to lake water quality monitoring.

The LRRWMO and/or ACD compare lake water quality modeling results to applicable MPCA standards and assess data for trends. Water quality data current as of the writing of this Plan indicate that LRRWMO priority lakes meet MPCA standards (see Section 2.7.4.1). If water quality data exceed MPCA standards or statistically significant degrading trends are observed, the LRRWMO will work with member cities and the ACD to implement next step actions which may include:

- More frequent or intensive monitoring
- Subwatershed analyses or similar studies to estimate pollutant loading rates and sources
- Targeted outreach and engagement of shoreline residents regarding stewardship actions

5.3.4.2 Lake Level Monitoring

The LRRWMO supports lake level monitoring facilitated by ACD. Lake levels are measured by volunteers annually at weekly or more frequent intervals during the open water period. Monitored lakes include:

- Grass (Sunfish) Lake
- Rogers Lake
- Round Lake
- Lake Itasca

Lake level data is presented in the Anoka Water Almanac and is available from the MDNR website's Lakefinder website at: <https://www.dnr.state.mn.us/lakefind/index.html>

5.3.4.3 Rum River Water Quality Monitoring

The LRRWMO supports water chemistry monitoring in the Rum River at County Road 7 (near the upstream end of the watershed) performed by ACD. ACD collects samples from May through October for the following parameters: total suspended solids, total phosphorus, transparency (Secchi tube), dissolved oxygen, turbidity, chlorides, temperature, specific conductivity, pH, and salinity.

The Metropolitan Council also monitors water chemistry at a location of the Rum River below Anoka Dam. Metropolitan Council monitoring occurred weekly March to October. The Met Council monitors all the parameters listed above, plus several more. Met Council monitoring data can be found on their Environmental Information Management Systems (EIMS) website at: <https://eims.metc.state.mn.us/>

5.3.5 Projects and Capital Improvements

Projects, studies, and capital improvements known at the time of Plan development are identified in Table 5-2. Several of these activities are likely to be implemented in cooperation with the ACD and/or

member cities as partners. The LRRWMO anticipates leveraging watershed-based implementation funding (WBIF) to support some of these projects, as well as competitive grants, city cost-share, and WMO funds.

Specific project opportunities not yet identified are likely to arise during the life of this Plan. The LRRWMO has attempted to include placeholder costs for these opportunities. The LRRWMO will perform Plan amendments (see Section 5.6), as needed, to incorporate future projects.

5.3.6 Grant Programs

The LRRWMO financially supports the Anoka Conservation District cost-share grant program. The ACD cost share program provide up to 75% of material and other expenses for projects that address:

- Shoreline Stabilization
- Stormwater Treatment
- Groundwater Conservation
- Habitat Improvement and Management
- Agricultural Projects and Practices

Additional information is available from the ACD at: <https://www.anokaswcd.org/index.php/water-quality.html>

Table 5-2 LRRWMO Implementation Schedule with Descriptions

Category	Activity ID	Activity	Activity Description	Goals Addressed	Priority Level	Partners	LRRWMO Costs ¹	City/Partner Project Costs ²	Estimated Grant Funds	Total 10-year cost	
Administration	AD-1	General Administration	Administration includes services of a contracted administrator as well as recording, financial, and legal services. Administrator will lead budgeting, preparing agendas and meeting packets, facilitating meeting discussions, administering cost share grants, correspondence, fielding questions or requests from agencies or residents and other miscellaneous administration.	Many	High	ACD	\$ 250,000	\$ -	\$ -	\$ 250,000	
	AD-2	Annual Report	Annual reporting to the MN Board of Water and Soil Resources required by MN Rules 8410.0150 and the State Auditor through the SAFES website	FC-A	High	ACD	\$ 10,000	\$ -	\$ -	\$ 10,000	
	AD-3	Biennial progress review	Administrator will lead an evaluation to assess the level of progress achieved on each of the LRRWMO's adopted goals. The format of this evaluation is based on the organization of LRRWMO goals, cross referenced to the most applicable implementation activities and the associated measurable outputs.	FC-A	High	ACD	\$ 5,000	\$ -	\$ -	\$ 5,000	
	AD-4	Grant review and application	The LRRWMO will annually review grant opportunities and prepare applications. Important grant sources include the MDNR, MPCA, BWSR, and federal sources.	FC-B	Medium	ACD	\$ 20,000	\$ -	\$ -	\$ 20,000	
	AD-5	Review funding mechanisms and member city dues	The LRRWMO Board of Managers will review whether the current funding structure is sufficient to support implementation, is appropriate relative to tax burden, and if changes are necessary	FC-A, FC-C	High	ACD, City	\$ 2,000	\$ -	\$ -	\$ 2,000	
Engineering	EN-1	General Engineering	The LRRWMO will engage engineering consultants to provide technical assistance, review, analyses, or other services as needed to accomplish implementation tasks.	Many	High	Consultant, ACD	\$ 75,000	\$ -	\$ -	\$ 75,000	
	EN-2	Permit Review	The LRRWMO will continue to carryout its project review and permitting program through its engineering consultant, including technical review of permit applications relative to performance standards and providing reports with recommendations for LRRWMO approval/disapproval. This task includes annual review of permitting reports from member cities and associated maintenance agreements.	RP-B, SW-B, SW-D, WQ-E, FL-A, FL-B, NA-B	High	City	\$ 300,000	\$ -	\$ -	\$ 300,000	
	EN-3	Stormwater Plan and Ordinance Review	LRRWMO will review, comment upon and have approval authority over local water management plans per MN Rules 8410. The LRRWMO will also review updates to City official controls, as needed, for consistency with LRRWMO requirements.	SW-B, SW-D, FC-B, FC-A, FC-C	High	City	\$ 6,000	\$ -	\$ -	\$ 6,000	
	EN-4	Management Plan update	Approximately 2 years before expiration of this plan, the LRRWMO will begin the Plan update process. The LRRWMO will initiate Plan amendments, as needed, during the life of this Plan.	FC-A, FC-C	High	City, ACD	\$ 104,000	\$ -	\$ -	\$ 104,000	
	EN-5	Review and Update Rules	The LRRWMO will collaborate with member city to review and update, as needed, the LRRWMO performance standards and permit program.	RP-A, FL-C	High	City	\$ 20,000	\$ -	\$ -	\$ 20,000	
Education	ED-1	Website Administration	Maintain LRRWMO website. Post LRRWMO news, meeting dates, permit applications and other documents. Provide links amongst websites of LRRWMO, member cities, and other partners.	ED-A, ED-B	High	ACD	\$ 10,000	\$ -	\$ -	\$ 10,000	
	ED-2	Develop Education and Outreach Plan	Work with ACD to develop planned activities for the ACD Education and Outreach Coordinator to perform in support of LRRWMO goals and implementation actions - emphasizing targeted actions in watersheds tributary to impairments.	ED-A, ED-B	High	ACD	\$ 3,000	\$ -	\$ -	\$ 3,000	
	ED-3	Education Coordinator Actions in Support of Education Plan	Support a county-wide position housed at the Anoka Conservation District to assist the LRRWMO and others with consistent, effective environmental outreach consistent with the education plan developed in task ED-2.	WQ-D, WQ-F, NA-A, GW-A, ED-A, ED-B	High	ACD	\$ 50,000	\$ -	\$ 50,000	\$ 100,000	
	ED-4	City Newsletters	Coordinate with city staff to develop content for and distribute	WQ-D, WQ-F, NA-A, GW-A, ED-A, ED-B	High	ACD, City	\$ 20,000	\$ -	\$ -	\$ 20,000	
	ED-5	TAC and CAC coordination	Utilize technical and citizen advisory committees on an occasional, issue-specific basis	WQ-G, FC-D, ED-A, ED-B	Medium	City	\$ 15,000	\$ -	\$ -	\$ 15,000	
	ED-6	Rum River boat tours	Host a boat tour of the Rum River for government officials, city staff, and new managers to provide better understanding of the resources and issues within the LRRWMO	WQ-D, WQ-F, NA-A, ED-A, ED-B	Medium	City	\$ 5,000	\$ -	\$ -	\$ 5,000	
Monitoring	MN-1	Lake WQ Monitoring	LRRWMO will fund annual water quality monitoring of Round Lake and monitoring of Grass (Sunfish) Lake every three years. Monitoring performed by ACD.	WQ-A	High	ACD, MPCA	\$ 28,000	\$ -	\$ -	\$ 28,000	
	MN-2	Lake Level Monitoring	Annual lake level monitoring of the following lakes performed by ACD: Round Lake, Rogers Lake, Grass (Sunfish Lake), Lake Itasca.	WQ-A, FL-D	Medium	ACD	\$ 10,000	\$ -	\$ -	\$ 10,000	
	MN-3	Rum River WQ Monitoring	Annual water quality monitoring performed at two locations along the Rum River (at County Rd 7 and below Anoka Dam) performed by ACD.	WQ-A	High	ACD, MPCA	\$ 20,000	\$ -	\$ -	\$ 20,000	
	MN-4	Stream bio monitoring	Macroinvertebrate monitoring on the Rum River facilitated annually by ACD.	WQ-A, ED-A	Medium	Schools	\$ 10,000	\$ -	\$ -	\$ 10,000	
	MN-5	Wetland Monitoring	Wetland hydrology monitoring performed annually at three locations in the LRRWMO (see Anoka Water Almanac)	WQ-A, FL-D	Medium	ACD	\$ 20,000	\$ -	\$ -	\$ 20,000	
Projects/ Programs	PP-1	Cost-share grant small project support	Fund cost share grants for water quality improvement projects including shoreland restoration and stormwater management. Grants will be administered through the Anoka Conservation District.	SW-A, SW-C, WQ-E	High	ACD	\$ 50,000	\$ -	\$ -	\$ 50,000	
	PP-2	Rum River Streambank Restoration	Cooperate with ACD to fund and implement streambank stabilization projects to reduce phosphorus/sediment loading to the Rum River. Possible sites include: targeting: - Anoka Nature Preserve - Anoka High School and state-owned parcels immediately downstream - Anoka Historic Woodbury House and adjacent city-owned land - Private parcel in Andover - Other sites identified in Rum River Bank Erosion Inventory (ACD, 2019, as updated)	SW-E, WQ-B, WQ-C, FC-B, ES-A	High	City, ACD	\$ 25,000	\$ 25,000	\$ 225,000	\$ 275,000	
	PP-3	Mississippi River Streambank Restoration	Cooperate with ACD to fund and implement streambank stabilization projects to reduce phosphorus/sediment loading to the Mississippi River. Possible sites include: targeting: - Anoka County Parkland adjacent to river in the City of Ramsey - Other sites identified in the City of Ramsey Mississippi River Bank Condition Inventory (ACD, 2016, as updated)	SW-D, WQ-D, WQ-E, FC-B, ES-A	High	City, ACD	\$ 25,000	\$ 25,000	\$ 175,000	\$ 225,000	
	PP-4	Stormwater treatment associated with City of Ramsey Park Projects	Work with the City of Ramsey to provide technical and/or funding support for stormwater volume and/or water quality treatment above minimum performance standards at City of Ramsey Central Park.	SW-A, SW-B, WQ-B, WQ-C, FC-C	Medium	City, ACD	\$ -	\$ 10,000	\$ 90,000	\$ 100,000	
	PP-5	Support for Rum River 1W1P projects located upstream of LRRWMO	The LRRWMO will provide written support, technical assistance, stakeholder feedback, and collaborative review, as requested, in support of projects carried out upstream of the LRRWMO consistent with the Rum River 1W1P implementation schedule.	WQ-B, WQ-C, FC-C, FC-D	High	City, ACD	\$ -	\$ 10,000	\$ -	\$ 10,000	
	PP-6	Subwatershed Analyses of City of Andover draining to Rum River	Conduct studies to assess pollutant reduction potential in areas draining to the Rum River. Analysis includes desktop identification and field verification of potential stormwater retrofit opportunities, modeling of potential load reduction, and ranking of potential projects based on cost-effectiveness.	WQ-B, WQ-C, WQ-E	High	City, ACD	\$ -	\$ 10,000	\$ 90,000	\$ 100,000	
	PP-7	Assessment of Trott Brook riparian restoration opportunities	Evaluate areas adjacent to Trott Brook for streambank restoration, erosion control, or other targeted practices to address dissolved oxygen impairment.	WQ-F	Medium	City, ACD	\$ 2,000	\$ -	\$ 18,000	\$ 20,000	
	PP-8	Install stormwater retrofits (e.g., rainwater gardens, stormwater reuse) at priority sites identified in current and future SWAs	Implement stormwater treatment retrofit projects (e.g., infiltration, reuse) at sites identified in City of Anoka SWA (ACD, 2016) and City of Ramsey SWA (ACD, 2016) - prioritizing sites with no existing treatment and high pollutant reduction per dollar. Practices may include stormwater ponds, pond modifications, hydrodynamic devices, rain gardens, filtration, and others.	SW-A, SW-C	Medium	City, ACD	\$ 20,000	\$ 20,000	\$ 120,000	\$ 160,000	
	PP-9	Wetland restoration support for partners in priority areas (see Figure 2-9)	Provide grant funding and technical support for wetland restoration activities pursued by ACD, Cities and other partners, prioritizing restoration opportunities identified in Figure 2-9.	FC-C, WQ-G	Medium	City, ACD	\$ 5,000	\$ 15,000	\$ 80,000	\$ 100,000	
	PP-10	Groundwater Planning and Technical Assistance	Coordinate with MDNR, MDH, Anoka County, and other agencies in an advisory capacity to address groundwater quality and quantity issues.	GW-A	Medium	MDNR, MDH, Met Council	\$ 10,000	\$ -	\$ -	\$ 10,000	
Notes:							Administration	\$ 287,000	\$ -	\$ -	\$ 287,000
10-year costs presented are presented in 2021 dollars and do not consider inflation (see inflation adjusted total at bottom)							Engineering & Permitting	\$ 505,000	\$ -	\$ -	\$ 505,000
(1) All LRRWMO costs come from the general fund with the exception of permitting costs, which are wholly funded by permit fees.							Education & Outreach	\$ 103,000	\$ -	\$ 50,000	\$ 153,000
(2) Estimated project costs carried by member cities, ACD, and/or other partners in addition to LRRWMO general fund.							Monitoring	\$ 88,000	\$ -	\$ -	\$ 88,000
							Projects	\$ 137,000	\$ 115,000	\$ 798,000	\$ 1,050,000
							Total	\$ 1,120,000	\$ 115,000	\$ 848,000	\$ 2,083,000

Table 5-3 LRRWMO Implementation Schedule by Year (2021 dollars)

Category	Activity ID	Activity	LRRWMO Costs ¹	City/Partner Project Costs ²	Est. Grant Funds	Total 10-year cost	Estimated Cost by Year (Planning Level) - presented in 2021 dollars with no inflation									
							2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Administration	AD-1	General Administration	\$ 250,000	\$ -	\$ -	\$ 250,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000
	AD-2	Annual Report	\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
	AD-3	Biennial progress review	\$ 5,000	\$ -	\$ -	\$ 5,000	\$ -	\$ 1,000	\$ -	\$ 1,000	\$ -	\$ 1,000	\$ -	\$ 1,000	\$ -	\$ 1,000
	AD-4	Grant review and application	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
	AD-5	Review funding mechanisms and member city dues	\$ 2,000	\$ -	\$ -	\$ 2,000	\$ 1,000	\$ -	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -	\$ -
Engineering	EN-1	General Engineering	\$ 75,000	\$ -	\$ -	\$ 75,000	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500	\$ 7,500
	EN-2	Permit Review	\$ 300,000	\$ -	\$ -	\$ 300,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000
	EN-3	Stormwater Plan and Ordinance Review	\$ 6,000	\$ -	\$ -	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,000	\$ -	\$ -	\$ -
	EN-4	Management Plan update	\$ 104,000	\$ -	\$ -	\$ 104,000	\$ -	\$ 2,000	\$ -	\$ -	\$ 2,000	\$ -	\$ -	\$ 20,000	\$ 50,000	\$ 30,000
	EN-5	Review and Update Rules	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ 10,000
Education	ED-1	Website Administration	\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	
	ED-2	Develop Education and Outreach Plan	\$ 3,000	\$ -	\$ -	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	ED-3	Education Coordinator Actions in Support of Education Plan	\$ 50,000	\$ -	\$ 50,000	\$ 100,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	
	ED-4	City Newsletters	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	
	ED-5	TAC and CAC coordination	\$ 15,000	\$ -	\$ -	\$ 15,000	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	
	ED-6	Rum River boat tours	\$ 5,000	\$ -	\$ -	\$ 5,000	\$ 1,000	\$ -	\$ 1,000	\$ -	\$ 1,000	\$ -	\$ 1,000	\$ -	\$ 1,000	
Monitoring	MN-1	Lake WQ Monitoring	\$ 28,000	\$ -	\$ -	\$ 28,000	\$ 4,000	\$ 2,000	\$ 2,000	\$ 4,000	\$ 2,000	\$ 2,000	\$ 4,000	\$ 2,000	\$ 2,000	
	MN-2	Lake Level Monitoring	\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000		
	MN-3	Rum River WQ Monitoring	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000		
	MN-4	Stream bio monitoring	\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000		
	MN-5	Wetland Monitoring	\$ 20,000	\$ -	\$ -	\$ 20,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000		
Projects/ Programs	PP-1	Cost-share grant small project support	\$ 50,000	\$ -	\$ -	\$ 50,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	
	PP-2	Rum River Streambank Restoration	\$ 25,000	\$ 25,000	\$ 225,000	\$ 275,000	\$ 50,000	\$ 50,000	\$ 75,000	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ -	\$ -	
	PP-3	Mississippi River Streambank Restoration	\$ 25,000	\$ 25,000	\$ 175,000	\$ 225,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 75,000	\$ 75,000	\$ 75,000	
	PP-4	Stormwater treatment associated with City of Ramsey Park Projects	\$ -	\$ 10,000	\$ 90,000	\$ 100,000	\$ -	\$ -	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ -	\$ -	\$ -	
	PP-5	Support for Rum River 1W1P projects located upstream of LRRWMO	\$ -	\$ 10,000	\$ -	\$ 10,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	
	PP-6	Subwatershed Analyses of City of Andover draining to Rum River	\$ -	\$ 10,000	\$ 90,000	\$ 100,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	
	PP-7	Assessment of Trott Brook riparian restoration opportunities	\$ 2,000	\$ -	\$ 18,000	\$ 20,000	\$ -	\$ -	\$ 10,000	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	
	PP-8	Install stormwater retrofits (e.g., rainwater gardens, stormwater reuse) at priority sites	\$ 20,000	\$ 20,000	\$ 120,000	\$ 160,000	\$ -	\$ -	\$ -	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ -	\$ -	
	PP-9	Wetland restoration support for partners in priority areas (see Figure 2-9)	\$ 5,000	\$ 15,000	\$ 80,000	\$ 100,000								\$ 50,000	\$ 50,000	
	PP-10	Groundwater Planning and Technical Assistance	\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	
Administration			\$ 287,000	\$ -	\$ -	\$ 287,000	\$ 29,000	\$ 29,000	\$ 28,000	\$ 29,000	\$ 28,000	\$ 30,000	\$ 28,000	\$ 29,000	\$ 28,000	\$ 29,000
Engineering & Permitting			\$ 505,000	\$ -	\$ -	\$ 505,000	\$ 37,500	\$ 39,500	\$ 37,500	\$ 37,500	\$ 49,500	\$ 37,500	\$ 43,500	\$ 57,500	\$ 87,500	\$ 77,500
Education & Outreach			\$ 103,000	\$ -	\$ 50,000	\$ 153,000	\$ 18,500	\$ 14,500	\$ 15,500	\$ 14,500	\$ 15,500	\$ 14,500	\$ 15,500	\$ 14,500	\$ 15,500	\$ 14,500
Monitoring			\$ 88,000	\$ -	\$ -	\$ 88,000	\$ 10,000	\$ 8,000	\$ 8,000	\$ 10,000	\$ 8,000	\$ 8,000	\$ 10,000	\$ 8,000	\$ 8,000	\$ 10,000
Projects			\$ 137,000	\$ 115,000	\$ 798,000	\$ 1,050,000	\$ 82,000	\$ 82,000	\$ 167,000	\$ 182,000	\$ 97,000	\$ 47,000	\$ 47,000	\$ 132,000	\$ 132,000	\$ 82,000
Total (2021 dollars)			\$ 1,120,000	\$ 115,000	\$ 848,000	\$ 2,083,000	\$ 177,000	\$ 173,000	\$ 256,000	\$ 273,000	\$ 198,000	\$ 137,000	\$ 144,000	\$ 241,000	\$ 271,000	\$ 213,000

Notes:

Estimated costs are presented in 2021 dollars and do not consider inflation

(1) All LRRWMO costs come from the general fund with the exception of permitting costs, which are wholly funded by permit fees.

(2) Estimated project costs carried by member cities, ACD, and/or other partners in addition to LRRWMO general fund.

Table 5-4 LRRWMO Implementation Schedule by Year (with inflation)

Category	Activity ID	Activity	LRRWMO Costs ¹	City/Partner Project Costs ²	Est. Grant Funds	Total 10-year cost	Estimated Cost by Year (Planning Level) - presented in 2021 dollars with assumed 3% inflation									
							2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Administration	AD-1	General Administration	\$ 286,597	\$ -	\$ -	\$ 286,597	\$ 25,000	\$ 25,750	\$ 26,523	\$ 27,318	\$ 28,138	\$ 28,982	\$ 29,851	\$ 30,747	\$ 31,669	\$ 32,619
	AD-2	Annual Report	\$ 11,464	\$ -	\$ -	\$ 11,464	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194	\$ 1,230	\$ 1,267	\$ 1,305
	AD-3	Biennial progress review	\$ 5,817	\$ -	\$ -	\$ 5,817	\$ -	\$ 1,030	\$ -	\$ 1,093	\$ -	\$ 1,159	\$ -	\$ 1,230	\$ -	\$ 1,305
	AD-4	Grant review and application	\$ 22,928	\$ -	\$ -	\$ 22,928	\$ 2,000	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319	\$ 2,388	\$ 2,460	\$ 2,534	\$ 2,610
	AD-5	Review funding mechanisms and member city dues	\$ 2,159	\$ -	\$ -	\$ 2,159	\$ 1,000	\$ -	\$ -	\$ -	\$ -	\$ 1,159	\$ -	\$ -	\$ -	\$ -
Engineering	EN-1	General Engineering	\$ 85,979	\$ -	\$ -	\$ 85,979	\$ 7,500	\$ 7,725	\$ 7,957	\$ 8,195	\$ 8,441	\$ 8,695	\$ 8,955	\$ 9,224	\$ 9,501	\$ 9,786
	EN-2	Permit Review	\$ 343,916	\$ -	\$ -	\$ 343,916	\$ 30,000	\$ 30,900	\$ 31,827	\$ 32,782	\$ 33,765	\$ 34,778	\$ 35,822	\$ 36,896	\$ 38,003	\$ 39,143
	EN-3	Stormwater Plan and Ordinance Review	\$ 7,164	\$ -	\$ -	\$ 7,164	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,164	\$ -	\$ -	\$ -
	EN-4	Management Plan update	\$ 131,390	\$ -	\$ -	\$ 131,390	\$ -	\$ 2,060	\$ -	\$ -	\$ 2,251	\$ -	\$ -	\$ 24,597	\$ 63,339	\$ 39,143
	EN-5	Review and Update Rules	\$ 24,303	\$ -	\$ -	\$ 24,303	\$ -	\$ -	\$ -	\$ -	\$ 11,255	\$ -	\$ -	\$ -	\$ -	\$ 13,048
Education	ED-1	Website Administration	\$ 11,464	\$ -	\$ -	\$ 11,464	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194	\$ 1,230	\$ 1,267	\$ 1,305
	ED-2	Develop Education and Outreach Plan	\$ 3,000	\$ -	\$ -	\$ 3,000	\$ 3,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	ED-3	Education Coordinator Actions in Support of Education Plan	\$ 57,319	\$ -	\$ 57,319	\$ 114,639	\$ 10,000	\$ 10,300	\$ 10,609	\$ 10,927	\$ 11,255	\$ 11,593	\$ 11,941	\$ 12,299	\$ 12,668	\$ 13,048
	ED-4	City Newsletters	\$ 22,928	\$ -	\$ -	\$ 22,928	\$ 2,000	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319	\$ 2,388	\$ 2,460	\$ 2,534	\$ 2,610
	ED-5	TAC and CAC coordination	\$ 17,196	\$ -	\$ -	\$ 17,196	\$ 1,500	\$ 1,545	\$ 1,591	\$ 1,639	\$ 1,688	\$ 1,739	\$ 1,791	\$ 1,845	\$ 1,900	\$ 1,957
	ED-6	Rum River boat tours	\$ 5,647	\$ -	\$ -	\$ 5,647	\$ 1,000	\$ -	\$ 1,061	\$ -	\$ 1,126	\$ -	\$ 1,194	\$ -	\$ 1,267	\$ -
Monitoring	MN-1	Lake WQ Monitoring	\$ 32,111	\$ -	\$ -	\$ 32,111	\$ 4,000	\$ 2,060	\$ 2,122	\$ 4,371	\$ 2,251	\$ 2,319	\$ 4,776	\$ 2,460	\$ 2,534	\$ 5,219
	MN-2	Lake Level Monitoring	\$ 11,464	\$ -	\$ -	\$ 11,464	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194	\$ 1,230	\$ 1,267	\$ 1,305
	MN-3	Rum River WQ Monitoring	\$ 22,928	\$ -	\$ -	\$ 22,928	\$ 2,000	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319	\$ 2,388	\$ 2,460	\$ 2,534	\$ 2,610
	MN-4	Stream bio monitoring	\$ 11,464	\$ -	\$ -	\$ 11,464	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194	\$ 1,230	\$ 1,267	\$ 1,305
	MN-5	Wetland Monitoring	\$ 22,928	\$ -	\$ -	\$ 22,928	\$ 2,000	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319	\$ 2,388	\$ 2,460	\$ 2,534	\$ 2,610
Projects/ Programs	PP-1	Cost-share grant small project support	\$ 57,319	\$ -	\$ -	\$ 57,319	\$ 5,000	\$ 5,150	\$ 5,305	\$ 5,464	\$ 5,628	\$ 5,796	\$ 5,970	\$ 6,149	\$ 6,334	\$ 6,524
	PP-2	Rum River Streambank Restoration	\$ 26,544	\$ 26,544	\$ 238,892	\$ 291,979	\$ 50,000	\$ 51,500	\$ 79,568	\$ 54,636	\$ 56,275	\$ -	\$ -	\$ -	\$ -	\$ -
	PP-3	Mississippi River Streambank Restoration	\$ 31,678	\$ 31,678	\$ 221,749	\$ 285,106	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 92,241	\$ 95,008	\$ 97,858
	PP-4	Stormwater treatment associated with City of Ramsey Park Projects	\$ -	\$ 10,768	\$ 96,913	\$ 107,681	\$ -	\$ -	\$ 53,045	\$ 54,636	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	PP-5	Support for Rum River 1W1P projects located upstream of LRRWMO	\$ -	\$ 11,464	\$ -	\$ 11,464	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194	\$ 1,230	\$ 1,267	\$ 1,305
	PP-6	Subwatershed Analyses of City of Andover draining to Rum River	\$ -	\$ 10,459	\$ 94,132	\$ 104,591	\$ 25,000	\$ 25,750	\$ 26,523	\$ 27,318	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	PP-7	Assessment of Trott Brook riparian restoration opportunities	\$ 2,154	\$ -	\$ 19,383	\$ 21,536	\$ -	\$ -	\$ 10,609	\$ 10,927	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	PP-8	Install stormwater retrofits (e.g., rainwater gardens, stormwater reuse) at priority sites	\$ 22,858	\$ 22,858	\$ 137,147	\$ 182,862	\$ -	\$ -	\$ -	\$ 43,709	\$ 45,020	\$ 46,371	\$ 47,762	\$ -	\$ -	\$ -
	PP-9	Wetland restoration support for partners in priority areas (see Figure 2-9)	\$ 6,242	\$ 18,725	\$ 99,866	\$ 124,832								\$ 61,494	\$ 63,339	
	PP-10	Groundwater Planning and Technical Assistance	\$ 11,464	\$ -	\$ -	\$ 11,464	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159	\$ 1,194	\$ 1,230	\$ 1,267	\$ 1,305
Administration			\$ 328,965	\$ -	\$ -	\$ 328,965	\$ 29,000	\$ 29,870	\$ 29,705	\$ 31,689	\$ 31,514	\$ 34,778	\$ 33,433	\$ 35,666	\$ 35,470	\$ 37,838
Engineering & Permitting			\$ 592,753	\$ -	\$ -	\$ 592,753	\$ 37,500	\$ 40,685	\$ 39,784	\$ 40,977	\$ 55,713	\$ 43,473	\$ 51,941	\$ 70,718	\$ 110,842	\$ 101,120
Education & Outreach			\$ 117,554	\$ -	\$ 57,319	\$ 174,873	\$ 18,500	\$ 14,935	\$ 16,444	\$ 15,845	\$ 17,445	\$ 16,809	\$ 18,508	\$ 17,833	\$ 19,635	\$ 18,919
Monitoring			\$ 100,894	\$ -	\$ -	\$ 100,894	\$ 10,000	\$ 8,240	\$ 8,487	\$ 10,927	\$ 9,004	\$ 9,274	\$ 11,941	\$ 9,839	\$ 10,134	\$ 13,048
Projects			\$ 158,258	\$ 132,496	\$ 908,082	\$ 1,198,836	\$ 82,000	\$ 84,460	\$ 177,170	\$ 198,876	\$ 109,174	\$ 54,486	\$ 56,120	\$ 162,343	\$ 167,214	\$ 106,991
Total (3% inflation)			\$ 1,298,424	\$ 132,496	\$ 965,401	\$ 2,396,321	\$ 177,000	\$ 178,190	\$ 271,590	\$ 298,314	\$ 222,851	\$ 158,821	\$ 171,944	\$ 296,400	\$ 343,295	\$ 277,917

Notes:

Estimated costs assume 3% inflation

(1) All LRRWMO costs come from the general fund with the exception of permitting costs, which are wholly funded by permit fees.

(2) Estimated project costs carried by member cities, ACD, and/or other partners in addition to LRRWMO general fund.

5.4 Funding Mechanisms

5.4.1 LRRWMO General Fund

Through the LRRWMO joint powers agreement, each member city contributes annually to the LRRWMO general fund. The annual contribution amount is split such that 50 percent of the total is apportioned based on the area within the LRRWMO and 50 percent is apportioned based on the taxable market value. The LRRWMO has used the general fund for administrative costs, monitoring, education, studies, and planning projects, including the development of this Plan.

The LRRWMO general fund may also be used to partially or completely fund capital improvements, but has not been used for this purpose to date.

5.4.2 LRRWMO Improvement Fund

The LRRWMO joint powers agreement calls for the establishment of an improvement fund for each improvement project ordered by the Board not paid for out of the LRRWMO general fund. Project costs are to be apportioned to each member city in accordance with the current joint powers agreement. Projects funded by this fund will be identified in coordination with member city and partner staff.

5.4.3 LRRWMO Permit Application Fees and Escrow

The LRRWMO charges permit application fees and escrow fees for projects triggering a Grading, Stormwater Management, and Erosion/Sediment Control permit and/or a permit for Minnesota WCA Decision and Procedure Requirements (see Section 5.3.2.1). These funds pay for LRRWMO engineer and administrative staff time associated with review and documentation of the permit applications. The balance of the escrow is returned to the permit applicant. See Appendix B and Appendix C for additional details.

5.4.4 Ad Valorem Taxing Authority

Minnesota Statute 103B.251 allows WMOs to certify capital improvements to the county for payment, if those improvements are included in the WMO's watershed management plan. The county then issues bonds and levies an ad valorem tax on all taxable property in the WMO (or subwatershed unit of the WMO) to pay for the projects. This process requires sufficient lead time and coordination with the County, as formal County approval of any amendments to a WMO's plan and associated levy amounts is required.

A WMO may also raise funds through direct ad valorem taxation (Minnesota Statutes 103B.241), but only if the WMO is specifically listed as a special taxing district in Minnesota Statutes 275.066. If a WMO is given taxing authority, the WMO may also accumulate funds to finance improvements as an alternative to issuing bonds (Minnesota Statutes 103B.241). The LRRWMO is not currently listed as a special taxing district per MS 275.066.

Historically, the LRRWMO has not used this funding mechanism.

5.4.5 Member City Funding

Funding mechanisms available to the member cities include:

- City General Funds
- Special Assessments
- Ad Valorem Taxes
- Stormwater Utility
- Development Fees
- Tax Increment Financing

Additional information about member city funding mechanisms is available in member city local water management plans.

5.4.6 Grant Funding and Partner Cost-share

State Clean Water Fund (CWF) grants and other competitive grants provide an opportunity for the LRRWMO to offset the cost of large studies, non-structural projects, and capital improvements. Such opportunities must be specifically identified in Table 5-2 of this Plan. The LRRWMO will continue to seek and apply for grants and loans to offset project costs whenever possible and cost effective. However, grant and loan programs change frequently as funding sources and priorities change, new grant and loans become available, and existing programs are terminated.

In addition to competitive grants, BWSR's Watershed Based Implementation Funding (WBIF) is expected to become the primary mechanism through which BWSR distributes Clean Water Fund grants. The WBIF program will supply a steady source of grant funding allocated every 2 years. WBIF will be allocated within the metro by watershed, with the LRRWMO located within the "Rum River" WBIF watershed. Local units of government within the Rum River WBIF watershed (e.g., WMOs, cities, and SWCDs) shall determine the distribution of WBIF within its boundary. Coordination between the LRRWMO, its partners, and other organizations within the Rum River WBIF watershed is critical to promote effective and equitable use of WBIF grant funds. Additional information is available from BWSR at: <https://bwsr.state.mn.us/watershed-based-implementation-funding-program>

Additional State funding for clean water may be available through the Rum River 1W1P partnership, which receives WBIF on a biennial basis. As a member of the Rum River 1W1P partnership, the LRRWMO may receive funding consistent with the 1W1P implementation schedule and work plan. More information is available from the Rum River 1W1P website at: <https://www.millelacsswcd.org/rum-river-one-watershed-one-plan/>

The LRRWMO has collaborated with the ACD and its member cities to successfully complete water and natural resources improvement projects through cost-share opportunities. Without cost-sharing, such projects may otherwise be cost-prohibitive. Noteworthy examples of effective cost-share partnerships include streambank stabilization projects along the Rum River implemented in cooperation with the ACD.

The LRRWMO may lead implementation of such projects or contribute financially to projects led by partners. Table 5-2 identifies potential partners for planned implementation activities, where appropriate.

5.5 Plan Reporting and Assessment

5.5.1 Annual Reporting

The LRRWMO is responsible for evaluating progress towards achieving its goals and reporting annually to BWSR, per [Minnesota Rules 8410.0150](#). Within the first 120 days of the calendar year, the District must submit to BWSR an activity report for the previous calendar year. Reporting requirements specified in [Minnesota Rules 8410](#) will be followed. Generally, the LRRWMO's annual report includes:

- An assessment of the previous year's annual work plan that indicates whether the planned activities were performed, 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 2 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
- A summary of significant trends of lake, stormwater, and climate monitoring data
- The BWSR Level I Performance Review and Assistance Program (PRAP) review

The LRRWMO annual report is typically prepared and submitted by the ACD on behalf of the LRRWMO. The annual report may be supplemented by additional reports (e.g., ACD Monitoring Report). Within 180 days of the calendar year, the LRRWMO must submit an audit report of the preceding year's activities.

5.5.2 Progress Assessment

Biennially, the LRRWMO will perform a more detailed evaluation to assess the level of progress achieved on each of the LRRWMO's adopted goals (see Section 4.1). The format of this evaluation is based on the organization of LRRWMO goals, cross referenced to the most applicable implementation activities and the associated measurable outputs. Draft goal tracking worksheets are included as Appendix H to this Plan.

Several of the LRRWMO's resource goals (e.g., water quality goals) have a clear, quantifiable metric to assess achievement or progress. In some cases, however, the scope of LRRWMO's goals is not captured by strictly quantitative metrics. Thus, the assessment of LRRWMO progress may include quantitative values and/or qualitative (narrative) discussion of progress towards each goal. The measurable outputs of the implementation activities most directly correlated with each goal will also be reported. This information may be used for annual work planning and potential amendments to the implementation schedule. This evaluation may allow the LRRWMO to focus efforts on goals that are lagging and prioritize (or de-emphasize) individual implementation activities.

The LRRWMO anticipates that BWSR will perform a Level II PRAP review during the life of this Plan. The LRRWMO will incorporate the results of the Level II PRAP in the remaining implementation of this Plan and future Plan updates.

5.6 Plan Amendments and Updates

This Plan will guide LRRWMO activities through 2030, or until superseded by adoption of a subsequent Plan. During this time, the LRRWMO may revise its Plan through an amendment procedure, as needed. Amendments to this Plan will follow the procedures described in this section and will proceed in accordance with the process provided in [Minnesota Rules 8410.0140](#) and [Minnesota Statutes 103B.231](#). Plan amendments may be proposed by any person to the Board of Managers, but only the Board of Managers may initiate the amendment process. All recommended plan amendments must be submitted to the LRRWMO in writing, along with a statement of the problem and need, the rationale for the amendment, and an estimate of the cost. Amendments identified by LRRWMO contract staff and member city staff will similarly be presented to the Board of Managers for approval.

The LRRWMO anticipates that only significant changes or additions to goals, issues, administrative procedures, or implementation (i.e., programs, projects, and capital improvements) will prompt an amendment to the Plan, although final discretion resides with the Board of Managers. Minnesota Rules 8410.0140 subp. 1a defines changes that do not require an amendment (e.g. reformatting/reorganization of the plan, clarification of existing plan goals or policies, and adjustment to how the District will carry out program activities within its discretion).

Amendments to this Plan are subject to the review process provided in [Minnesota Statutes 103B.231](#) subd. 11, except when the proposed amendments are determined to be minor-amendments by satisfying all of the following criteria:

- A. BWSR has either agreed that the amendments are minor or failed to act within five working days of the end of the 30-day comment period specified in item B (unless an extension has been mutually agreed upon);
- B. The LRRWMO 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 that the minor amendment procedure is being followed, and has directed that comments be sent to the District board;
- C. No county board has filed an objection to the amendments with the LRRWMO and BWSR within the comment period specified in item B (unless an extension is mutually agreed upon);
- D. The LRRWMO 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; or
- E. The amendments are not necessary to make the Plan consistent with an approved and adopted Anoka County groundwater plan.

Draft and final amendments will be formatted and distributed consistent with the requirements of [Minnesota Rules 8410.0140](#), subparts 4 and 5, respectively.

Approximately 2 years prior to the expiration date of this Plan, the LRRWMO will begin the process of updating its Plan (unless a revised schedule is developed by BWSR in accordance with [Minnesota Statutes section 103B.231](#), subdivision 3a).

5.7 Local (City) Water Management

The LRRWMO has engaged natural resources and planning staff from the cities within the watershed – Andover, Anoka, and Ramsey – throughout the development of this Plan through meetings of the Technical Advisory Committee, permit program meetings, and consistent attendance at LRRWMO meetings. This close consultation reflects the long history of collaboration and cooperation between the LRRWMO and its member cities. These relationships are a core strength of the LRRWMO upon which the successful implementation of this Plan depends.

This section summarizes the regulatory responsibilities of the member cities, requirements for local water management planning, and financial impacts on local governments.

5.7.1 City Regulatory Framework

The member cities of the LRRWMO manage the impacts of development and redevelopment on water resources through their official controls (e.g., City code, ordinances), local water management plan (LWMP) and Municipal Separate Storm Sewer System (MS4) permit.

Each member city is a regulated MS4 under the Clean Water Act and is required to be in compliance with the MS4 General Permit, issued by the State of Minnesota. The MS4 General Permit requires each regulated MS4 to develop a Storm Water Pollution Prevention Program (SWPPP) that addresses how the MS4 will reduce the amount of sediment and other pollutants entering waters from stormwater systems. Information regarding municipal stormwater responsibilities and the MS4 program is available from the MPCA at: <https://www.pca.state.mn.us/water/municipal-stormwater-ms4>

Each member city maintains local ordinances (or other official controls) regulating land development, natural resource protection, and stormwater management within their jurisdiction. Generally, local performance standards and official controls must be consistent with the LRRWMO performance standards and this Plan. The LRRWMO reviews updates to local water management plans (see Section 5.7.2) and city ordinance updates to confirm they are consistent with LRRWMO requirements. With respect to this LRRWMO Plan update specifically, local plans or official controls must include:

- Development and redevelopment volume control standards consistent with LRRWMO performance standards
- A requirement and process for documenting maintenance requirements for private stormwater BMPs
- Floodplain development and redevelopment standards consistent with LRRWMO minimum building elevations and enforcing “no net loss” of floodplain volume

- Commitment to collaborate with the LRRWMO to implement, evaluate, and update, as needed, the LRRWMO permit program

If updates to local controls are necessary to be consistent with this Plan, cities shall initiate those updates within 180 days of adoption of this Plan (and any future Plan amendments, as needed). Future updates to City ordinances and official controls must be consistent with, or adopt by reference, this Plan and LRRWMO performance standards.

The LRRWMO requires that member cities submit an annual status report to the LRRWMO reviewing the status of their local plans, the status of the implementation of their plans, and a review of official controls and implementation of the policies outlined in the LRRWMO plan. If the LRRWMO determines that a member city is out of compliance with this Plan, the LRRWMO will coordinate with city staff to clarify the source of the issue and determine a schedule to achieve compliance.

5.7.2 Local Water Management Plans

The member cities are required to complete a local water management plan (LWMP) that conforms to [Minnesota Statutes 103B.235](#), [Minnesota Rules 8410.0160](#), and is consistent with the LRRWMO Plan (this document). [Minnesota Rules 8410.0160](#) and [Minnesota Statutes 103B.235](#) Subd. 2 include specific requirements for LWMP content, review, approval, and adoption. LWMPs must be adopted no more than two years prior to the adoption of a local comprehensive plan and extensions of local comprehensive plans due dates do not alter the LWMP schedule. The current status of City LWMPs is presented in Table 5-5.

The policies, goals, and performance standards established in each city's LWMP must be consistent with the LRRWMO plan. The section of the LWMP covering assessment of problems must include those problems identified in the LRRWMO Plan that affect the city. The corrective action proposed must consider the individual and collaborative roles of the city and the LRRWMO and must be consistent with the LRRWMO Plan.

In general, the LRRWMO expects the Cities to take the lead in addressing problem areas that are primarily local in nature (e.g., local nuisance flooding). LWMPs should identify problems and corrective actions that affect LRRWMO concerns stated in this Plan or require LRRWMO collaboration to address. Cities are responsible for maintaining stormwater infrastructure; the LRRWMO requires that LWMPs assess the need for periodic maintenance of public works, facilities, and natural conveyance systems.

Table 5-5 Local Water Plan Status

City	Date of LRRWMO Approval	Date of City Adoption
Andover	May 21, 2015	May 2015, October 2018 (amended)
Anoka	July 7, 2015	May 2015, May 2019 (revised)
Ramsey	September 17, 2015	October 2015

LWMPs must be submitted to the LRRWMO for review and approval per the requirements of [Minnesota Statutes 103B.235](#). The LRRWMO will review the LWMP following the process and schedule described in [Minnesota Statutes 103B.235](#). Upon LRRWMO approval of the local plan, the city must adopt and implement its plan within 120 days and amend its official controls within 180 days of plan approval. The city must notify the LRRWMO within 30 days of plan adoption and implementation and adoption of necessary official controls. If a city later wishes to amend its plan, it must submit the proposed amendment to the LRRWMO for review of consistency with the LRRWMO Plan following the procedure described in [Minnesota Rules 8410.0160](#). Cities are encouraged to consult with the LRRWMO staff early on in their planning process. The LRRWMO will work closely with Cities as needed in local plan preparation, review, and implementation.

5.7.3 Impact on Local Governments

The LRRWMO seeks to limit additional requirements imposed upon member cities while still accomplishing the LRRWMO’s goals and implementing the Plan. This Plan does not increase the planning requirements to member cities already imposed by state law and provides opportunities for cities and others to reduce costs through collaboration. The updates to official controls and/or local water management plans in response to this Plan update are anticipated to be minimal. Expectations of member city actions and commitments are similar to prior iterations of the LRRWMO Plan and focus on collaboration and communication. The LRRWMO will continue to serve as the LGU for administering the Wetland Conservation Act within the watershed.

The LRRWMO implementation program will be funded through funds provided by member cities and augment with watershed-based implementation funds (WBIF) and other non-local funding sources, where appropriate. The implementation schedule has been developed to leverage the existing skills and services of partners like the Anoka Conservation District to promote efficiency, limit costs, and maximize the productive relationship among the LRRWMO and its member cities

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Appendix A

Joint Powers Agreement

**AMENDED AND RESTATED JOINT AND COOPERATIVE AGREEMENT
FOR THE ESTABLISHMENT OF
THE LOWER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION
TO PLAN, CONTROL AND PROVIDE FOR THE DEVELOPMENT OF THE
LOWER RUM RIVER WATERSHED**

PREFACE

The Lower Rum River Watershed lying East of the Mississippi River is a watershed that is basically a direct tributary to the Mississippi River. It encompasses all or parts of the cities of Andover, Anoka and Ramsey (the "Member Cities").

Minnesota Laws of 1982, Chapter 509, now codified as Minnesota Statutes 2012, Sections 103B.201 through 103B.255 mandated that all watersheds within the seven county Metropolitan area must be governed by a watershed management organization. The watershed is authorized to organize under a joint powers agreement pursuant to Minnesota Statutes, Sections 471.59 and 103B.211. If such an organization is not created, Anoka County shall petition for the establishment of a watershed district under Minnesota Statutes, Chapter 103D. All the cities in the Lower Rum River Watershed expressed a desire in 1985 to create a joint powers group rather than a watershed district and now desire to adopt an amended joint powers agreement to establish a watershed management organization, which will comply with the current law for management of the watershed. It is the belief of these three cities that a joint powers group will provide more efficient planning and administration of the Lower Rum River Watershed if the watershed is managed under a joint powers agreement. The goal is to leave as much control as possible with the three individual Member Cities.

It has been determined by the three Member Cities that they desire to proceed under a Joint Powers Agreement rather than under Minnesota Statutes, Chapter 103D as a watershed district. Each party to this agreement has been fully advised that the watershed management organization being created shall have the powers and responsibilities set forth in the Metropolitan Surface Water Management Act, Minnesota Statutes, Sections 103B.201 through 103B.255 and as amended by this Agreement. It is further understood and agreed that it is the intent of this agreement to assign to the watershed management organization, which has operated since 1985, the additional powers and duties assigned by the Minnesota legislature. The management of water resources is a rapidly changing field and new laws and regulations are being adopted and amended frequently and it should not be necessary to amend this agreement every time the legislature enacts a new law.

Each Member City further recognizes that this is a binding contract and failure to cooperate or to carry out a Member City's responsibilities will result in a breach of this contract.

The purpose of this organization shall be to assist the three Member Cities to preserve and use natural water storage and retention systems to:

1. Protect and preserve natural surface and groundwater storage and retention systems;
2. Minimize public capital expenditures needed to correct flooding and water quality problems;
3. Identify and plan for means to effectively protect and improve surface water and groundwater quality;
4. Establish more uniform local policies and official controls for surface water and groundwater management;
5. Prevent erosion of soil into surface water systems;
6. Promote groundwater recharge;
7. Protect and enhance fish and wildlife habitat and water recreational facilities;
8. Secure other benefits associated with the proper management of surface and groundwater; and
9. Promote and encourage cooperation among Member Cities in coordinating local surface water and groundwater plans and awareness of their neighbors' problems and to protect the public health, safety, and general welfare.

The Lower Rum River Watershed waters flow through many sub-watersheds directly to the Rum River and the Mississippi River. It is not anticipated that the Lower Rum River Watershed Management Organization will have many capital improvement projects; if it does, it is hereby expressed that the intent of this Agreement is to encourage that the solutions should be handled by agreements between the Member Cities.

It is the intent of this Agreement to subject the Member Cities to a common set of policies and to comply in all respects with the provisions of the Metropolitan Surface Water Management Act.

The purpose of this Preface is to clarify and establish for any court of review or any arbitrator or for the council members of the Member Cities the reasons and purpose for this joint and cooperative venture. The Member Cities realize that the success or failure of the Lower Rum River Watershed Organization created by this Agreement is dependent upon the sincere desire of each Member City to cooperate in the exercise of a joint power to solve joint problems. Each Member City hereby agrees to be bound by this agreement and pledges its cooperation.

JOINT AND COOPERATIVE AGREEMENT

The parties to this Agreement are governmental units of the State of Minnesota, all of

which have lands that drain surface water within the Lower Rum River Watershed and all of which have power and responsibility to construct, reconstruct, extend and maintain storm water management facilities to improve water quality, to promote groundwater recharge, and to protect, promote and preserve water resources within the Watershed. This agreement is made pursuant to the authority of Minnesota Statutes 2012, Sections 103B.201 through Section 103B.255 and Section 471.59.

NAME

I.

The parties hereby create and establish the Lower Rum River Watershed Management Organization.

GENERAL PURPOSE

II.

The general purpose of this agreement is to provide an organization that can investigate, study, plan and control the construction of facilities to drain or pond storm waters, to alleviate damage by flood waters; to improve the creek channels for drainage; 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 area; to do whatever is necessary to assist in water conservation and the abatement of surface water and groundwater contamination and water pollution and the improvement of water quality; to promote ground water recharge; and to protect and enhance fish and wildlife habitat and water recreational facilities. In addition to the aforesated purposes, the organization hereby created shall serve as the watershed management organization for the Lower Rum River Watershed and shall carry out all of the duties and responsibilities outlined in Minnesota Statutes, Sections 103B.201 through 103B.255.

DEFINITIONS

III.

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

Subdivision 1. “Lower Rum River Watershed Management Organization” or “LRRWMO” means the organization created by this agreement. It shall be a public agency of its members and a watershed management organization as defined in Minnesota Statutes, Section 103B.211.

Subdivision 2. “Board” means the Board of Commissioners of the LRRWMO, consisting of one Commissioner from each Member City or, in the absence of that Commissioner, that Member City’s Alternate Commissioner. The Board shall be the governing body of the LRRWMO.

Subdivision 3. “Council” means the governing body of a Member City.

Subdivision 4. "Member City" means a city that enters into this agreement.

Subdivision 5. "Lower Rum River Watershed" or "Watershed" means the area generally contained within a line drawn around the extremities of all terrain with surface drainage that is tributary to the Lower Rum River and the Mississippi River and within the mapped areas delineated on the map filed with the Board of Water and Soil Resources originally filed pursuant to Minnesota Statutes, Section 473.877, Subd. 2 and as now amended by Minnesota Statutes, Chapter 103B, as such map has been amended with approval of the Board of Soil and Water Resources.

MEMBERSHIP

IV.

The Member Cities of the LRRWMO shall be the City of Andover, the City of Anoka and the City of Ramsey.

The LRRWMO may, with the ratification of the Councils of all Member Cities, invite other units of government within the Rum River Watershed to become parties to this Agreement, and in all respects thenceforth enjoy the full rights, duties, and obligations of this Agreement.

No change in governmental boundaries, structure or organizational status shall affect the eligibility of the Member City to be represented on the LRRWMO, so long as such Member City continues to exist as a separate political subdivision.

BOARD OF COMMISSIONERS

V.

Subdivision 1. The governing body of the LRRWMO shall be its Board. Each Member City shall be entitled to appoint one representative on the Board, and one alternate who may sit when the representative is not in attendance and said representative or alternate representative shall be called a "Commissioner" and "Alternate Commissioner", respectively.

Subdivision 2. The Council of each Member City shall determine the eligibility or qualification of its Commissioner and the terms of each Commissioner shall be as established by each individual Member City.

Subdivision 3. The term of each Commissioner and Alternate Commissioner appointed by each Member City shall be as determined by each Member City and until their successors are selected and qualify.

Any vacancy shall be filled for the unexpired term of any Commissioner by the Council of the Member City that appointed said Commissioner. Each Member City agrees to publish a notice of vacancies resulting from the expiration of a Commissioner's or Alternate Commissioner's term or when a vacancy exists for any reason. Publication and notice shall be in accordance with Minnesota Statutes, Section 103B.227, Subds. 1 and 2.

Subdivision 4. Each Member City agrees that its representative Commissioner will not be removed from the Board prior to the expiration of the Commissioner's term, unless said Commissioner consents in writing or unless said Member City has presented the Commissioner with charges in writing and has held a public hearing after reasonable notice to the Commissioner.

A Member City may remove a Commissioner or an Alternate Commissioner for just cause or for violation of a Code of Ethics of the Commission or a Member City, or for malfeasance, nonfeasance, or misfeasance. Said hearing shall be held by the Council of the Member City that appointed the Commissioner.

A Commissioner who is an elected official of a Member City, and who is not reelected, may be removed by the appointing Member City at the Member City's discretion. Any decision by a Member City to remove a Commissioner may be appealed to the Board of Water and Soil Resources. A certified copy of the Member City Council's Resolution removing said Commissioner shall be filed with the Secretary of the Board and shall show compliance with the terms of this section.

Subdivision 5. Each Member City shall within 30 days of appointment file with the Secretary of the Board a record of the appointment of its Commissioner and its Alternate Commissioner. The LRRWMO shall notify the Board of Water and Soil Resources of Commissioner appointments and vacancies within 30 days after receiving notice from the Member Cities. Member Cities shall fill all vacancies within 90 days after the vacancy occurs.

Subdivision 6. Commissioners shall serve without compensation from the LRRWMO, but this shall not prevent a Member City from providing compensation for its Commissioner for serving on the Board, if such compensation is authorized by such Member City and by law. LRRWMO funds may be used to reimburse a Commissioner or Alternate Commissioner for expenses incurred in performing LRRWMO business if authorized by the Board.

Subdivision 7. At the first meeting of the Board and in February of each year thereafter, the Board shall elect from its Commissioners a Chair, a Vice Chair, a Secretary, a Treasurer, and such other officers as it deems necessary to conduct its meetings and affairs. At the organizational meeting or as soon thereafter as it may be reasonably done, the Board 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 Board provided that a ten-day prior notice of the proposed amendment has been furnished to each person to whom notice of the Board meetings is required to be sent. A majority vote of all eligible votes of the then existing Commissioners shall be sufficient to adopt any proposed amendment to such rules and regulations.

The Board shall notify each Member City of the location and time of regular and special meetings called or established by the Board. A meeting shall be held at least annually, and all meetings shall be called and open to the public pursuant to Minnesota Statutes, Chapter 13D.

POWERS AND DUTIES OF THE BOARD

VI.

Subdivision 1. The LRRWMO, acting by its duly appointed Board of Commissioners, shall as it relates to flood control, water quality, ground water recharge and water conservation or in the construction of facilities and other duties as set forth in Minnesota Statutes, Chapter 103B and in Rules and Regulations of the Board of Water and Soil Resources, have the powers and duties set out in this Article and as prescribed by law.

Subdivision 2. It may employ such persons or contract with consultants as it deems necessary to accomplish its duties and powers, and any such persons or consultants shall be considered LRRWMO staff.

Subdivision 3. It may contract for space and for material and supplies to carry on its activities either with a Member City or elsewhere.

Subdivision 4. It may acquire necessary personal property to carry out its powers and its duties.

Subdivision 5. It shall develop an overall plan containing a capital improvement program within a reasonable time after qualifying, and said plan shall meet all of the requirements as established in Minnesota Statutes, Chapter 103B. Said overall plan shall establish a comprehensive goal for the development of the Lower Rum River Watershed and shall establish a proposed procedure for accomplishing the purposes of the LRRWMO as set forth in Article II.

Subdivision 6. It shall make necessary surveys or utilize other reliable surveys and data and develop projects to accomplish the purposes for which the LRRWMO is organized.

Subdivision 7. It 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 8. It may, if necessary to implement the plan, order any Member City or Member Cities to construct, clean, repair, alter, abandon, consolidate, reclaim or change the course or terminus of any ditch, drain, storm sewer, or water course, natural or artificial, within the Lower Rum River Watershed.

The Member Cities further understand and agree that the LRRWMO in reviewing, ordering, or authorizing these projects will use the best management practices required to meet state and federal statutes and regulations. The LRRWMO will also consider the ability of the Member Cities to fund the enforcement of local controls and any ordered capital improvements. The LRRWMO shall incorporate financial review and anticipated sources of revenue as a part of the overall management plan and as a part of local water management plans.

Subdivision 9. It may order any Member City or Member Cities to acquire, operate, construct or maintain dams, dikes, reservoirs and appurtenant works or other improvements

necessary to implement the overall plan.

The Member Cities further understand and agree that the LRRWMO in reviewing, ordering, or authorizing these projects will use the best management practices required to meet state and federal statutes and regulations. The LRRWMO will also consider the ability of the Member Cities to fund the enforcement of local controls and any ordered capital improvements. The LRRWMO shall incorporate financial review and anticipated sources of revenue as a part of the overall management plan and as a part of local water management plans.

Subdivision 10. It shall regulate, conserve and control the use of storm and surface water and groundwater within the Watershed necessary to implement the overall plan.

Subdivision 11. It shall contract for or purchase such insurance as the Board deems necessary for the protection of the LRRWMO.

Subdivision 12. It may establish and maintain devices for acquiring and recording hydrological and water quality data within the Watershed.

Subdivision 13. It may enter upon lands, in a lawful manner, within or without the Watershed to make surveys and investigations to accomplish the purposes of the LRRWMO. The LRRWMO shall be liable for actual damages resulting therefrom but every person who claims damages shall serve the Chair or Secretary of the Board with a Notice of Claim as required by Minnesota Statutes, Section 466.05.

Subdivision 14. It shall provide any Member City with technical data or any other information of which the LRRWMO has knowledge that will assist the Member City in preparing land use classifications or local water management plans within the Watershed.

Subdivision 15. It may provide legal and technical assistance in connection with litigation or other proceedings between one or more of its Member Cities and any other political subdivision, commission, board or agency relating to the planning or construction of facilities to drain or pond storm waters or relating to water quality within the Watershed. The use of LRRWMO funds for litigation shall be only upon a favorable vote of a majority of the eligible votes of the then existing Commissioners.

Subdivision 16. It may accumulate reserve funds for the purposes herein mentioned and may invest funds of the LRRWMO not currently needed for its operations, in the manner and subject to the laws of Minnesota applicable to statutory cities.

Subdivision 17. It may collect monies, subject to the provisions of this agreement, from its Member Cities, Anoka County and from any other source approved by a majority of its Commissioners.

Subdivision 18. It may 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; may

enter into any reasonable agreement required in connection therewith; may comply with any laws or regulations applicable thereto; and may hold, use, and dispose of such money or property in accordance with the terms of the gift, grant, loan or agreement relating thereto.

Subdivision 19. It may make contracts, incur expenses and make expenditures necessary and incidental to the effectuation of these purposes and powers and may disburse therefor in the manner hereinafter provided.

Subdivision 20. It shall cause to be made an annual audit by a certified public accountant or the state auditor of the books and accounts of the LRRWMO and shall make and file a report to its Member Cities at least once each year including the following information:

- a. the approved budget;
- b. a reporting of revenues;
- c. a reporting of expenditures;
- d. a financial audit report or section that includes a balance sheet, a classification of revenues and expenditures, an analysis of changes in final balances, and any additional statements considered necessary for full financial disclosure; and
- e. the status of all LRRWMO projects and work within the Watershed;

Copies of said report shall be transmitted to the Clerk of each Member City.

Subdivision 21. Its books, reports and records shall be available for and open to inspection by its Member Cities at all reasonable times.

Subdivision 22. It may recommend changes in this agreement to its Member Cities.

Subdivision 23. It may exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth herein and as outlined and authorized by Minnesota Statutes, Sections 103B.201 through 103B.255.

Subdivision 24. It shall cooperate with the State of Minnesota, the Commissioner of Natural Resources and the Director of the Division of Waters, Soils and Minerals of the Department of Natural Resources in complying with the requirements of Minnesota Statutes, Chapter 103G.

Subdivision 25. Each Member City reserves the right to conduct separate or concurrent studies on any matter under study by the LRRWMO.

Subdivision 26. It shall establish a procedure for establishing citizen or technical advisory committees and provide other means of public participation.

Subdivision 27. Where the LRRWMO is authorized or requested to review and make recommendations on any matter, the LRRWMO shall act on such matter within sixty (60) days of receipt of the matter referred. Failure of the LRRWMO to act within sixty (60) days shall constitute approval of the matter referred, unless the LRRWMO requests and receives from the

referring unit of government an extension of time to act on the matter referred. Where the LRRWMO makes recommendation of any matter to a Member City, the Council of a Member City not acting in accordance with such recommendation shall submit a written statement of its reasons for doing otherwise to the LRRWMO within ten (10) days of its decision to act contrary to the LRRWMO's recommendation. The LRRWMO shall review the written statement and if determined insufficient by the LRRWMO, request written clarification within an additional ten (10) days.

METHOD OF PROCEEDING VII.

Subdivision 1. The procedures to be followed by the Board in carrying out the powers and duties set forth in Article VI, Subdivisions 5, 6, 7, 8, 9, and 10, shall be as set forth in this Article.

Subdivision 2. The Board has previously prepared the overall plan as required in Article VI, Subdivision 5. This plan shall be updated as required by state law. The Board shall proceed to implement said plan, and this implementation may be ordered by stages.

Subdivision 3. No project that will channel or divert additional waters to subdistrict and subtrunks that cross municipal boundaries shall be commenced by any Member City prior to approval of the Board of the design of an adequate outlet or of adequate storage facilities.

Subdivision 4. Ordering Improvements. All construction, reconstruction, extension or maintenance of outlets for the various subdistrict and subtrunks, including outlets, lift stations, dams, reservoirs, or other appurtenances of a surface water or storm sewer system that involve construction by, or assessment against, any Member City or against privately or publicly owned land within the Watershed shall follow the statutory procedures outlined in Chapter 429 of the Minnesota Statutes except as herein modified.

The Board shall secure from its engineers or some other competent person a report advising it in a preliminary way as to whether the proposed improvement is feasible and whether it shall best be made as proposed or in connection with some other improvement and the estimated cost of the improvement as recommended and the proposed allocation of costs between Member Cities.

The Board shall then hold a public hearing on the proposed improvement after mailed notice to the Clerk of each Member City. The Board shall not be required to mail or publish notice except by said notice to the Clerk. Said 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 City. The Board may adjourn said hearing to obtain further information, may continue said hearing pending action of the Member Cities or may take such other action as it deems necessary to carry out the purposes of the LRRWMO.

To order the improvement, in accordance with the powers and duties established in Article VI, Subdivisions 7, 8 and 9, a resolution setting forth the order for a capital improvement project shall require a favorable vote by two-thirds of all eligible votes of the then existing Commissioners. (In all cases other than for a capital improvement project, a majority vote of all eligible Commissioners shall be sufficient to order the work.) The order shall describe the improvement, shall allocate in percentages the cost between the Member Cities, shall designate the engineers to prepare plans and specifications, and shall designate the Member City that will contract for the improvement in accordance with Subdivision 7 of this Article. In determining how costs of a capital improvement shall be allocated among Member Cities, the Board shall consider whether the improvement benefits one or more subwatersheds rather than the Lower Rum River Watershed as a whole.

After the Board has ordered an improvement it shall forward to all Member Cities an estimated time schedule for the construction of said improvement. The Board shall allow an adequate amount of time, and in no event less than 45 days, for each Member City to conduct hearings, in accordance with the provisions of the aforesaid Chapter 429, or the charter requirements of any city, or to ascertain the method of financing that said Member City will utilize to pay its proportionate share of the costs of the improvement. Each Member City shall ascertain within a period of 90 days the method it shall use to pay its proportionate share of the costs.

If the LRRWMO proposes to utilize Anoka County's bonding authority as set forth in Minnesota Statutes, Section 103B.251, or if the LRRWMO proposes to certify all or any part of a capital improvement to Anoka County for payment, then and in that event all proceedings shall be carried out in accordance with the provisions set forth in said Section 103B.251.

Subdivision 5. Any Member City being aggrieved by the determination of the Board as to the allocation of the costs of said improvement shall have 30 days after the Board resolution ordering the improvement to appeal said determination. Failure of a Member City to appeal the determination of the Board within such 30-day period shall be deemed to be consent to and agreement with the cost allocation in the Board's resolution. An appeal shall be in writing and shall be addressed to the Board asking for arbitration. The determination of the Member City'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, one to be appointed by the appealing Member City, and the third 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 after their appointment, then the Chief Judge of the District Court of Anoka 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 City and if appointed by the Chief Judge said person shall be a registered professional engineer. The arbitrators' expenses and fees, together with the other expenses, not including counsel fees, incurred in the conduct of the arbitration shall be divided equally between the LRRWMO and the appealing Member City. Arbitration shall be conducted in accordance with the Uniform Arbitration Act, Minnesota Statutes, Chapter 572B. Arbitration shall be non-binding unless the LRRWMO and the appealing Member City agree to binding arbitration. If the parties agree to binding arbitration the decision of the board of arbitration shall be final and the parties to the arbitration will be deemed to have consented to

and agreed with the decision. If these parties do not agree to binding arbitration, any party that does not agree with and consent to the decision of the board of arbitration must notify the Board in writing within 30 days of receipt of the decision of the board of arbitration that it does not consent to or agree with the decision. Failure to so notify the Board shall be deemed consent to and agreement with the decision of the board of arbitration. Unless the parties agree with the decision of the board of arbitration, capital improvements can only be funded in accordance with Minnesota Statutes, Section 103B.251, or secured from other sources.

Subdivision 6. The Board shall not order and no engineer shall be authorized by the Board to prepare plans and specifications before the Board has adopted a resolution ordering the improvement. The Board may order the advertising for bids upon receipt of notice from each Member City that 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 Member City.

Subdivision 7. Contracts for Improvements. All contracts that are to be let as a result of the Board's order to construct, repair, alter, reclaim or change the course or terminus of any ditch, drain, storm sewer, watercourse, or to acquire, operate, construct or maintain dams, dikes, reservoirs or their appurtenances or to carry out any of the other provisions of the plan as authorized by Minnesota Statutes, and for which two or more Member Cities shall be responsible for the costs, shall be let in accordance with the provisions of Minnesota Statutes, Section 429.041 of the Minnesota Statutes. The bidding and contracting of said work shall be let by any one of the Member Cities, as ordered by the Board, after compliance with the statutes. All contracts and bidding procedures shall comply with all the requirements of law applicable to contracts let by a statutory city in the State of Minnesota.

The LRRWMO shall not have the authority to contract in its own name for any improvement work for which a special assessment will be levied against any private or public property under the provisions of Minnesota Statutes, Chapter 429 or under the provisions of any City charter. This section shall not preclude the LRRWMO from proceeding under Minnesota Statutes, Section 103B.251.

Subdivision 8. Contracts with Other Governmental Bodies. The LRRWMO may exercise the powers set forth in Article VI, Subdivision 7, but said contracts for a capital improvement shall require a favorable vote of two-thirds majority of the eligible votes of the then existing Commissioners.

Subdivision 9. Supervision. All improvement contracts awarded under the provisions of Subdivision 7 of this Article shall be supervised by the Member City awarding said contract or said Member City may contract or appoint any qualified staff member or members of the LRRWMO to carry out said supervision, but each Member City agrees that the staff of the LRRWMO shall be authorized to observe and review the work in progress and the Member Cities agree to cooperate with the LRRWMO staff in accomplishing the purposes of the LRRWMO. Representatives of the LRRWMO shall have the right to enter upon the place or places where the improvement work is in progress for the purpose of making reasonable tests and inspections. The staff of the LRRWMO shall report, advise and recommend to the Board on

the progress of said work.

Subdivision 10. Land Acquisition. The LRRWMO shall not have the power of eminent domain. The Member Cities agree that any and all easements or interests in land that are necessary will be negotiated or condemned in accordance with Minnesota Statutes, Chapter 117 by the Member City wherein said lands are located, and each Member City agrees to acquire the necessary easements or right-of-way or partial or complete interest in land upon order of the Board to accomplish the purposes of this agreement. All reasonable costs of said acquisition shall be considered as a cost of the improvement. If a Member City determines it is in the best interests of that Member City to acquire additional lands, in conjunction with the taking of lands for storm and surface drainage or storage, for some other purposes, the costs of said acquisition will not be included in the improvement costs of the ordered project. The Board in determining the amount of the improvement costs to be assessed to each Member City may take into consideration the land use for which said additional lands are being acquired and may credit the acquiring Member City for said land acquisition to the extent that it benefits the other Member Cities. Any credits may be applied to the cost allocation of the improvement project under construction or the Board, if feasible and necessary, may defer said credits to a future project.

If any Member City refuses to negotiate or condemn lands as ordered by the Board, any other Member City may negotiate or condemn outside its corporate limits in accordance with Minnesota Statutes, Chapter 117. All Member Cities agree that they will not condemn or negotiate for land acquisition to pond or drain storm and surface waters within the corporate boundaries of another Member City within the Lower Rum River Watershed except upon order of the Board.

The LRRWMO shall have authority to establish land acquisition policies as a part of the overall plan.

Subdivision 11. Pollution Control and Water Quality. The LRRWMO shall have the authority and responsibility to protect and improve water quality in the Watershed as this is one of the main purposes set forth in the Surface Water Management Act. All Member Cities agree that they will refuse to allow the drainage of sanitary sewage or industrial wastes onto any lands or into any water course or storm sewer draining into the Rum River or Mississippi River. The Board may investigate on its own initiative and shall investigate upon petition of any Member City all complaints relating to pollution of surface water or ground water draining to or affecting the Rum River or the Mississippi River or their tributaries. Upon a finding that the creek or surface waters or groundwater are being polluted, the Board shall order the Member City to abate this nuisance and each Member City agrees that it will take all reasonable action available to it under the law to alleviate the pollution and to assist in protecting and improving the water quality of surface water and groundwater in the Watershed.

Subdivision 12. Local Water Management Plans. The LRRWMO shall have power and authority to review the Member Cities' local water management plans, capital improvements relating to surface water management programs and official controls required by Minnesota Statutes, Section 103B.235 and/or by rules promulgated and adopted by the Board of Water and Soil Resources.

FINANCES VIII.

Subdivision 1. The LRRWMO funds may be expended by the Board in accordance with this agreement and in accordance with the procedures as established by law and as may be determined by the Board. The Board shall designate one or more national or state bank or trust companies, authorized by Minnesota Statutes, Chapters 118 and 427 to receive deposits of public moneys and to act as depositories for the LRRWMO funds. In no event shall there be a disbursement of LRRWMO funds without the signature of at least two Board members, one of whom shall be the Treasurer or Authorized Deputy Treasurer. The Treasurer shall be required to file with the Secretary of the Board a bond in the sum of at least \$10,000 or such higher amount as shall be determined by the Board. The LRRWMO shall pay the premium on said bond.

Subdivision 2. Each Member City agrees to contribute each year to a general fund, said fund to be used for general administration purposes including, but not limited to: salaries, rent, supplies, development of an overall plan, engineering and legal expenses, insurance, and bonds, and to purchase and maintain devices to measure hydrological and water quality data. Said funds may also be used for normal maintenance of the facilities, but any extraordinary maintenance or repair expense shall be treated as an improvement cost and processed in accordance with Subdivision 5 of this Article. The annual contribution by each Member City shall be based fifty percent (50%) on the net tax capacity of all property within the Watershed and fifty percent (50%) on the basis of the total area of each Member City within the boundaries of the Watershed each year to the total area in the Lower Rum River Watershed governed by this Agreement.

Subdivision 3.

- (a) An improvement fund shall be established for each improvement project instituted under Article VII, Subdivision 4. In all cases in which capital improvements are to be paid in whole or in part by Member Cities, each Member City agrees to contribute to said fund its agreed-upon proportionate share of the engineering, legal and administrative costs as determined in accordance with Article VII, Subdivisions 4 and 5 as the amount to be assessed against each Member City as a cost of the improvement. The Board shall submit in writing a statement to each Member City, setting forth in detail the expenses incurred by the LRRWMO for each project. Each Member City further agrees to pay to or contract with the Member City awarding said contract for the improvement, its agreed-upon proportionate share of the cost of the improvement in accordance with the determination of the Board under Article VII, Subdivisions 4 and 5. The Member City awarding the contract shall submit in writing copies of the engineer's certificate authorizing payment during construction and the Member City being billed agrees to pay its proportionate share of said improvement costs within 30 days after receipt of the statement. The Member City awarding the contract shall advise other contributing Member Cities of the tentative time schedule of the work and the estimated times when the contributions shall be necessary.

- (b) The LRRWMO and Anoka County 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 Anoka County pursuant to Minnesota Statutes, Section 103B.251. The levy and collection of an ad valorem tax levy for maintenance shall be by Anoka County based upon a tax levy resolution adopted by a majority vote of all eligible Commissioners and remitted to the County on or before the date prescribed by law each year. If it is determined to levy for maintenance, the LRRWMO shall be required to follow the hearing process established by Minnesota Statutes, Sections 103D.915 and 103D.921. Mailed notice shall be sent to the Clerk of each Member City at least 30 days prior to the hearing.

Subdivision 4. On or before July 1 of each year, the Board shall adopt a detailed budget for the ensuing year and decide upon the total amount necessary for the general fund. Budget approval shall require a favorable vote by a majority of all eligible votes of the then existing Commissioners.

The secretary of the Board shall certify the budget on or before July 1 to the Clerk of each Member City together with a statement of the proportion of the budget to be provided by each Member City.

The Council of each Member City agrees to review the budget, and the Board shall upon notice from any Member City received prior to August 1, hear objections to the budget, and may, upon notice to all Member Cities and after a hearing, modify or amend the budget, and then give notice to the Member Cities of any and all modifications or amendments.

Each Member City agrees to provide the funds required by the budget and said determination shall be conclusive if no Member City enters objections in writing on or before August 1. If no objections are submitted to the Board, each Member City agrees to provide the funds approved by the Board, after the Board has conducted the aforementioned hearing. Modifications or amendments to the original budget require a favorable vote by a majority of all eligible voters of then existing Commissioners.

The schedule of payments by the Member Cities shall be determined by the Board in such a manner as to provide for an orderly collection of the funds needed.

Upon notice and hearing, the Board by a favorable vote of a majority of all eligible votes of then existing Commissioners may adopt a supplemental budget requiring additional payments by the Member Cities within 60 days of its adoption but in no event shall the budget require any Member City to contribute in excess of one half of one percent of the net tax capacity of all taxable property within the Watershed and within the Member City's corporate boundaries in any one calendar year.

Member Cities' attention is drawn to Minnesota Statutes, Section 103B.245, which authorizes a Watershed Management Tax District to be created within each Member City to pay the costs of planning and for the purpose of paying capital costs and/or normal and routine

maintenance of facilities.

Subdivision 5. Cost Allocation. General costs of operating the LRRWMO shall be as set forth in Article VIII, Subdivision 2. Costs of capital projects to be paid by Member Cities will be determined in accordance with Articles VII, Subdivisions 4 and 5 and paid in accordance with Article VIII, Subdivision 3.

MISCELLANEOUS PROVISIONS

IX.

Subdivision 1. The LRRWMO shall not have the power to issue certificates, warrants or bonds.

Subdivision 2. The LRRWMO shall not have the power of eminent domain and shall not own any interest in real property. All interests in lands shall be held in the name of the Member City wherein said lands are located.

Subdivision 3. The LRRWMO shall not have the power to levy a special assessment upon any privately or publicly owned land. All such assessments shall be levied by the Member City wherein said lands are located. The LRRWMO shall have the power to require any Member City to contribute the costs allocated or assessed according to the other provisions of this agreement.

Subdivision 4. Each Member City agrees that it will not directly or indirectly collect or divert any additional surface water to the Lower Rum River or the Mississippi River or their tributaries from any subdistrict or subtrunk without a permit from the Board. Permits may be granted by the Board for a Member City to proceed with the construction or reconstruction of improvements within the Member City's boundaries and at its sole cost upon a finding:

- (1) that there is an adequate outlet;
- (2) that said construction is in conformance with the overall plan;
- (3) that the construction will not adversely affect other Member Cities.

Subdivision 5. Any Member City that is more than 60 days in default in contributing its share to the general fund shall have the vote of its Commissioner suspended pending the payment of its proportionate share.

Any Member City that is more than 60 days in default in contributing its proportionate share of the cost of any improvement to the contracting Member City shall upon application of the contracting Member City have the vote of its Commissioner suspended, pending the payment of its proportionate share.

Any Member City whose vote is under suspension shall not be considered as an eligible Member City as such membership affects the number of votes required to proceed on any matter under consideration by the Board.

Subdivision 6. Enforcement. Member Cities agree to be bound by the determination of the Commission and to agree to use their best efforts to carry out directives from the Commission; failure to respond may result in a legal action by the Commission to require the Member City to act under a court order.

DURATION

X.

Subdivision 1. Each Member City agrees to be bound by the terms of this agreement until January 1, 2025, and it may be continued thereafter at the option of the Member Cities.

Subdivision 2. This agreement may be terminated prior to January 1, 2025, by the unanimous consent of the Member Cities or if for any reason the LRRWMO is reduced to less than three Member Cities. If the agreement is to be terminated, a notice of the intent to dissolve the LRRWMO shall be sent to the Board of Water and Soil Resources and to Anoka County at least 90 days prior to the date of dissolution.

Subdivision 3. In addition to the manner provided in Subdivision 2 for termination, any Member City may petition the Board to dissolve the agreement. Upon 30 days' notice in writing to the Clerk of each Member City and the Board of Water and Soil Resources and Anoka County, the Board shall hold a hearing and upon a favorable vote by a majority of all eligible votes of then existing Commissioners, the Board may by Resolution recommend that the LRRWMO be dissolved. Said Resolution shall be submitted to each Member City and if ratified by two-thirds of the Councils of all Member Cities within 60 days, said Board shall dissolve the LRRWMO allowing a reasonable time to complete work in progress and to dispose of personal property owned by the LRRWMO.

DISSOLUTION

XI.

Upon dissolution of the LRRWMO, all property of the LRRWMO shall be sold and the proceeds thereof, together with monies on hand, shall be distributed to the eligible Member Cities. Such distribution of LRRWMO assets shall be made in proportion to the total contribution to the LRRWMO as required by the last annual budget.

EFFECTIVE DATE

XII.

This agreement shall be in full force and effect upon the filing of a certified copy of the resolution approving said agreement by all three Member Cities, for the Lower Rum River Watershed area to be governed by this Agreement. Said resolution shall be filed with the City Manager of the City of Anoka, who shall notify all Member Cities in writing of its effective date. The effective date of the new amended Joint Powers Agreement shall be when approved by all the Member Cities and when the Mayor and other authorized City representatives have executed the amended agreement.


IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this agreement to be executed in accordance with the authority of Minnesota Statutes, Sections 103B.211 and 471.59.

Approved by the City Council

September 2, 2014

CITY OF ANDOVER

By: 

Attest: 

Approved by the City Council

Dated: July 7, 2014

CITY OF ANOKA

By: 

Attest: 

Approved by the City Council

August 26, 2014

CITY OF RAMSEY

By: Saul Ho

Attest: Clark M. Hilling

**Lower Rum River Watershed Management Organization
Boundary Description**

Revised November 2014

Beginning at an intersecting point on the east municipal boundary of the City of Andover and the centerline of Crosstown Boulevard; thence southwesterly along the centerline of Crosstown Boulevard to the centerline of 161st Avenue; thence westerly along the centerline of 161st Avenue to the west right of way line of Burlington Northern Railroad; thence southerly along the west right of way line of Burlington Northern Railroad to an intersecting point along the extension of the property line between Lot 44, and Lot 43, Block 4, Red Pine Fields; thence westerly along said extension line to the easterly right of way line of Vale Street; thence southwesterly and westerly along said right of way line of Vale Street to an intersecting point along the extension of the southwesterly right of way line of 159th Avenue; thence northwesterly along said extension line and southwesterly right of way line of 159th Avenue to the east plat line of Woodland Oaks; thence southerly along the said plat line to the southeast corner of Lot 5, Block 2, Woodland Oaks; thence westerly along south line of said Lot 5 to the southwest corner of said Lot 5; thence westerly to the southeast corner of Lot 12, Block 5, Woodland Oaks; thence westerly along south line of said Lot 12 to the southwest corner of said Lot 12; thence northerly along west line of said Lot 12 to the southeast corner of Lot 2, Block 5, Woodland Oaks; thence westerly along south line of said Lot 2 to the southwest corner of said Lot 2; thence westerly to the southeast corner of Lot 5, Block 4, Woodland Oaks; thence westerly along south line of said Lot 5 to the west plat line of Woodland Oaks; thence northerly along the west plat line of Woodland Oaks to the centerline of 161st Avenue; thence westerly along the centerline of 161st Avenue to an intersecting point along the extension of the west right of way line of Hanson Boulevard; thence southerly along said extension line and west right of way line of Hanson Boulevard to the northeast corner of Woodland Crossings; thence westerly along the north plat line of Woodland Crossings to the southwest corner of Lot 3, Block 1, Nightingale Ridge; thence northerly along the west line of Lots 3, and 2, Block 1, Nightingale Ridge and extending to the north right of way of 159th Lane; thence westerly along the north right of way of 159th Lane to the east right of way of Nightingale Street; thence northerly along the east right of way of Nightingale Street to the centerline of 161st Avenue; thence westerly along the centerline of 161st Avenue to the centerline of Round Lake Boulevard; thence southerly along the centerline of Round Lake Boulevard to an intersecting point along the extension of the west plat line of CreekrIDGE Estates; thence southerly along said extension line and west plat line of CreekrIDGE Estates to the centerline of South

Coon Creek Boulevard; thence northwesterly along the centerline of South Coon Creek Boulevard to the east corner of Parcel (pin 293224420009) of Government Lot 4, Sec 29, T 32, R 24; thence southwesterly along the southeast line of said Parcel (pin 293224420009) to the south corner of said Parcel (pin 293224420009); thence northwesterly along the southwest line of said Parcel (pin 293224420009) to the north corner of Parcel (pin 293224420006) of Government Lot 4, Sec 29, T 32, R 24; thence southwesterly along the northwest line of said Parcel (pin 293224420006) to the north corner of Parcel (pin293224420066) of Government Lot 4, Sec 29, T 32, R 24; thence southerly along the west line of said Parcel (pin293224420066) to the southwest corner of said Parcel (pin 293224420066); thence westerly along the south line of Parcels (pin 293224420020) and (pin 293224420019) of Government Lot 4, Sec 29, T 32, R 24 and extending to the centerline of Round Lake Boulevard; thence southerly along the centerline of Round Lake Boulevard to an intersecting point along the extension of the north property line of Lot 1, Block 1 Woodland Pond 2nd Addition; thence easterly along said extension line and the north line of Lots 1, 7, 8, 14, Block 1, Woodland Pond 2nd Addition to the northwest corner of Lot 15, Block 1, Woodland 2nd Addition; thence southerly along the west line of said Lot 15 to the southwest corner of said Lot 15; thence southeasterly to the northeast corner of Lot 8, Block 1, Quickstrom Addition; thence southerly along the east line of said Lot 8 to the southeast corner of said Lot 8; thence westerly along the north line of Lots 13, and 14, Block 1, Quickstrom Addition to the northwest corner of Lot 14, Block 1, Quickstrom Addition; thence southerly to the southwest corner of said Lot 14; thence southwesterly to the northwest corner of Lot 6, Block 3, Quickstrom Addition; thence southerly along the west line of said Lot 3 to the south plat line of Quickstrom Addition; thence easterly along the south plat line of Quickstrom Addition to the west plat line of Woodland Creek 5th Addition; thence southerly along west plat line of Woodland Creek 5th Addition to the northwest corner of Lot 3, Block 3, Woodland Creek 5th Addition; thence easterly along the north line of said Lot 3 to the northeast corner of said Lot 3; thence southerly along the east line of said Lot 3 to the southeast corner of said Lot 3; thence southerly along the extension of the east line of said Lot 3 to the west right of way line of Orchid Street; thence southerly along and online with the west right of way line of Orchid Street to the southeast corner of Lot 5, Block 2, Woodland Creek; thence westerly along the south line of said Lot 5 to the northeast corner of Lot 6, Block 7, Northglen; thence southerly along the east line of said Lot 6 to the southeast corner of said Lot 6; thence westerly along the south line of said Lot 6 to the east right of way line of Quay Street; thence southerly along the east right of way line of Quay Street to the north right of way line of Bunker Lake Boulevard; thence easterly along the north right of way line of Bunker Lake Boulevard to an point along the centerline of Marigold Street; thence southeasterly to the northwest corner of Lot 10, Block 1, Woodland Terrace 2nd Addition; thence

southerly along the east line of Lots 10, 9, and 8, Block 1 of Woodland Terrace 2nd Addition to the northeast corner of Lot 1, Block 4, Woodland Terrace; thence southerly along the east line of Lots 1, 2, 3, 4, 5, 6, 7, 8, and 9, Block 4, Woodland Terrace to the northeast corner of Lot 10, Block 4, Woodland Terrace; thence easterly along the north line of Lots 11, 12, 13, 14, and 15, Block 4, Woodland Terrace to the northeast corner of Lot 15, Block 4, Woodland Terrace; thence southerly along the east line of Lots 15, 16, 17, 18, and 19, Block 4, Woodland Terrace to the northeast corner of Lot 1, Block 6, Woodland Terrace 4th Addition; thence southerly along the east line of Lots 1, and 2, Block 6, Woodland Terrace 4th Addition to the northeast corner of Lot 4, Block 6, Woodland Terrace 4th Addition; thence westerly along the northerly line of said Lot 4 to the northwest corner of said Lot 4; thence southerly along the westerly line of said Lot 4 to the southwest corner of said Lot 4; thence southerly to the northwest corner of Lot 12, Block 7, Woodland Terrace 4th Addition; thence southerly along the west line of said Lot 7 to the southwest corner of said Lot 7; thence westerly along the south line of Lot 11, Block 7, Woodland Terrace 4th Addition to the northeast corner of Lot 7, Block 7, Woodland Terrace 4th Addition; thence southerly along the easterly line of Lots 7, and 6, Block 7, Woodland Terrace 4th Addition to an intersecting point on the south municipal boundary line of the City of Andover, the north municipal boundary line of Coon Rapids, thence westerly along the northern municipal boundary of the City of Coon Rapids to the east municipal boundary of the City of Anoka, thence southerly along the east municipal boundary of the City of Anoka to the centerline of the Mississippi River, the boundary between Anoka and Hennepin Counties, thence northwesterly along the boundary between Anoka and Hennepin Counties to the west municipal boundary of the City of Ramsey, thence northerly along the west municipal boundary of the City of Ramsey to the north municipal boundary of the City of Ramsey, thence easterly along the north municipal boundary of the Cities of Ramsey and Andover to the point of beginning.

Appendix B

Grading, Stormwater Management and Erosion/Sediment Control Permit Application

GRADING, STORMWATER MANAGEMENT AND EROSION/ SEDIMENT CONTROL PERMIT APPLICATION

A \$100.00 application fee and additional \$700.00 escrow deposit must accompany this permit application.

Permits are to be processed at the same time as the site plan, preliminary plat or other city land use or building application submitted to the city in which the work or project is located.

The permit application and supporting documentation must be submitted to the LRRWMO by the THIRD THURSDAY OF THE MONTH TO BE ON THE FOLLOWING REGULARLY SCHEDULED MONTHLY LRRWMO MEETING AGENDA. A PERMIT NUMBER WILL NOT BE ASSIGNED UNTIL CITY AUTHORIZATION IS RECEIVED.

Project Name: _____

Address/Location: _____

Project Description/Purpose: _____

Name of Applicant (Site Owner or Property Owner)	

Address	

City, State, Zip	

Phone	Fax
_____	_____
Email	

Applicant's Contact	Organization Name
_____	_____
Address	

City, State, Zip	

Phone	Fax
_____	_____
Email	

Submittal Requirements

Completed Grading, Stormwater Management and Erosion/ Sediment Control permit applications are to be submitted as per LRRWMO attachments G1 (Permit Requirements) and G2 (Office Procedure) included with this application. Note that projects involving potential wetland impacts and/or involving a Wetland Replacement Plan require a separate permit application and are subject to additional requirements.

PROJECT SUBMITTALS (check all that apply):

<input type="checkbox"/>	GRADING PLAN: Including existing and proposed contours and boundaries of all wetlands and surface waters.
<input type="checkbox"/>	STORM SEWER/ DRAINAGE PLAN: Including all permanent drainage features and all permanent water quality features.
<input type="checkbox"/>	STORM DRAINAGE CALCULATIONS: Design computations as required by the LRRWMO.
<input type="checkbox"/>	EROSION CONTROL PLAN: Including all temporary and permanent measures proposed to retain all sediment on site.
<input type="checkbox"/>	OTHER

START OF
PROJECT: _____

EST. COMPLETION
DATE: _____

APPROVAL
DATE: _____

By signing this Permit Application, the undersigned consents and agrees on behalf of the Applicant that:

1. The permit application fee is non-refundable. Escrow deposits will be held by the LRRWMO until the project has been completed and all conditions of issuance of the permit are satisfied. The Applicant is responsible for all expenses incurred by the LRRWMO in the processing, administration and enforcement of the permit application and permit. The escrow deposit will be used to reimburse the LRRWMO for all expenses incurred by the LRRWMO in processing, administering and enforcing the permit application and permit, including engineering, legal and other consultant costs. If such expenses exceed the escrow deposit, the LRRWMO will bill the Applicant or Permittee for such excess amount and payment will be due within twenty (20) days of mailing the invoice. Timely payment of such invoices is a condition of all permits and work may be stopped on the project for failure to make payments when due.
2. The undersigned, its agents, principal, assigns and/or representatives (hereinafter "Permittee") shall abide by all the standard conditions and special terms and conditions of the LRRWMO.
3. Any work that violates the terms of the permit may result in the LRRWMO or the City in which the work is being done immediately causing the work on the project relating to the permit to cease and desist. All work on the project shall cease until the permit conditions are met and approved by the LRRWMO and/or the City in which the work is being done.
4. The Permittee agrees to be bound by the terms of the LRRWMO permit requirements, final permit, standard conditions, and special conditions required by the LRRWMO for approval of the permit. The undersigned has the authority to bind the permit holder, the owner of the property and/or any entity performing work on the property pursuant to the terms of LRRWMO permit, and shall be responsible for complying with terms of the LRRWMO permit.

"I certify that I have thoroughly read and understand the above information."

Signature of property owner or designated Agent (no agent without a letter of authority)	Date	Signature of applicant if different from property owner	Date
--	------	---	------

Print Signer's name	Print Signer's name
---------------------	---------------------

Application Acknowledged by City:

Name of City Official	City	Date
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SIGNATURE OF LRRWMO CHAIRMAN: ** _____

****NOTE: Subject to conditions recommended by Barr Engineering (see attached)**

PERMIT IS NOT VALID IF PROJECT HAS NOT STARTED WITHIN ONE YEAR FROM DATE OF APPROVAL

LRRWMO Attachment G1**PERMIT REQUIREMENTS**

APPLICATION DEADLINE: Third Thursday of the month for consideration at the following regularly scheduled monthly LRRWMO board meeting on third Thursday of month.

REQUIRED SUBMITTALS:

1. Completed Permit Application Form (attached)
2. \$100 Application Fee plus an escrow deposit of \$700 (as described on Permit Application Form)
3. A Stormwater Management Plan and supporting computations as identified in Appendix E of the LRRWMO Watershed Management Plan.

Submittals shall be provided in electronic (e.g., PDF) or other easily reproduced format and must be signed by a registered professional engineer in the State of Minnesota. One (1) hard copy of the submittal must be provided with the application for the LRRWMO files and one (1) hard copy to the LRRWMO engineer (Barr Engineering Co.).

LRRWMO Attachment G2

OFFICE PROCEDURE

Procedure to Accept LRRWMO Permit:

1. Complete LRRWMO Permit Application and all supporting supplemental documents for review. **Requires signature of acknowledgement on application form from City official prior to submittal to LRRWMO. For the appropriate City contact information refer to the LRRWMO website at www.lrrwmo.org/**

NOTE: See "PROJECT SUBMITTALS" section of Application.

2. Submit Application, \$100 application fee plus a \$700 escrow deposit* payable to the Lower Rum River WMO, and one (1) set of the project submittals (hard copy) to:

Shayna Forster
Finance Department
City of Anoka
2015 First Street N.
Anoka, MN 55303
763-576-2773
SForster@ci.anoka.mn.us

(This set of plans is for LRRWMO file copy.) *\$700 escrow deposits: *The LRRWMO costs related to the project will be charged to permit escrow fund. Funds remaining in the permit escrow account when the project is closed will be returned to the applicant.*

3. Mail or email a copy of Application and one (1) set of the project submittals (hard copy) to:

Bob Obermeyer
Barr Engineering Co.
4300 MarketPointe Drive
Suite 200
Minneapolis, MN 55435
bobermeyer@barr.com

4. Agenda deadline is the third Thursday of each month to be on the following regularly scheduled LRRWMO monthly meeting.

Procedure to Request Return of Permit Fund Balance:

1. When project reaches status of 100% completion (as contained in Quarterly Report), the respective City prepares a written request to LRRWMO for return of escrow deposit balance with copy to Anoka's Finance Department. The request must be submitted prior to the third Thursday of each month to meet the next month regular meeting agenda deadline.

Appendix C

Application for Minnesota Wetland Conservation Act Decisions and Procedure Requirements

APPLICATION FOR MINNESOTA WETLAND CONSERVATION ACT (WCA) DECISIONS AND PROCEDURE REQUIREMENTS

A \$75.00 LRRWMO initial application fee and the appropriate escrow deposits (determined in accordance with Attachment W3) must accompany this permit application for any Wetland Conservation Act (WCA) decisions. These are separate and in addition to permit and escrow fees for Grading, Stormwater Management, and Erosion/Sediment Control permit application, if applicable.

Permits are to be processed at the same time as the site plan, preliminary plat or other city land use or building application submitted to the city in which the work or project is located.

Wetland permit processing takes longer than other permit processing. The permit application and supporting documentation should be submitted to the LRRWMO AT LEAST 60 DAYS PRIOR TO THE REGULARLY SCHEDULED MONTHLY LRRWMO MEETING AT WHICH A DECISION IS REQUESTED. A PERMIT NUMBER WILL NOT BE ASSIGNED UNTIL CITY AUTHORIZATION IS RECEIVED.

Project Name: _____

Address/Location: _____

Project Description/Purpose: _____

Name of Applicant (Site Owner or Property Owner)	

Address	

City, State, Zip	

Phone	Fax
_____	_____
Email	

Applicant's Contact	Organization Name
_____	_____
Address	

City, State, Zip	

Phone	Fax
_____	_____
Email	

Submittal Requirements

Complete applications are to be submitted as per LRRWMO attachments W1 (Permit Requirements), W2 (Office Procedure), and W3 (Fees, Deposit, and Sureties for Wetland Conservation Act) included with this application. Projects may also require a LRRWMO Grading, Stormwater Management, and Erosion/Sediment Control Permit (separate application and fee/escrow amounts)

PROJECT SUBMITTALS (check all that apply):

<input type="checkbox"/>	WETLAND BOUNDARY DELINEATION AND TYPE CONCURRENCE
<input type="checkbox"/>	REQUEST FOR NO LOSS OR EXEMPTION UNDER THE WETLAND CONSERVATION ACT (WCA)
<input type="checkbox"/>	WETLAND REPLACEMENT PLAN AND/OR SEQUENCING
<input type="checkbox"/>	WETLAND BANKING PLAN
<input type="checkbox"/>	OTHER

START OF
PROJECT: _____

EST. COMPLETION
DATE: _____

APPROVAL
DATE: _____

By signing this Permit Application, the undersigned consents and agrees on behalf of the Applicant that:

1. The permit application fee is non-refundable. Escrow deposits will be held by the LRRWMO until the project has been completed and all conditions of issuance of the permit are satisfied. The Applicant is responsible for all expenses incurred by the LRRWMO in the processing, administration and enforcement of the permit application and permit. The escrow deposit will be used to reimburse the LRRWMO for all expenses incurred by the LRRWMO in processing, administering and enforcing the permit application and permit, including engineering, legal and other consultant costs. If such expenses exceed the escrow deposit, the LRRWMO will bill the Applicant or Permittee for such excess amount and payment will be due within twenty (20) days of mailing the invoice. Timely payment of such invoices is a condition of all permits and work may be stopped on the project for failure to make payments when due.
2. The undersigned, its agents, principal, assigns and/or representatives (hereinafter "Permittee") shall abide by all the standard conditions and special terms and conditions of the LRRWMO.
3. Any work that violates the terms of the permit may result in the LRRWMO or the City in which the work is being done immediately causing the work on the project relating to the permit to cease and desist. All work on the project shall cease until the permit conditions are met and approved by the LRRWMO and/or the City in which the work is being done.
4. The Permittee agrees to be bound by the terms of the LRRWMO permit requirements, final permit, standard conditions, and special conditions required by the LRRWMO for approval of the permit. The undersigned has the authority to bind the permit holder, the owner of the property and/or any entity performing work on the property pursuant to the terms of LRRWMO permit, and shall be responsible for complying with terms of the LRRWMO permit.

"I certify that I have thoroughly read and understand the above information."

Signature of property owner or designated Agent (no agent without a letter of authority)	Date	Signature of applicant if different from property owner	Date
--	------	---	------

Print Signer's name	Print Signer's name
---------------------	---------------------

Application Acknowledged by City:

Name of City Official	City	Date
-----------------------	------	------

SIGNATURE OF LRRWMO CHAIRMAN: ** _____

****NOTE: Subject to conditions as designated in the WCA Notice of Decision as recommended by the Technical Evaluation Panel and Barr Engineering (see attached)**

PERMIT IS NOT VALID IF PROJECT HAS NOT STARTED WITHIN ONE YEAR FROM DATE OF APPROVAL

LRRWMO Attachment W1**PERMIT REQUIREMENTS**

APPLICATION DEADLINE: Third Thursday of the month for consideration at the following regularly scheduled monthly LRRWMO board meeting on third Thursday of month.

REQUIRED SUBMITTALS:

1. Completed Permit Application Form (attached)
2. \$75 LRRWMO initial application fee plus an escrow deposit determined in accordance with Attachment W3 for any Wetland Conservation Act (WCA) decisions.
3. Wetland Permitting Information
 - a. The permit applicant is responsible for ensuring wetland applications are in complete compliance with the Wetland Conservation Act of 1991 and applicable documentation is provided as listed on the Minnesota Board of Water and Soil Resources (BWSR) website:

<http://www.bwsr.state.mn.us/>.

Permit applicants shall refer to the BWSR website for sample application forms and check lists. These forms will be used for reviewing wetland applications. Failure to provide a complete application will result in delays in permit review.

- b. When working near DNR public waters, applicants shall submit information indicating the OHW (ordinary high water) level and the wetland boundary according to the WCA of 1991. Availability of OHW information is available from the MDNR Area Hydrologist. When working in DNR Public Waters, an online Minnesota DNR Permitting and Reporting System (MPARS) application may also be required by the DNR.

SUBMITTAL NOTES:

- Permit applicants shall submit the attached Joint Application Form for Activities Affecting Water Resources in Minnesota (Attachment W4).
- Failure to fully follow the application requirements of the Wetland Conservation Act will result in delays in permit review.
- Applicants can expect a 60-day review period provided all applicable materials have been submitted and reviews are completed within the growing season, if applicable.

LRRWMO Attachment W2**OFFICE PROCEDURE****Procedure to Accept LRRWMO Permit:**

1. Complete LRRWMO Permit Application for Minnesota Wetland Conservation Act (WCA) Decisions and Procedure Requirements form. **Requires signature of acknowledgement from City official prior to submittal to LRRWMO. For appropriate City contact information refer to the LRRWMO website at www.lrrwmo.org/**

NOTE: See "PROJECT SUBMITTALS" section of Application

2. Submit Application, \$75 initial application fee plus an escrow deposit* in accordance with LRRWMO Attachment W3 for Wetland Conservation Act applications, as applicable, payable to the Lower Rum River WMO, and one (1) set of plan submittals (hard copy) to:

Shayna Forster
Finance Department
City of Anoka
2015 First Street N.
Anoka, MN 55303
763-576-2773
SForster@ci.anoka.mn.us

(This set of plans is for LRRWMO file copy) *escrow deposits: *The LRRWMO costs related to the project will be charged to permit escrow fund. Funds remaining in the permit escrow account when the project is closed will be returned to the applicant.*

3. Forward electronic copy of Application and associated submittals to:

Karen Wold
Barr Engineering Co.
kwold@barr.com

4. Wetland permit decisions are usually made within 60 days from receipt of a complete application.

Procedure to Request Return of Permit Fund Balance:

1. When project reaches status of 100% completion (as contained in Quarterly Report), the respective City prepares a written request to LRRWMO for return of escrow deposit balance with copy to Anoka's Finance Department. The request must be submitted prior to the third Thursday of each month to meet the next month regular meeting agenda deadline.

LRRWMO ATTACHMENT W3

Fees, Deposit and Sureties for Wetland Conservation Act (WCA) Applications
Updated *April 2011*

FEES

Activity	Fee	
Initial WCA Application Fee	\$75	
Office and Field Review of Wetland Boundary Delineation or Type Determination (Applicant is responsible for submitting a complete Wetland Delineation Report, according to BWSR guidance).	Evaluation Area < 10 acres and less than 3 wetlands being evaluated	\$1,000 <i>Escrow</i>
	Evaluation Area < 100 acres and < 6 wetlands being evaluated	\$1,500 <i>Escrow</i>
	Evaluation Area =/> 100 acres and/or =/> 6 wetlands being evaluated	\$2,000 <i>Escrow</i>
Review of WCA exemptions and No Loss requests.	\$1,000 <i>Escrow</i>	
Review of Wetland Replacement Plans (needed for all projects requiring replacement for wetland impacts).	\$1,000 <i>Escrow</i> plus \$100/acre of wetland plus \$5,000/acre of wetland impact plus \$5,000 for mitigation monitoring review	
Creating a Wetland Bank	\$15,000	

Note: escrow amounts are cumulative if more than activity is being reviewed.

Cash Surety Deposit for Performance

For Wetland Replacement Plans:

The Permittee or owner shall provide a cash surety (**or an automatically renewable Letter of Credit from a bank approved by the Treasurer of the LRRWMO**) in an amount determined by the LRRWMO, so that, if needed, a third party has the funds to create, manage, and monitor the wetland replacement area should the applicant fail to comply with the required creation of the wetland mitigation site. If the Letter of Credit is not honored by the issuer, the LRRWMO may choose litigation to obtain the necessary funds or to obtain a court order to require the permittee or owner to create the wetland mitigation area. The LRRWMO will determine a cash surety (**or letter of credit**) amount in addition to the permit application fee and escrow deposit.

Proposed WCA LRRWMO Surety Amount

Activity	Performance Surety Amount
Wetland Replacement	\$1 per sq. ft. of mitigation with a minimum of \$5,000 unless a higher or lower amount is deemed necessary by the LRRWMO.

- The permit application, fee escrow deposit and cash surety deposit may be in one check payable to the Lower Rum River Watershed Management Organization.
- Only actual work done by the LRRWMO or its consultants will be charged against the escrow deposit or performance security.
- The performance surety may be waived if approved wetland banking credits are purchased for fulfilling the required mitigation provisions of the permit.

Joint Application Form for Activities Affecting Water Resources in Minnesota

This joint application form is the accepted means for initiating review of proposals that may affect a water resource (wetland, tributary, lake, etc.) in the State of Minnesota under state and federal regulatory programs. Applicants for Minnesota Department of Natural Resources (DNR) Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. Applicants can use the information entered into MPARS to substitute for completing parts of this joint application form (see the paragraph on MPARS at the end of the joint application form instructions for additional information). This form is only applicable to the water resource aspects of proposed projects under state and federal regulatory programs; other local applications and approvals may be required. Depending on the nature of the project and the location and type of water resources impacted, multiple authorizations may be required as different regulatory programs have different types of jurisdiction over different types of resources.

Regulatory Review Structure

Federal

The St. Paul District of the U.S. Army Corps of Engineers (Corps) is the federal agency that regulates discharges of dredged or fill material into waters of the United States (wetlands, tributaries, lakes, etc.) under Section 404 of the Clean Water Act (CWA) and regulates work in navigable waters under Section 10 of the Rivers and Harbors Act. Applications are assigned to Corps project managers who are responsible for implementing the Corps regulatory program within a particular geographic area.

State

There are three state regulatory programs that regulate activities affecting water resources. The Wetland Conservation Act (WCA) regulates most activities affecting wetlands. It is administered by local government units (LGUs) which can be counties, townships, cities, watershed districts, watershed management organizations or state agencies (on state-owned land). The Minnesota DNR Division of Ecological and Water Resources issues permits for work in specially-designated public waters via the Public Waters Work Permit Program (DNR Public Waters Permits). The Minnesota Pollution Control Agency (MPCA) under Section 401 of the Clean Water Act certifies that discharges of dredged or fill material authorized by a federal permit or license comply with state water quality standards. One or more of these regulatory programs may be applicable to any one project.

Required Information

Prior to submitting an application, applicants are **strongly encouraged** to seek input from the Corps Project Manager and LGU staff to identify regulatory issues and required application materials for their proposed project. Project proponents can request a pre-application consultation with the Corps and LGU to discuss their proposed project by providing the information required in Sections 1 through 5 of this joint application form to facilitate a meaningful discussion about their project. Many LGUs provide a venue (such as regularly scheduled technical evaluation panel meetings) for potential applicants to discuss their projects with multiple agencies prior to submitting an application. Contact information is provided below.

The following bullets outline the information generally required for several common types of determinations/authorizations.

- For delineation approvals and/or jurisdictional determinations, submit Parts 1, 2 and 5, and Attachment A.
- For activities involving CWA/WCA exemptions, WCA no-loss determinations, and activities not requiring mitigation, submit Parts 1 through 5, and Attachment B.
- For activities requiring compensatory mitigation/replacement plan, submit Parts 1 thru 5, and Attachments C and D.
- For local road authority activities that qualify for the state's local road wetland replacement program, submit Parts 1 through 5, and Attachments C, D (if applicable), and E to both the Corps and the LGU.

Submission Instructions

Send the completed joint application form and all required attachments to:

U.S Army Corps of Engineers. Applications may be sent directly to the appropriate Corps Office. For a current listing of areas of responsibilities and contact information, visit the St. Paul District's website at:

<http://www.mvp.usace.army.mil/Missions/Regulatory.aspx> and select "Minnesota" from the contact Information box.

Alternatively, applications may be sent directly to the St. Paul District Headquarters and the Corps will forward them to the appropriate field office.

Section 401 Water Quality Certification: Applicants do not need to submit the joint application form to the MPCA unless specifically requested. The MPCA will request a copy of the completed joint application form directly from an applicant when they determine an individual 401 water quality certification is required for a proposed project.

Wetland Conservation Act Local Government Unit: Send to the appropriate Local Government Unit. If necessary, contact your county Soil and Water Conservation District (SWCD) office or visit the Board of Water and Soil Resources (BWSR) web site (www.bwsr.state.mn.us) to determine the appropriate LGU.

DNR Public Waters Permitting: In 2014 the DNR will begin using the Minnesota DNR Permitting and Reporting System (MPARS) for submission of Public Waters permit applications (<https://webapps11.dnr.state.mn.us/mpars/public/authentication/login>).

Applicants for Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. To avoid duplication and to streamline the application process among the various resource agencies, applicants can use the information entered into MPARS to substitute for completing parts of this joint application form. The MPARS print/save function will provide the applicant with a copy of the Public Waters permit application which, at a minimum, will satisfy Parts one and two of this joint application. For certain types of activities, the MPARS application may also provide all of the necessary information required under Parts three and four of the joint application. However, it is the responsibility of the Applicant to make sure that the joint application contains all of the required information, including identification of all aquatic resources impacted by the project (see Part four of the joint application). After confirming that the MPARS application contains all of the required information in Parts one and two the Applicant may attach a copy to the joint application and fill in any missing information in the remainder of the joint application.

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name:

Mailing Address:

Phone:

E-mail Address:

Authorized Contact (do not complete if same as above):

Mailing Address:

Phone:

E-mail Address:

Agent Name:

Mailing Address:

Phone:

E-mail Address:

PART TWO: Site Location Information

County:

City/Township:

Parcel ID and/or Address:

Legal Description (Section, Township, Range):

Lat/Long (decimal degrees):

Attach a map showing the location of the site in relation to local streets, roads, highways.

Approximate size of site (acres) or if a linear project, length (feet):

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted *prior to* this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

PART FOUR: Aquatic Resource Impact¹ Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	Aquatic Resource Type (wetland, lake, tributary etc.)	Type of Impact (fill, excavate, drain, or remove vegetation)	Duration of Impact Permanent (P) or Temporary (T) ¹	Size of Impact ²	Overall Size of Aquatic Resource ³	Existing Plant Community Type(s) in Impact Area ⁴	County, Major Watershed #, and Bank Service Area # of Impact Area ⁵

¹If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".

²Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).

³This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".

⁴Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.

⁵Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

PART FIVE: Applicant Signature

Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: _____ Date: _____

I hereby authorize _____ to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

¹ The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

Attachment A

Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

Wetland Type Confirmation

Delineation Concurrence. Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

Preliminary Jurisdictional Determination. A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

Approved Jurisdictional Determination. An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).

<http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx>

Attachment B

Supporting Information for Applications Involving Exemptions, No Loss Determinations, and Activities Not Requiring Mitigation

Complete this part *if* you maintain that the identified aquatic resource impacts in Part Four do not require wetland replacement/compensatory mitigation OR *if* you are seeking verification that the proposed water resource impacts are either exempt from replacement or are not under CWA/WCA jurisdiction.

Identify the specific exemption or no-loss provision for which you believe your project or site qualifies:

Provide a detailed explanation of how your project or site qualifies for the above. Be specific and provide and refer to attachments and exhibits that support your contention. Applicants should refer to rules (e.g. WCA rules), guidance documents (e.g. BWSR guidance, Corps guidance letters/public notices), and permit conditions (e.g. Corps General Permit conditions) to determine the necessary information to support the application. Applicants are strongly encouraged to contact the WCA LGU and Corps Project Manager prior to submitting an application if they are unsure of what type of information to provide:

Attachment C

Avoidance and Minimization

Project Purpose, Need, and Requirements. Clearly state the purpose of your project and need for your project. Also include a description of any specific requirements of the project as they relate to project location, project footprint, water management, and any other applicable requirements. Attach an overhead plan sheet showing all relevant features of the project (buildings, roads, etc.), aquatic resource features (impact areas noted) and construction details (grading plans, storm water management plans, etc.), referencing these as necessary:

Avoidance. Both the CWA and the WCA require that impacts to aquatic resources be avoided if practicable alternatives exist. Clearly describe all on-site measures considered to avoid impacts to aquatic resources and discuss at least two project alternatives that avoid all impacts to aquatic resources on the site. These alternatives may include alternative site plans, alternate sites, and/or not doing the project. Alternatives should be feasible and prudent (see MN Rules 8420.0520 Subp. 2 C). Applicants are encouraged to attach drawings and plans to support their analysis:

Minimization. Both the CWA and the WCA require that all unavoidable impacts to aquatic resources be minimized to the greatest extent practicable. Discuss all features of the proposed project that have been modified to minimize the impacts to water resources (see MN Rules 8420.0520 Subp. 4):

Off-Site Alternatives. An off-site alternatives analysis is not required for all permit applications. If you know that your proposal will require an individual permit (standard permit or letter of permission) from the U.S. Army Corps of Engineers, you may be required to provide an off-site alternatives analysis. The alternatives analysis is not required for a complete application but must be provided during the review process in order for the Corps to complete the evaluation of your application and reach a final decision. Applicants with questions about when an off-site alternatives analysis is required should contact their Corps Project Manager.

Attachment D Replacement/Compensatory Mitigation

Complete this part *if* your application involves wetland replacement/compensatory mitigation not associated with the local road wetland replacement program. Applicants should consult Corps mitigation guidelines and WCA rules for requirements.

Replacement/Compensatory Mitigation via Wetland Banking. Complete this section if you are proposing to use credits from an existing wetland bank (with an account number in the State wetland banking system) for all or part of your replacement/compensatory mitigation requirements.

Wetland Bank Account #	County	Major Watershed #	Bank Service Area #	Credit Type (if applicable)	Number of Credits

Applicants should attach documentation indicating that they have contacted the wetland bank account owner and reached at least a tentative agreement to utilize the identified credits for the project. This documentation could be a signed purchase agreement, signed application for withdrawal of credits or some other correspondence indicating an agreement between the applicant and the bank owner. *However, applicants are advised not to enter into a binding agreement to purchase credits until the mitigation plan is approved by the Corps and LGU.*

Project-Specific Replacement/Permittee Responsible Mitigation. Complete this section if you are proposing to pursue actions (restoration, creation, preservation, etc.) to generate wetland replacement/compensatory mitigation credits for this proposed project.

WCA Action Eligible for Credit ¹	Corps Mitigation Compensation Technique ²	Acres	Credit % Requested	Credits Anticipated ³	County	Major Watershed #	Bank Service Area #

¹Refer to the name and subpart number in MN Rule 8420.0526.

²Refer to the technique listed in *St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota*.

³If WCA and Corps crediting differs, then enter both numbers and distinguish which is Corps and which is WCA.

Explain how each proposed action or technique will be completed (e.g. wetland hydrology will be restored by breaking the tile.....) and how the proposal meets the crediting criteria associated with it. Applicants should refer to the Corps mitigation policy language, WCA rule language, and all associated Corps and WCA guidance related to the action or technique:

Attach a site location map, soils map, recent aerial photograph, and any other maps to show the location and other relevant features of each wetland replacement/mitigation site. Discuss in detail existing vegetation, existing landscape features, land use (on and surrounding the site), existing soils, drainage systems (if present), and water sources and movement. Include a topographic map showing key features related to hydrology and water flow (inlets, outlets, ditches, pumps, etc.):

Project Name and/or Number:

Attach a map of the existing aquatic resources, associated delineation report, and any documentation of regulatory review or approval. Discuss as necessary:

For actions involving construction activities, attach construction plans and specifications with all relevant details. Discuss and provide documentation of a hydrologic and hydraulic analysis of the site to define existing conditions, predict project outcomes, identify specific project performance standards and avoid adverse offsite impacts. Plans and specifications should be prepared by a licensed engineer following standard engineering practices. Discuss anticipated construction sequence and timing:

For projects involving vegetation restoration, provide a vegetation establishment plan that includes information on site preparation, seed mixes and plant materials, seeding/planting plan (attach seeding/planting zone map), planting/seeding methods, vegetation maintenance, and an anticipated schedule of activities:

For projects involving construction or vegetation restoration, identify and discuss goals and specific outcomes that can be determined for credit allocation. Provide a proposed credit allocation table tied to outcomes:

Provide a five-year monitoring plan to address project outcomes and credit allocation:

Discuss and provide evidence of ownership or rights to conduct wetland replacement/mitigation on each site:

Quantify all proposed wetland credits and compare to wetland impacts to identify a proposed wetland replacement ratio. Discuss how this replacement ratio is consistent with Corps and WCA requirements:

By signature below, the applicant attests to the following (only required if application involves project-specific/permittee responsible replacement):

- All proposed replacement wetlands were not:
 - Previously restored or created under a prior approved replacement plan or permit
 - Drained or filled under an exemption during the previous 10 years
 - Restored with financial assistance from public conservation programs
 - Restored using private funds, other than landowner funds, unless the funds are paid back with interest to the individual or organization that funded the restoration and the individual or organization notifies the local government unit in writing that the restored wetland may be considered for replacement.
- The wetland will be replaced before or concurrent with the actual draining or filling of a wetland.
- An irrevocable bank letter of credit, performance bond, or other acceptable security will be provided to guarantee successful completion of the wetland replacement.
- Within 30 days of either receiving approval of this application or beginning work on the project, I will record the Declaration of Restrictions and Covenants on the deed for the property on which the replacement wetland(s) will be located and submit proof of such recording to the LGU and the Corps.

Applicant or Representative:

Title:

Signature: _____

Date:

Attachment E

Local Road Replacement Program Qualification

Complete this part **if** you are a local road authority (county highway department, city transportation department, etc.) seeking verification that your project (or a portion of your project) qualifies for the MN Local Government Road Wetland Replacement Program (LGRWRP). If portions of your project are not eligible for the LGRWRP, then Attachment D should be completed and attached to your application.

Discuss how your project is a repair, rehabilitation, reconstruction, or replacement of a currently serviceable road to meet state/federal design or safety standards/requirements. Applicants should identify the specific road deficiencies and how the project will rectify them. Attach supporting documents and information as applicable:

Provide a map, plan, and/or aerial photograph accurately depicting wetland boundaries within the project area. Attach associated delineation/determination report or otherwise explain the method(s) used to identify and delineate wetlands. Also attach and discuss any type of review or approval of wetland boundaries or other aspects of the project by a member or members of the local Technical Evaluation Panel (TEP) or Corps of Engineers:

In the table below, identify only the wetland impacts from Part 4 that the road authority has determined should qualify for the LGRWRP.

Wetland Impact ID (as noted on overhead view)	Type of Impact (fill, excavate, drain)	Size of Impact (square feet or acres to 0.01)	Existing Plant Community Type(s) in Impact Area ¹	County, Major Watershed #, and Bank Service Area # of Impact ²

¹Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.

²Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

Discuss the feasibility of providing onsite compensatory mitigation/replacement for important site-specific wetland functions:

Please note that under the MN Wetland Conservation Act, projects with less than 10,000 square feet of wetland impact are allowed to commence prior to submission of this notification so long as the notification is submitted within 30 days of the impact. The Clean Water Act has no such provision and requires that permits be obtained prior to any regulated discharges into water of the United States. To avoid potential unauthorized activities, road authorities must, at a minimum, provide a complete application to the Corps and receive a permit prior to commencing work.

By signature below, the road authority attests that they have followed the process in MN Rules 8420.0544 and have determined that the wetland impacts identified in Part 4 are eligible for the MN Local Government Road Wetland Replacement Program.

Road Authority Representative:

Title:

Signature: _____

Date:

Technical Evaluation Panel Concurrence:

Project Name and/or Number:

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? Yes No

Signature: _____

Date:

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? Yes No

Signature: _____

Date:

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? Yes No

Signature: _____

Date:

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? Yes No

Signature: _____

Date:

Upon approval and signature by the TEP, application must be sent to: **Wetland Bank Administration
Minnesota Board of Water & Soil Resources
520 Lafayette Road North
Saint Paul, MN 55155**

Appendix D

Summaries of Plan Development Stakeholder Engagement and Issue Identification Activities

Memorandum

To: Lower Rum River Watershed Management Organization Board of Managers
From: Greg Williams, Barr Engineering Co.
Subject: Summary of Responses to Notification of 2021 LRRWMO Plan Update
Date: June 11, 2019
Project: 23021077.00-100-102

On behalf of the Lower Rum River Watershed Management Organization (LRRWMO) and consistent with Minnesota Rules 8410.0045, Barr Engineering Co. (Barr) distributed a notice of the Plan update to Plan on February 21, 2019. The notice was sent to Plan review authorities including Cities, Anoka County, Anoka Conservation District, adjacent watershed management organizations, and state agencies. The notice requested that Plan review authorities provide the following information by April 26, 2019:

- Priority issues and expectations for LRRWMO involvement in these issues;
- Summaries of relevant water management goals; and
- Pertinent water resources information.

Responses to the notification letter were provided by the following organizations:

- Anoka Conservation District (ACD)
- Minnesota Department of Natural Resources (MDNR)
- Minnesota Board of Water and Soil Resources (BWSR)
- Minnesota Pollution Control Agency (MPCA)
- Metropolitan Council

The Minnesota Department of Transportation (MnDOT) responded only with a request to be notified if the Plan update includes changes to standards governing stormwater management. The comments provided in response to the Plan notification letter are summarized in this memorandum; complete materials provided in response to the notice of Plan update will be provided upon request.

Summary of Comments Provided in Response to Plan Update Notification

Barr organized the Information provided in the responses to the Plan update notification into 58 \ comments according to Plan review authority, presented in Table 1. Barr has categorized the comments into the following categories to assist in considering the comments during future Plan development tasks:

Overall suggestion – a broad suggestion to be considered during Plan development that may be related to several LRRWMO policies, programs, or implementation actions (e.g., BWSR – *Make use of the WRAPS report and associated water quality modeling*).

Priority issue – a specific issue or topic identified as a priority by the Plan review authority that should be addressed by the Plan (e.g., Metropolitan Council – *Round Lake is a Met Council priority lake in the LRRWMO due to high recreational value*).

Requested action – a recommendation for a specific action to be taken during Plan development or to be included as part of the Plan implementation program (e.g., MDNR – *Consider requiring wildlife friendly erosion control be used on every project*).

The table also identifies “issue topics” to which the comment applies (for identifying potential commonalities). The “issue topics” occurring most frequently among the comments include:

- Implementation – 15 references
- Water quality – 15 references
- Regulation – 12 references
- Collaboration – 12 references

Comments related to “education and outreach” and “data and assessment” also occurred frequently (9 comments each). Thirteen comments related to habitat and ecology are included in Table 1; however, twelve of these comments are provided by the MDNR. Issues related to flooding are referenced only twice among the responses to the notification letter.

The responses to the notification letter include references to many existing priorities (e.g., impaired waters), but also highlight the potential for the 2021 Plan to focus on emerging issues or existing issues with increased significance, including, but not limited to:

- groundwater quantity and conservation;
- chloride management;
- measurable goals and quantitative assessment of progress; and
- collaborative efforts outside the watershed boundary.

Recommendations and Next Steps

Responses to the notification letter (especially those noted as “priority issues”) will be considered as Barr assists the Board of Managers in the identification and prioritization of issues and resources. In addition, the implementation strategies and other actions identified in several of the comments (especially those noted as “requested actions” will be considered in developing the Plan implementation program.

Each of the Plan review authorities that provided responses to the notification later is invited to participate in the technical advisory committee (TAC). Participation in the TAC will provide additional opportunities to further expand on comments provided in response to the notification letter and ensure that the comments are appropriately incorporated into the Plan.

Table 1 - Summary of Responses to LRRWMO Plan Update Notification Letters

June 11, 2019

Organization	Comment ID	Comment Type (if applicable)	Comment	Issue Topic
ACD	1	Overall Suggestion	Increase emphasis on water quality improvement projects. The LRRWMO's regulatory program to prevent pollutant increases is a strength and has been a focus for your organization. I believe that achieving goals will likely also require projects that reduce pollutants. I encourage the LRRWMO to work toward more on-the-ground projects. While some projects, particularly stormwater, might be best done by a member community, some other projects would benefit from WMO leadership.	implementation; water quality
ACD	2	Overall Suggestion	Collaborate upstream. Achieving LRRWMO goals may require work outside of the LRRWMO. Some of those upstream areas have less financial and technical capacity than the LRRWMO, and it may be helpful for the LRRWMO to put increased energy into motivating and supporting upstream projects. Your participation in the One Watershed, One Plan will be a valuable place to start, but your leadership will be needed in subsequent years too.	collaboration; water quality
ACD	3	Overall Suggestion	Collaborate locally. I'm hopeful that collaboration between the ACD and LRRWMO will continue. It has been fruitful. Also, your support of the new Anoka County Water Resources Outreach Collaborative is requested. We see that program as an opportunity to provide increased, consistent water resources public outreach without substantially increased cost.	collaboration
ACD	4	Priority Issue	Rum River water quality. The Rum River is near impairment thresholds for phosphorus. Preventing future phosphorus increases is a recommended priority, as well as offsetting increases that may occur through suburbanization of the area.	water quality
ACD	5	Requested Action	Consider continuing to implement projects in the subwatershed assessment studies for the Cities of Anoka and Ramsey.	water quality; data & assessment; project prioritization
ACD	6	Requested Action	Identify additional locations to conduct subwatershed assessment studies that identify and rank water quality improvement projects.	water quality; data & assessment; project prioritization
ACD	7	Requested Action	Support Rum Riverbank stabilization and habitat improvement efforts. Presently the ACD and Anoka County Parks are pursuing large scale funding to address identified riverbank erosion sites, which are numerous.	water quality; habitat; collaboration
ACD	8	Requested Action	Increase the size of the LRRWMO cost share grant program which incentivizes landowner water quality projects. The present funding levels are too small for most rain gardens or riverbank stabilizations. Also, consider contracting with the ACD to provide program administration including technical assistance to landowners.	implementation; education & outreach; collaboration
ACD	9	Requested Action	Implement rigorous stormwater standards for new and re-development. Consider Minimum Impact Development Standards (MIDS).	water quality; regulation
ACD	10	Requested Action	Identify parcels that if ever available for sale, would be priorities for long-term protection to maintain the scenic nature and quality of the river. For example, the boy scout camp.	natural areas
ACD	11	Requested Action	Invest in projects upstream, beyond the LRRWMO, that will directly benefit water quality in the LRRWMO.	water quality; collaboration
ACD	12	Priority Issue	Groundwater. Quality and quantity of groundwater are a regional concern. Vigilant protection and improved scientific understanding is warranted.	groundwater quality; groundwater quantity
ACD	13	Requested Action	Consider providing incentive grants for implementing water-saving technologies, particularly to commercial or institutional properties. The Anoka Conservation District has developed a protocol wherein cost effective water saving opportunities are identified. A study identifying projects at the Anoka-Ramsey Community College is underway and additional studies are anticipated. Incentivizing "smart" irrigation technologies is of particular interest.	groundwater quality; groundwater quantity; implementation
ACD	14	Requested Action	Consider an unused well sealing program. I believe Anoka County Environmental Services may have estimates of the quantity of unused wells in the area that should be sealed to avoid groundwater contamination.	groundwater quality; implementation

Table 1 - Summary of Responses to LRRWMO Plan Update Notification Letters

June 11, 2019

Organization	Comment ID	Comment Type (if applicable)	Comment	Issue Topic
ACD	15	Priority Issue	Drainage upstream of the LRRWMO. Mille Lacs and Isanti Counties are developing policies and taking actions to increase maintenance cleaning of long-neglected ditches. These actions appear on track to “re-ditch” massive wetland areas. The LRRWMO will receive increased water volumes. I believe this may increase flooding risks in the RRWMO, and provide more frequent high flows that damage infrastructure and cause shoreland erosion.	flooding; collaboration
ACD	16	Requested Action	Track policy and action by upstream drainage authorities and voice any concerns.	flooding; regulation; collaboration
ACD	17	Priority Issue	Outreach and education. Water management is often about managing people’s behavior. I believe we can do better through coordinated, consistent messaging.	education & outreach
ACD	18	Requested Action	Support the new Anoka County Water Resources Outreach Collaborative and coordinator. The coordinator position is grant funded through at least fall of 2020 and thereafter may request contributions from benefiting partners like the LRRWMO.	education & outreach; collaboration
ACD	19	Priority Issue	Chlorides. Some streams immediately south of the LRRWMO are impaired for excess chloride. Road deicing and water softeners are two places the LRRWMO might avoid this problem.	water quality
ACD	20	Requested Action	Smart salting certification for plow drivers and communities through the MPCA.	water quality; education & outreach
ACD	21	Requested Action	Encourage use of MPCA’s Winter Maintenance Assessment tool (WMA) amongst public works supervisors to assess effectiveness of winter maintenance BMPs and track reductions in chloride use.	water quality; education & outreach
ACD	22	Priority Issue	Surface water quality monitoring. The LRRWMO has a solid baseline of water monitoring data. In the next 10 years the frequency of monitoring might be decreased but still done often enough to detect trends/changes.	data & assessment
ACD	23	Requested Action	Continue a water monitoring program aimed at detecting change and guiding management.	data & assessment
BWSR	24	Overall Suggestion	Inclusive Plan Development (Issue Identification & Prioritization) Process: Put together a proposed plan development timeline and submit to BWSR for review and acceptance. The process should identify what steps the WMO will take if the first try does not generate the desired participation and input.	education & outreach; collaboration
BWSR	25	Overall Suggestion	Inclusive Plan Development (Issue Identification & Prioritization) Process: complete a detailed gap analysis defining activities and regulations in the watershed relative to the requirements of MN Rule 8410, MN Statute 103B, and local needs. Ask: Who's doing what? Who will lead? Who will fund?	regulation; implementation; collaboration
BWSR	26	Overall Suggestion	Complete a detailed self-assessment of the WMO's success in implementing the previous plan and meeting goals. Compare the planned expenses to income.	implementation; tracking/reporting
BWSR	27	Overall Suggestion	There needs to be a mechanism to gain LGU/citizen/public input. The WMO should take advantage of the Rum River 1W1P process to cost effectively obtain stakeholder input and work with LGUs upstream of the WMO.	education & outreach; collaboration
BWSR	28	Overall Suggestion	Make use of the WRAPS report and associated water quality modeling	water quality; implementation
BWSR	29	Requested Action	The WMO will need to set clear, prioritized, targeted, and measurable goals with specific implementation items and measurable results. The plan must identify a procedure to evaluate progress towards goals performed at least every two years. Use proactive action verbs (e.g., shall, will) vs. passive verbs (e.g., encourage, promote).	implementation; data & assessment; tracking/reporting
BWSR	30	Requested Action	The implementation program should be clear in identifying what actions the WMO will accomplish in the next 10 years regardless of external funding sources.	implementation; funding
BWSR	31	Requested Action	If the WMO is delegating implementation actions to LGUs, it needs to be clearly defined in the plan so the LGU may implement. WMO oversight activity must be described as well as procedure if LGU is not performing.	implementation; collaboration
BWSR	32	Requested Action	Include a procedure to evaluate progress at least every 2 years.	implementation; data & assessment; tracking/reporting

Table 1 - Summary of Responses to LRRWMO Plan Update Notification Letters

June 11, 2019

Organization	Comment ID	Comment Type (if applicable)	Comment	Issue Topic
BWSR	33	Requested Action	Define what entity is responsible for inspection, operation, and maintenance of water resource management facilities in the WMO	implementation; regulation
BWSR	34	Requested Action	Define incentive programs in the plan.	implementation; funding; education & outreach
BWSR	35	Requested Action	Address impacts of Atlas 14 precipitation data on planning activities and standards. Consider the need to improve resilience of WMO resources and public infrastructure to climate change impacts.	regulation; data & assessment; flooding
MDNR	36	Overall Suggestion	Consider the MDNR watershed health assessment framework in identifying gaps between goals and actions, prioritizing actions, and considering unintended consequences. The framework includes: biology, hydrology, geomorphology, connectivity, and water quality.	water quality; ecology/habitat
MDNR	37	Overall Suggestion	Consider MDNR recommended management strategies: <ul style="list-style-type: none"> - Keep water where it falls - Protect and create vegetated buffers - Reduce flow of water and nutrients through drainage systems - Design structures to maintain floodplain functions and bank stability - Support land use planning that protects/restores/enhances ecological resources - Maintain/enhance perennial vegetation - Implement conservation and Reduce water demand 	water quality; ecology/habitat; flood risk
MDNR	38	Requested Action	Plan should consider 2017 Rum River WRAPS and impairments in the WMO: Round Lake and Rum River impaired for phosphorus	water quality; data & assessment; implementation
MDNR	39	Requested Action	Continue to focus on minimizing the impacts of shoreline development, improving water quality, and restoring stream habitat.	water quality; ecology/habitat
MDNR	40	Requested Action	Improving stream connectivity through the removal or modification of dams and culverts is a MDNR priority. Consider improving fish passage/stream connectivity at the Rum River Dam.	ecology/habitat
MDNR	41	Requested Action	The DNR sees a need to educate landowners on the requirement to obtain DNR Water Appropriation Permits and requests LRRWMO assistance to help educate the general public on the need for these permits.	groundwater quantity; regulation; education & outreach
MDNR	42	Requested Action	Recommend a stronger LRRWMO role in groundwater conservation. WMO standards could be updated to require stormwater reuse for landscape irrigation systems and the use of drought tolerant native plant materials for landscaping. Emphasize these issues in education efforts.	groundwater quantity; regulation
MDNR	43	Requested Action	We recommend that the LRRWMO include actions in the Plan to help prevent the spread of AIS through monitoring and public awareness efforts.	ecology/habitat
MDNR	44	Requested Action	MDNR encourages the LRRWMO to consider these stream dynamics when planning stream stabilization or restoration projects.	water quality; ecology/habitat
MDNR	45	Requested Action	Recommend that a new Natural Heritage Information System (NHIS) review be conducted. We recommend downloading the current MBS Sites of Biodiversity Significance data layer and incorporating this information into the Plan.	ecology/habitat
MDNR	46	Requested Action	MDNR recommends that the plan include specific goals and policies to address how notable land cover types and rare species will be protected.	ecology/habitat; regulation
MDNR	47	Requested Action	DNR recommends that the plan include recommendations for avoiding future development impacts on native wetland species and rare natural communities. Through botanical surveys, the DNR has learned that previously unrecorded rare plant species and wetland native plant communities exist throughout the Anoka Sand Plain. These features need to be addressed during WCA processes in your area.	ecology/habitat; natural areas; regulation
MDNR	48	Requested Action	Consider requiring wildlife friendly erosion control be used on every project	ecology/habitat; regulation
MDNR	49	Requested Action	The DNR recommends addressing issues associated with shoreline development, including maintaining native vegetation.	water quality; ecology/habitat; regulation

Table 1 - Summary of Responses to LRRWMO Plan Update Notification Letters

June 11, 2019

Organization	Comment ID	Comment Type (if applicable)	Comment	Issue Topic
MDNR	50	Requested Action	We recommend keeping forested riparian areas forested. If riparian forests are managed in the WMO area, we highly recommend consulting and using the Minnesota Forest Resource Council's Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers, and Resource Managers to protect these valuable ecosystems into the future. Consider other MDNR forestry management resources in Plan development	ecology/habitat
Met Council	51	Overall Suggestion	Plan must be consistent with Metropolitan Council 2040 Water Resources Policy Plan (Policy Plan)	All topic areas
Met Council	52	Overall Suggestion	Plan needs to include quantifiable and measurable goals and policies that address water quantity, water quality, recreation, fish and wildlife, enhancement of public participation, groundwater, wetlands, and erosion issues.	implementation; data & assessment; tracking/reporting
Met Council	53	Overall Suggestion	Plan should address: <ul style="list-style-type: none"> - Lake and stream water quality/quantity problems and role in addressing impairments - Flooding issues in the watershed - Storm water rate control issues in the watershed - Impacts of water management on the recreation opportunities - Impact of soil erosion problems on water quantity and quality - General Impact of land use practices on water quantity and quality - Policies and strategies related to monitoring of area water resources - Policies and strategies related to use of best management practices - Issues concerning the interaction of surface water and groundwater in the watershed - A list of the requirements for local surface water management plans - Erosion and sediment control standards and requirements - Volume reduction goals at least as restrictive as the NPDES construction general permit - Capital improvement Plan with itemized list of actions, estimated costs, and timeline - Specifics on long-term maintenance of projects identified in the CIP 	All topic areas
Met Council	54	Priority Issue	Round Lake is a Met Council priority lake in the LRRWMO due to high recreational value.	water quality; recreation
MPCA	55	Requested Action	Consider creating standards for stormwater volume control for development and redevelopment projects.	water quality; regulation
MPCA	56	Requested Action	Incorporate chloride reduction efforts into the Plan.	water quality
MPCA	57	Overall Suggestion	Plan should consider 2017 Rum River WRAPS: https://www.pca.state.mn.us/sites/default/files/wq-ws4-34a.pdf	water quality
MPCA	58		Groundwater information is available at: https://www.pca.state.mn.us/sites/default/files/wq-ws1-11.pdf	groundwater quality; groundwater quantity

Minutes from CAC Meeting #1

August 28, 2019

Anoka City Hall, 6:30 – 8:00 pm

Attendees:

Steve Laitinen
Michael Steel
Sharie Ptalc
John Ptalc
Colleen Werdien
Brian Larson
Tim Sheie
Dick Sherva
Peter Miller
Dan Fabian (Board of Water and Soil Resources)
Greg Williams (Barr Engineering Co.)

Meeting Notes:

Williams presented a brief PowerPoint introducing the Lower Rum River Watershed Management Organization (LRRWMO), its current roles and responsibilities, and the Watershed Management Plan (Plan) update process.

Meeting attendees introduced themselves, sharing location in the watershed and connection to natural resource management, if volunteered. Most attendees reside adjacent to the Rum River.

Williams briefly described the role of the CAC in the Plan update, noting that the initial role of the CAC will be assisting the Board of Managers in identifying and prioritizing issues addressed in the 2021 Plan.

Williams briefly summarized the major issues topics identified in the 2011 Plan; a handout presented the issue statements and categories from the 2011 Plan. There was discussion about waters identified as “impaired” by the Minnesota Pollution Control Agency (MPCA), available monitoring data for the watershed, and a summary of the Rum River Watershed Restoration and Protection Strategy (WRAPS) study that includes the LRRWMO watershed.

Williams solicited input from attendees regarding current issues and priorities in the watershed. The following issues were discussed:

- Chlorides (water quality) – Attendees noted that while no waterbodies in the LRRWMO are impaired for chloride, data show increasing chloride concentrations. Attendees cited concerns regarding residential salt application (i.e., using too much) as well as municipal practices (e.g., equipment dropping large quantities near intersections and stormsewer, too much application on streets with less traffic). Attendees asked if pool dewatering contributes to chloride loading.
- Untreated drains/direct discharges – Attendees noted that there are several areas that drain to stormsewer without any kind of upstream treatment. Attendees wondered if some of these

Lower Rum River Watershed Management Organization (LRRWMO)
Citizen Advisory Committee (CAC)

drains reach the Rum River without treatment. Attendees suggested implementing some kind of program to identify such drains (examples provided from Texas and other metro cities).

- Riverbank erosion – Attendees cited locations of riverbank erosion as a concern. Attendees suggested cost-share opportunities as a way to encourage streambank preservation or restoration projects, including tree preservation, buffers, and cedar revetments (i.e., anchoring cedar trees to the stream bank to slow current and stabilize the bank over time).
- Trash – Some attendees noted areas of trash accumulation along the river. Some attendees noted that the amount of trash was modest for a river used recreationally.
- Climate change – Some attendees noted concern regarding the impact of climate change and changing precipitation patterns on flooding and ecosystems in the watershed. Attendees noted more intense precipitation events and higher river levels in the fall.
- Water appropriations – Attendees noted that some residents/businesses (?) pump water from the Rum River and wondered about the legality and volume of withdrawal. Fabian (BWSR) noted that appropriation permits from the Minnesota Department of Natural Resources (MDNR) are required for significant withdrawals.
- Education and youth outreach – Attendees noted opportunities to improve collective resource management behaviors through involvement with schools (e.g., engage high school fishing teams).
- Stakeholder engagement – Attendees noted the difficulty in engaging watershed residents and limited effect/reach of website updates and similar communications. Attendees noted a need for more direct engagement (e.g., volunteer opportunities, continue the CAC through implementation). Attendees noted the difficulty in translating technical information for public audiences and how to achieve the desired action/response.
- Funding for projects – Attendees suggested increased emphasis on pursuing state grant funding and other outside funding sources for projects. It was suggested the LRRWMO leverage political influence towards its goals. Attendees cited cooperation with the Anoka Conservation District (ACD) as an opportunity.
- Regulations and enforcement – Attendees cited concerns that existing City codes and state regulations are not being enforced. Attendees referenced enforcement of “scenic river district” and buffers, specifically.

Action Items

- **Barr Engineering Co.:**
 - o Distribute summary of CAC meeting #1 (this document) to CAC mailing list.
 - o Distribute Rum River WRAPS summary document to CAC mailing list.
 - o Present results of CAC meeting #1 to LRRWMO Board of Managers.

Lower Rum River Watershed Management Organization (LRRWMO)
Citizen Advisory Committee (CAC)

- **Attendees of CAC meeting #1:**
 - Review meeting summary (this document) and provide additional comments or clarification, if needed.
- **CAC members not attending CAC meeting #1:**
 - Review meeting summary (this document) and provide comments, if desired.

Minutes from TAC Meeting #1
October 29, 2019
Andover City Hall, 2:00 – 3:30 pm

Attendees:

Gretchen Sabel (Anoka County Water Task Force)
Joe Mulcahy (Metropolitan Council)
Jamie Schurbon (Anoka Conservation District)
Abby Shea (Anoka County Environmental Services)
Tim Gladhill (City of Ramsey)
David Berkowitz (City of Andover)
Ben Nelson (City of Anoka)
Jason Law (City of Andover)
Joe Janish (City of Andover)
Todd Haas (LRRWMO)
Greg Williams (Barr Engineering Co.)

Meeting Notes:

Williams presented a brief PowerPoint introducing the Lower Rum River Watershed Management Organization (LRRWMO), its roles and responsibilities as described in the current Watershed Management Plan (Plan), and the Plan update process. Williams provided a handout including the comments provided in the responses to the LRRWMO Plan update notification letter.

Williams briefly described the role of the TAC in the Plan update, noting that the initial role of the TAC will be assisting the Board of Managers in identifying and prioritizing issues addressed in the 2021 Plan. Later roles will include development/review of implementation items and reviewing other Plan content.

The following issues were discussed (organized by topic):

- **Groundwater:**
 - o Groundwater quality is a concern for residents. There are concerns about the Anoka/Ramsey landfill, as well as arsenic and manganese in groundwater. There has been some inconsistent communication regarding well testing services
 - o Coordination between MPCA and County could be better. There are a lot of resources for well testing (including reduced rates from the County) but a lot of residents don't know who to ask or where to look.
 - o There are conflicts between infiltration requirements (for water quality) and drinking water supply management areas and noted the need for flexibility in infiltration requirements.
 - o The Metropolitan Council is currently evaluating the feasibility and tradeoffs of some communities using surface water for drinking water versus groundwater sources; this could impact Plan issues in the future.
 - o There could be more education on consumptive groundwater use (e.g., conservation, timed irrigation systems).

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Technical Advisory Committee (TAC)

- **River and Stream Issues:**
 - o In Andover, the LRRWMO is seen as driving improvements along the [Rum] river.
 - o The implementation plan should contain an item for ongoing streambank stabilization
 - o Cities are dealing with some enforcement issues related to permits/ordinances, but not considered a major issue
 - o The Plan should look at direct discharges to the Rum River and identify projects to address them.
 - o The Plan should address if the City of Ramsey can address the Trott Brook dissolved oxygen impairment and whether this is a plan priority. The oxygen impairment may be driven by decomposition in wetlands. Review of the TMDL study is needed during planning.
- **Permitting Process:**
 - o Development standards are perceived as not too restrictive.
 - o There are varied opinions about the ease of the LRRWMO permitting process. While the LRRWMO does not received many complaints related to permit process, it was noted that complaints are often directed to the City and not the LRRWMO.
 - o The application process is improved over the previous version, but it could be further improved (specifically: materials are sent to several locations; paper submittals are required).
 - o There was a suggestion to separate the permit application into two applications: one for wetland impacts, one for erosion/stormwater.
 - o A survey of applicants to identify potential improvements was suggested.
- **Coordination with City CIPs:**
 - o There are opportunities to coordinate stormwater quality improvements with City reconstruction efforts.
 - o The LRRWMO permit trigger (1 acre imperviousness) is often not met by street reconstruction projects; there may need to be another process to coordinate those actions.
 - o It was suggest that the Plan could outline a process to coordinate City street projects with the LRRWMO to incorporate improvements.
 - o The group noted that there are timing difficulties – the LRRWMO Plan is for 10 years while City CIPs have shorter timelines and are often changing.
 - Williams noted that some watershed management organizations include placeholder implementation items for “water quality improvements implemented in conjunction with street reconstruction projects” or similar language in order to maintain funding for these opportunities when details are not known.
 - The group asked whether this approach was sufficient for grant applications.
 - Williams noted that Plan amendment process is easier after 2015 Minnesota Rule 8410 revision.
 - It was suggested that the LRRWMO could do simple Plan amendments to add specific City projects to the LRRWMO implementation program.
- **Targeting for Water Quality:**
 - o It was noted that Cities don’t necessarily know where projects are needed.

Lower Rum River Watershed Management Organization (LRRWMO)
Technical Advisory Committee (TAC)

- The Anoka Conservation District (ACD) has done neighborhood-level targeting (“retrofit study”), but that analysis is not available watershed-wide.
- The group acknowledged that having watershed-wide targeting would be useful for Cities and the LRRWMO to target improvements; it should be considered as a potential Plan implementation item.
- Targeting fully developed areas is difficult because of space limitations.
- It was suggested that the best use of funding to improve water quality may be upstream of the LRRWMO; the Rum River 1W1P may identify upstream areas for targeted action.
 - The group suggested that the Plan should consider spending resources (funding or technical) on addressing problem areas upstream of the watershed boundary if it is the most efficient way to address water quality issues.
 - The watershed based funding will likely allow funds allocated anywhere in the Rum River watershed (e.g., Upper Rum River).
 - It was also noted that there remain plenty of local issues to address within the LRRWMO boundary as well.
- **Wetlands:**
 - The group noted that additional education regarding wetland buffers could be beneficial, but did not want to expand wetland buffer standards.
- **Additional issues to be addressed in the Plan (submitted outside the meeting):**
 - Rogers Lake water quality; Rogers Lake was previously listed as impaired and delisted because it does not meet the criteria for lake classification
 - Prioritizing shoreline erosion areas (Mississippi River and Rum River)
 - Downtown Ramsey Wetland Mitigation Plan
 - Neighborhood Scale Wetland Issues (e.g., Sweetbay Ridge)
 - Incentives and financial assistant for stormwater retrofits

Action Items

- **Barr Engineering Co.:**
 - Distribute summary of TAC meeting #1 (this document) to TAC mailing list.
 - Present results of TAC meeting #1 to LRRWMO Board of Managers.
- **TAC Participants**
 - Review meeting summary (this document) and provide additional comments or clarification, if needed, by November 14, 2019.

Memorandum

To: Lower Rum River Watershed Management Organization Board of Managers
From: Greg Williams, Barr Engineering Co.
Subject: LRRWMO 2021 Plan Update – Review of Existing Plans and Identification of Gaps
Date: November 14, 2019
Project: 23021077.00-100-106

As part of the 2021 update to the Lower Rum River Watershed Management Organization (LRRWMO) Watershed Management Plan (Plan), Barr Engineering Co. (Barr) has reviewed the 3rd generation LRRWMO Plan (2011 Plan) relative to other documents to identify potential gaps, conflicts, and/or inconsistencies. Documents reviewed in addition to the 2011 Plan include:

- City of Ramsey Surface Water Management Plan (October 2015, revised 2018)
- City of Andover Third Generation Surface Water Management Plan (May 2015, revised 2018)
- City of Anoka Local Surface Water Management Plan (July 2015)
- Anoka County Community Health and Environmental Services Water Resources Report (2014)
- Rum River Watershed Total Maximum Daily Load (MPCA, 2017)
- Rum River Watershed Restoration and Protection Strategy Report (MPCA, July 2017)
- Board of Water and Soil Resources Level II Performance Review (PRAP)
- Minnesota Pollution Control Agency (MPCA) Draft 2012 MS4 Permit
- MPCA National Pollution Discharge Elimination System (NPDES) Construction Stormwater Permit (2008)

The following table identifies and organizes gaps by topic. Discussion of each gap includes a summary of how it is addressed in the 2011 LRRWMO Plan, the identified gap or inconsistency or issue, and a recommended action to address the gap in the 2021 Plan.

This memorandum is intended as a resource for more detailed discussion with the LRRWMO Board of Managers during development and review of draft Plan sections. Decisions on the recommended actions included in this memorandum are not required at this time.

Topic and 2011 Plan Status	Identified Gap or Inconsistency	Recommended Action for 2021 Plan
<p><u>Impaired Waters</u></p> <p>The 2011 Plan notes the following impaired waters:</p> <ul style="list-style-type: none"> • Rum River (Hg) • Rogers Lake (Nutrients) • Mississippi River (PCB, Hg) 	<p>The draft 2020 impaired waters 303(d) list has been released and includes impairments not included in the 2011 Plan, including:</p> <ul style="list-style-type: none"> • Cedar Creek (E. coli) • Trott Brook (dissolved oxygen, Fish IBI, macroinvertebrate IBI) • Mississippi River (nutrients, fecal coliform) <p>Also, Rogers Lake has been delisted.</p>	<p>The Plan should be updated to include the most current impairments. The Plan update should consider the Rum River TMDL and incorporate appropriate implementation recommendations.</p>
<p><u>Water Quality Standards</u></p> <p>The 2011 Plan does not reference state water quality standards applicable to LRRWMO water resources. Appendix F includes water quality action thresholds for select waterbodies based on observed data.</p>	<p>State water quality standards have been updated since the 2011 Plan.</p> <p>The “actions” triggered in Appendix F include further monitoring but do not contain specific actions in the event of continued trends.</p>	<p>Include applicable water quality standards in the Plan update. Consider revising the action thresholds to MPCA standards or based on trends, versus concentrations. Consider revision the “actions” to be more specific.</p>
<p><u>Water Quality Data and Studies</u></p> <p>The 2011 Plan identifies available water quality programs and data sources. The 2011 Plan does not include water quality data within the document.</p>	<p>Since the completion of the 2011 Plan, the MPCA has completed the Rum River Watershed Restoration and Protection Strategies (WRAPS) and Rum River Total Maximum Daily Load (TMDL). Both of these studies include the LRRWMO.</p>	<p>Summary of relevant water quality data and analysis should be include in the Plan and reference the MPCA documents. Possible implementation actions included in the TMDL may be included in the Plan.</p>

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From: Greg Williams, Barr Engineering Co.
Subject: LRRWMO 2021 Plan Update – Review of Existing Plans and Identification of Gaps
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Topic and 2011 Plan Status	Identified Gap or Inconsistency	Recommended Action for 2021 Plan
<p><u>Upper Rum River Water Quality</u></p> <p>The 2011 Plan notes total suspended solids and other water quality issues in the Rum River, but does not discuss upstream loading.</p>	<p>With the development of the Rum River One Watershed One Plan, there may be opportunities for the LRRWMO to contribute to upstream projects that will achieve cumulative water quality benefits in the Lower Rum River.</p>	<p>Consider ways for the LRRWMO to contribute technical assistance, funding, or other support for projects upstream of the LRRWMO jurisdiction.</p>
<p><u>Chloride</u></p> <p>Section III.A.5 of the 2011 Plan notes that chloride concentrations in the Rum River increase from upstream to downstream, but are below standards.</p>	<p>Since the 2011 Plan, the MPCA has published the Twin Cities Metro Area Chloride Management Plan which includes recommended practices for chloride reduction. Although no waterbodies in the LRRWMO are impaired for chloride, portions of the watershed are identified in the “road density > 18%” area which is a critical area for implementation, per the MPCA.</p>	<p>Include more detailed discussion about chloride pollution and chloride reduction efforts in the Plan. Consider including chloride reduction elements in future permit program updates.</p>
<p><u>Subwatershed Assessments</u></p> <p>The 2011 Plan does not identify priority areas for water quality improvement projects. The scale of current water quality modeling from MPCA is insufficient for targeting of projects.</p>	<p>LRRWMO Cities have noted that they do not know where water quality improvement projects are most needed within the watershed and have requested direction from the LRRWMO.</p>	<p>Incorporate watershed or subwatershed assessment into the Plan implementation program to identify locations where future improvements should be concentrated.</p>

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Topic and 2011 Plan Status	Identified Gap or Inconsistency	Recommended Action for 2021 Plan
<p><u>Water Quality Improvement Projects</u></p> <p>The 2011 Plan implementation program did not identify any capital improvement projects (Table 10).</p>	<p>The Anoka Conservation District recommended an increased emphasis on water quality improvement projects in the updated Plan. The availability of watershed based funding may provide a consistent funding source for such projects.</p>	<p>Consider adding placeholder actions to the implementation plan for future water quality improvements, even if the specific actions are not yet identified and will be identified by future analyses.</p>
<p><u>Water Quality Project Maintenance</u></p> <p>The 2011 Plan notes maintenance responsibilities for municipal systems and county ditches.</p>	<p>The 2011 Plan does not explicitly discuss the maintenance responsibilities for private stormwater infrastructure.</p>	<p>The Plan update should include more detailed discussion of the maintenance responsibilities for privately-owned stormwater infrastructure.</p>
<p><u>Aquatic Invasive Species (AIS)</u></p> <p>Section III.C.1 of the 2011 Plan notes The LRRWMO’s interest in working with MDNR and ACD to develop an AIS monitoring program.</p>	<p>The 2011 Plan does not include discussion of AIS present with the LRRWMO or existing management authorities/efforts.</p>	<p>Consider including information about species and abundance in local resources (if known) as well as references to other management agencies and programs.</p>
<p><u>Groundwater Quality</u></p> <p>Section II.D.3 of the 2011 Plan generally discusses susceptibility of groundwater to contamination within the LRRWMO</p>	<p>There are groundwater monitoring networks and well-testing resources that are available to residents that are not referenced in the Plan.</p>	<p>Consider adding links and references to additional groundwater resources (e.g., MPCA, MDNR) and discussion of available well-testing services from Anoka County.</p>

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Topic and 2011 Plan Status	Identified Gap or Inconsistency	Recommended Action for 2021 Plan
<p><u>Climate Data</u></p> <p>Section II.A of the 2011 Plan includes climate data compiled through 2005. The permit program utilizes Atlas 14 values.</p>	<p>Atlas 14 was published since the 2011 Plan. Also, recent studies identify long-term climate trends that may be observed during and after the lift of this Plan.</p>	<p>Update the climate data in the Plan to include the most recent climate normal period, Atlas 14 precipitation values, and expected climate trends.</p>
<p><u>Wetland Management</u></p> <p>The 2011 Plan Section V.8 includes discussion of possible wetland education actions. The Plan references the current LRRWMO requirement for a 16.5 foot buffer during construction.</p>	<p>LRRWMO standards do not include a permanent, post-construction wetland buffer requirement. The City of Anoka requires permanent wetland buffers for new development. The TAC cited a need for continued wetland education.</p>	<p>Review the proposed wetland education actions from the 2011 Plan and update based on continued need. Consider including post-construction wetland buffer requirements for new development.</p>
<p><u>Permit Program</u></p> <p>Section VI.A of the 2011 Plan requires that City official controls require LRRWMO permits for development activity, when needed.</p>	<p>The 2011 Plan has limited detail regarding when LRRWMO permits are needed and the integration of the LRRWMO permitting process with City review/permitting activities.</p>	<p>Revise the Plan to include detailed discussion of LRRWMO permit program implementation and coordination with cities. Consider including implementation items related to review and improvement of the permit program (see also TAC recommendations).</p>
<p><u>Consistency with MPCA Permits</u></p> <p>Section IV.C.10 requires the submission of erosion and sediment control plans conforming to MPCA construction stormwater general permit.</p>	<p>The MPCA construction stormwater general permit was updated in 2018. The update generally includes the same water quality performance standards</p>	<p>Update the Plan to reference the most current version of the general permit and note that future updates to the permit are anticipated during the life of this Plan.</p>

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Topic and 2011 Plan Status	Identified Gap or Inconsistency	Recommended Action for 2021 Plan
<p><u>Local Ordinances</u></p> <p>Section V.D.8 Section V.3 notes that “Cities must adopt standards at least as protective as the LRRWMO standards in their local water plan and/or ordinances.</p>	<p>Local water management plans for Anoka and Andover include floodplain policies that are potentially inconsistent with LRRWMO requirements for low floor elevations and no net loss of floodplain.</p>	<p>Review City plans and ordinances during update of LRRWMO policies to determine where revisions may be needed. Include future LRRWMO review of local plans and ordinances as an implementation item.</p>
<p><u>Measurable Goals</u></p> <p>The goals in Section IV of the 2011 Plan are based heavily on Minnesota Statute 103B and are generally not measurable</p>	<p>The BWSR Level II PRAP recommended a focus on measurable goals in the Plan update. The 2011 Plan does not contain organization-specific or resource specific goals.</p>	<p>Revise the Plan goals to reflect the specific goals of the organization and incorporate measurable resource-specific goals, where appropriate (e.g., achieve 100 ug/L total phosphorus in the Rum River).</p>
<p><u>Self-assessment and Reporting</u></p> <p>Annual reporting to BWSR is identified in the 2011 Plan implementation program (Table 9).</p>	<p>BWSR’s most recent WMO Plan guidance includes at least biennial review of WMO progress towards Plan goals.</p>	<p>Update the Plan to include discussion of the LRRWMO’s self-assessment process, including at least biennial review of goals and implementation program status.</p>
<p><u>Advisory Committees</u></p> <p>The 2011 Plan notes input from a Technical Advisory Committee during Plan development.</p>	<p>The 2011 Plan does not identify ongoing actions for a citizen advisory committee (CAC) or TAC. The BWSR Level II PRAP identified the use of an advisory committee as an action item.</p>	<p>Consider incorporating planned CAC and TAC activities in the Plan update, including in the implementation program.</p>

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Topic and 2011 Plan Status	Identified Gap or Inconsistency	Recommended Action for 2021 Plan
<u>Data Practices Policy</u> The 2011 Plan does not discuss data management practices	The BWSR Level II PRAP identified the development and periodic update of a data practices policy as an action item.	Include a data practices policy as part of the Plan update.

Appendix E

LRRWMO Stormwater Management Performance Standards

Lower Rum River Watershed Management Organization

Stormwater Standards

Date of Adoption by LRRWMO

March 15, 2018

Effective Date

March 15, 2018

Background

Stormwater is an all-inclusive term that refers to any of the water running off the land's surface after a rainfall or snowmelt event. Prior to development, stormwater is a small component of the annual water balance. However, as development increases, the paving and compaction of pervious surfaces increase stormwater runoff. It is important to manage this water because of the impacts it can have on water quality, flooding, and groundwater recharge. The LRRWMO has goals of improving or maintaining water quality, preventing future flooding problems, and encouraging groundwater recharge. Therefore, the Lower Rum River WMO has minimum stormwater standards.

These standards were developed by a Technical Advisory Committee including representation from each LRRWMO community, MN Department of Natural Resources, MN Pollution Control Agency, MN Board of Water and Soil Resources, Metropolitan Council, US Army Corps of Engineers, MN Department of Transportation, Anoka Conservation District, Anoka County Environmental Services, and the Builder's Association of the Twin Cities.

Administration

These stormwater standards will be administered by both the LRRWMO and member cities. The LRRWMO will apply these standards to their permitting program. Each city must adopt standards at least as protective as the LRRWMO standards in their local water plan and/or ordinances, and implement them.

Applicability

LRRWMO Stormwater Standards apply to:

Projects that disturb/alter one acre or more, or are part of a common plan of development or sale that disturbs/alters one acre or more.

Definitions:

A common plan of development or sale is defined as a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land disturbing activities may occur.

Land disturbance is defined as activity that results in a change or alteration in the existing ground cover (both pervious and non-pervious) and/or the existing soil topography. Land disturbing activities include, but are not limited to, development, redevelopment, construction, reconstruction, clearing, grading, filling, stockpiling, excavation, and borrow pits. Road milling/overlay, demolition, and routine vegetation management activities will not be considered land disturbance.

The following are exempt:

- Road reconstruction that does not increase impervious area by more than one acre or alter drainage patterns (example: mill and overlay). Altering drainage patterns is defined as changing the ultimate discharge point of the water.
- Utility construction/reconstruction within road right-of-way.
- Agricultural operations >300 feet from the Rum River and not creating additional impervious surfaces.
- Gardens.
- Pole setting.
- Emergency activities immediately necessary for the protection of life, property, or natural resources.
- Whenever the LRRWMO Board determines:
 - The proposed project is not likely to impair attainment of the purpose and intent of these standards.
 - Off-site stormwater treatment is provided by an existing facility, achieving a level of control that is at least equal to the on-site requirements.

Permit Application Materials

Any project to which these standards are applicable must submit a completed LRRWMO permit application and all materials requested within that application. Permits from other entities, such as the city, US Army Corps of Engineers, MN DNR, MN Pollution Control Agency, or others may also be necessary.

Permit Process and Reviews

Projects must obtain approvals/permits from both the LRRWMO and the city. The LRRWMO permit application must be submitted to the LRRWMO, not the city. LRRWMO permit materials are available on the LRRWMO website. Questions can be directed to the LRRWMO representative or city staff liaison to the LRRWMO for the city where the project will occur. These contacts are listed on the website with the permitting materials. The city and LRRWMO will coordinate their permit reviews; duplication in the review process will be minimized by a review checklist that all reviewers use.

Permit Lifespan

Permits have a fixed lifespan of two years from the date of issuance. During this lifespan the requirements of the permit shall be fixed, and the project will not be subject to new LRRWMO stormwater standards enacted since the issuance of the original permit.

Permit Extensions

Extensions to LRRWMO permits may be granted. When an extension is granted, the LRRWMO stormwater standards in effect at the time of the original permit issuance shall continue to apply. The procedure for extensions varies for platted and non-platted projects as follows:

For platted projects, LRRWMO permit extensions shall automatically follow extensions granted by the City for that same project. The applicant is responsible for notifying the LRRWMO in writing if such an extension is granted by the city.

In cases where a project must reapply to the City for a preliminary plat, either because of expiration of the original permit or changes to the project, the permittee must also reapply for a LRRWMO permit and will be subject to any new LRRWMO stormwater standards enacted since the issuance of the original permit.

For non-platted projects, the applicant must apply to the LRRWMO for a permit extension before the end the two year permit life. Such requests will be considered by the LRRWMO Board on a case-by-case basis, and will only be granted if the proposed project has not changed since the issuance of the original permit.

Satisfaction of Permit

The LRRWMO stormwater treatment permit requirements shall be deemed satisfied when stormwater infrastructure has been built to meet LRRWMO permit requirements and required performance has been verified (other permit aspects, such as erosion control, may remain outstanding). Activities or construction consistent with the original permitted project plan occurring at a later date do not require a new LRRWMO permit nor are they subject to new LRRWMO stormwater treatment standards that may have been enacted since the issuance of the original permit.

The following example serves to clarify how this provision would apply to a phased common plan of development. Consider an example where a common plan of development will be built in several phases, including grading, stormwater infrastructure, and several phases of building construction. A LRRWMO permit must be secured for the multi-phase common plan of development. Once stormwater infrastructure is constructed and found to be performing to the standards required by the permit, the stormwater standards for all phases of the common plan of development will be considered satisfied. Subsequent phases of construction will not be subject to additional LRRWMO stormwater standards, even in the event that the LRRWMO standards are changed. However, if later building construction occurs that is not consistent with the original common plan of development, then a new LRRWMO permit would be triggered and stormwater standards in effect at that time would apply.

Storm Sewer Design

Except as noted in this document (LRRWMO Stormwater Standards), the design of storm sewers shall be reviewed and approved by the municipality, not the LRRWMO. The LRRWMO must review and approve basin inlets and outlets.

Stormwater Basin Sizing and Design

Hydrologic and hydraulic design of stormwater basins shall be based upon:

- For basins that are not landlocked —Available storage volume shall be based on 100-year return period, 24-hr. duration, Atlas 14 rainfall using the NRCS MSE-3 distribution with average soil moisture conditions (AMC 2). Rainfall amounts using the National Oceanic and Atmospheric Administration’s update Precipitation Frequency Atlas for the Midwestern States (Atlas 14, Volume 8) can be found at www.dnr.mn.us/climate/noaa_atlas_14.html.

- For landlocked areas - Available storage volume shall be established by estimating the water surface elevation resulting from back-to-back 100-year frequency rainfall events, or the 100-year, 10-day snowmelt, whichever provides the higher water surface elevation. In the snowmelt scenario, frozen soils shall be assumed (CN=100).

Flood levels in landlocked basins are difficult to predict, as they depend upon the starting water elevation at the beginning of a storm event. The starting elevation of the waterbody prior to the runoff event shall be established by one of the following:

- Existing Ordinary High Water level established by the Minnesota Department of Natural Resources,
 - Annual water balance calculation approved by the LRRWMO,
 - Local observation well records, as approved by the LRRWMO, or
 - The elevation of hydric soils, or the highest anticipated ground water table or elevation shown by a geotechnical study accepted by the LRRWMO.
- Infiltration within the basin during frozen conditions will be allowed in the calculation of basin sizing. The infiltration rate used must be approved by the LRRWMO.
 - Ultimate development, based on the approved common plan of development and the city's future land use plan within the area tributary to the pond/waterbody, shall be assumed.
 - Modeling methodology acceptable to the LRRWMO. Methods currently approved by the LRRWMO include: USDA SCS, TR-55 and TR-20, HydroCAD, and EPA SWMM methodology.

Precipitation Data Sources

Rainfall amounts for hydrologic analyses should be based on:

- National Oceanic and Atmospheric Administration's updated Precipitation Frequency Atlas for the Midwestern States (Atlas 14, Volume 8). (Reference: www.dnr.state.mn.us/climate/nosa_atlas_14.html).

More recent updates of these documents should be used, if available.

Low Floor Elevation

The lowest floor elevation of all development, including basements, must be at least 3 feet above the highest anticipated ground water table, 2 feet above the designated or designed 100-year flood elevation, or 1 foot above the emergency overflow, whichever is higher.

This requirement may be waived if evidence that a lesser separation can be achieved is:

- submitted and certified by a geotechnical engineer,
- reviewed and approved by the city engineer or other party designated by the city engineer, and
- approved by the LRRWMO.

If this process is pursued, the developer should consult with the LRRWMO Engineer before beginning study to discuss acceptable methodologies.

Discharges to the Rum River

The Rum River is classified as an Outstanding Resource Value Water. State Rules 7050.0180 prohibit new or expanded discharges. Determinations about discharges that may or may not impact

the Rum River are made by the Minnesota Pollution Control Agency, and shall be addressed through MPCA regulatory processes.

Water Quality

- Treatment of storm water to MPCA Stormwater guidelines is required prior to stormwater discharge to a lake, stream, or wetland and prior to discharge from the site as part of development. The stormwater treatment facilities shall provide at least an annual removal efficiency of sixty (60%) phosphorus and at least an annual removal efficiency of ninety percent (90%) total suspended solids. The onsite abstraction of runoff may be included in demonstrating compliance with the total suspended solids and total phosphorus removal requirements.

Peak Flow Rate Control

Post-development peak runoff rates shall not exceed existing rates for the 2, 10, and 100 year storm peak discharges.

The Rational Method shall be the preferred methodology to calculate peak flow rates for the design of minor systems that do not require hydrograph routings. If a minor system requires the use of a hydrograph method for routing purposes, only methods pre-approved by the LRRWMO will be accepted. If the method is not currently approved by the City, documentation of the methodology used shall be submitted with the calculations. Hydrograph methods currently approved by the LRRWMO include: USDA SCS, TR-55 and TR-20, HydroCAD, and EPA SWMM.

Volume Control

A volume equal to one inch of runoff from all impervious surfaces on the site shall be infiltrated on-site.

In cases of redevelopment, this volume control requirement applies only if >50% of the project area is disturbed. Project area is defined as the parcel(s) to which the permit would apply or the area encompassed by the common plan of development, whichever is greater.

At a minimum, abstraction from 1-inch of runoff from the on-site impervious surfaces shall be provided.

Abstraction, through infiltration, shall not be allowed within a 1-year travel zone of a public well as determined by the municipal well-head protection plan.

Unless determined by the LRRWMO to be exempt or granted a waiver, the following shall be addressed for stormwater management of all sites:

1. Stormwater volume management practices shall attempt the equivalent of retaining 1-inch of runoff, while recognizing that meeting a full 1-inch may not be practical.
2. These practices should utilize pervious area for the retention of runoff from impermeable surfaces to the maximum extent practical to provide treatment for both water quantity and quality.

Use of an *existing* regional treatment facility with available treatment capacity for the required volume will be allowed as an exception to the infiltration requirements if the LRRWMO and the city where the project is occurring agree the facility has the capacity.

For all ponds, infiltration through the pond bottom, draining dry within 48 hours, does count toward the required volume to infiltrate. Dead storage alone, without infiltration of that stored volume, does not count toward the required infiltration volume. Evaporation or transpiration from pond surfaces

may not be counted toward infiltration volume requirement because evaporation does not yield water quality benefits, achieve groundwater recharge goals, and because it is highly variable based upon climatological conditions.

Infiltration Facility Design and Construction

The chapters on Infiltration in the Minnesota Stormwater Manual should be used as a reference in the design and construction of infiltration basins for the stormwater management. This includes, but is not limited to, soil borings, period of inundation, pretreatment, and protection during construction. Robust pretreatment to remove suspended solids is especially important to long term functioning of the practice. Infiltration rates used in design of infiltration practices shall be either those in the MN Stormwater Manual (see Table 1 below) or those measured on-site by a double-ring infiltrometer. A maximum infiltration rate of 3 in/hr is allowed. Rates used for design higher than those listed in Table 1 below shall be verified by post-construction testing.

TABLE 1. Infiltration Rates for Hydrologic Soil Groups

Hydrologic Soil Group	Soil Textures	Corresponding Unified Soil Classification	Infiltration Rate (in/hr)
A	Gravel, sand, sandy gravel, silty gravel, loamy sand, sandy loam	GW – Well-graded gravel or well-graded gravel with sand GP – Poorly graded gravel or poorly graded gravel with sand	1.6
		GM – Silty gravel or silty gravel with sand SW – Well-graded sand or well-graded sand with gravel SP – Poorly graded sand or poorly graded sand with gravel	0.8
B	Loam, silt loam	SM – Silty sand or silty sand with gravel	0.6
		ML – Silt OL – Organic silt or organic silt with sand or gravel or gravelly organic silt	0.3
C	Sandy clay loam	GC – Clayey gravel or clayey gravel with sand SC – Clayey sand or clayey sand with gravel	0.2

Hydrologic Soil Group	Soil Textures	Corresponding Unified Soil Classification	Infiltration Rate (in/hr)
D	Clay, clay loam, silty clay loam, sandy clay, silty clay	CL – Lean clay or lean clay with sand or gravel or gravelly lean clay CH – Fat clay or fat clay with sand or gravel or gravelly fat clay OH – Organic clay or organic clay with sand or gravel or gravelly organic clay MH – Elastic silt or elastic silt with sand or gravel	0.06

Source: Minnesota Stormwater Manual. Thirty guidance manuals and many other stormwater references were reviewed by the MPCA when it compiled the recommended infiltration rates.

Sites Where Infiltration is Infeasible or Inappropriate

The LRRWMO recognizes that infiltration may be infeasible or inappropriate in some instances, and will review these on a case-by-case basis. Reasons that infiltration may be infeasible or inappropriate include:

- Physical limitations including soils, high water table, and available space limitations in the case of redevelopment.
- Projects within a Drinking Water Supply Management Area (DWSMA). Refer to MN Department of Health guidance entitled “Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas” (<http://www.health.state.mn.us/divs/eh/water/swp/stormwater.pdf>) to determine if infiltration techniques are appropriate.
- Storm water discharges from potential stormwater hotspots, such as fueling stations, vehicle service or washing areas, vehicle fleet storage areas, auto recycling or salvage, stockpiled snow from salted roadways, construction site inputs, manufacturing sites, public works storage areas, facilities that generate or store hazardous waste materials, and others as determined by the community or watershed management organization.
- Utility locations.
- Contaminated soils.
- Others as determined by the LRRWMO.

In these scenarios, permittees must treat the required volume through the following techniques, in order of preference:

1. On site infiltration of the entire, or a portion of, the required volume.
2. On site filtration or off site infiltration within the LRRWMO. Excess volume reduction on any project may be banked for use on another off site project. The excess volume reduction bank will be administered by the LRRWMO.
3. Other non-volume control treatment on site.

4. Contribution to a stormwater impact fund held by the LRRWMO. This fund is used for projects that offset the volume reduction that permitted projects were unable to achieve. Such projects may occur throughout the LRRWMO, but funds are favored for use in the city where they originated. The LRRWMO determines the contribution amount necessary per acre of impervious surface. This amount is based upon actual expenditures of other projects to meet the same volume control standards.

Stormwater Facility Maintenance

Stormwater facility maintenance shall follow the recommendations of the MN Stormwater Manual, or for public agencies facility maintenance shall be in accordance with the provisions of their MS4 permit or approved Local Water Management Plan. An easement is required over the area inundated by the design high water level storm event (including elevations determined for land-locked basins) and additional area adequate to provide maintenance access. Where a private party is responsible for maintenance, a maintenance declaration and plan that runs in perpetuity and is approved by the LRRWMO must be placed on the property title.

Performance Surety

A performance surety shall be collected by either the LRRWMO or city, but not both, for stormwater practices. Practice performance must be measured after installation. The surety may be used to correct any deficiencies in performance, such as infiltration rate. Unused funds will be returned to the permittee one year after construction is completed and after the practice is performing satisfactorily.

The performance surety will be waived for public projects.

Appendix F

LRRWMO Wetland Protection Standards

Lower Rum River Watershed Management Organization

Wetland Protection Standards

Rationale and Overview

Wetlands serve a variety of beneficial functions. Wetlands within the Lower Rum River Watershed Management Organization (LRRWMO) maintain water quality, recharge groundwater, provide wildlife habitat, control rates and volumes of stormwater discharge, reduce flooding, provide open space, and contribute to the area's desirable aesthetics. The roles of greatest interest to the LRRWMO include protecting water quality in downstream recreational water bodies, groundwater recharge, and wildlife habitat. Major land use changes during development can have a detrimental effect on these functions. Therefore, regulating wetlands and the land uses around them are in the public interest. Applying these standards during major land use changes is in line with other local and state regulatory systems.

The LRRWMO Wetland Protection Standards apply only to projects with land disturbance more than one acre. They focus on the area 16.5-feet upland of the wetland boundary. This area must be protected from disturbance and erosion during the construction process. After construction, restrictions within this area are similar to restrictions cities impose within drainage and utility easements. This area is usually within the drainage and utility easement so in most cases this imposes no new restrictions after construction.

These wetland standards also require that vegetation establishment at the conclusion of construction use native plant seeding in certain common spaces (outlots, city-owned property, etc.) near wetlands and developed ponding areas (stormwater management areas). Vegetation establishment is already required by cities; the LRRWMO is requiring the use of native plants in certain areas because of the benefits to water quality and wildlife. It applies only to common spaces that are disturbed during the construction process. The extent of native plant seeding should follow the guidance in these wetland protection standards. Native plant seeding is not required in all areas. There are no restrictions on modifying or removing it at a later date.

These standards were developed by a Technical Advisory Committee including representation from each LRRWMO community, MN Department of Natural Resources, MN Pollution Control Agency, MN Board of Water and Soil Resources, Metropolitan Council, US Army Corps of Engineers, MN

Department of Transportation, Anoka Conservation District, Anoka County Environmental Services, and the Builder's Association of the Twin Cities. These standards will be implemented through the LRRWMO permitting process and each LRRWMO city must adopt standards at least as protective.

Wetland Definition

For the purpose of these standards, wetlands:

- Are defined in MN Statutes section 103G.005, subdivision 19.
- Include public waters wetlands defined in MN Statutes section 103G.005, subdivision 15a.
- Do not include any areas created for the purpose of stormwater management.

Wetland Delineation

Applicants for projects triggering these standards must delineate any wetlands, or portions of wetlands, within the project area. Wetland delineations shall be conducted using methodology approved by the MN Wetland Conservation Act (1987 US Army Corps of Engineers Wetland Delineation Manual, along with any regional supplements, or other methodology approved by WCA in the future).

Administration

These wetland protection standards will be administered by both the LRRWMO and member cities. The LRRWMO will apply these standards to their permitting program. Each city must adopt standards at least as protective as the LRRWMO standards in their local water plan and/or ordinances, and implement them.

Applicability

LRRWMO Wetland Protection Standards apply to:

- Projects that disturb/alter one acre or more, or are part of a common plan of development or sale that disturbs/alters one acre or more.

The following are exempt:

- Road reconstruction.
- Utility construction/reconstruction within road right-of-way or drainage and utility easement.
- Agricultural operations >300 feet from the Rum River and not creating additional impervious surfaces.
- Gardens.
- Pole setting.

- Emergency activities immediately necessary for the protection of life, property, or natural resources.
- Whenever the LRRWMO Board determines the proposed project is not likely to impair attainment of the purpose and intent of these standards.

Projects exempt from LRRWMO Wetland Protection Standards must still comply with any applicable local, state, or federal requirements.

Note that projects involving wetland excavation, if land disturbance exceeds one acre, are subject to these standards.

Definitions:

A **common plan of development or sale** is defined as a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement, or physical demarcation indicating that land disturbing activities may occur.

Project area is defined as the parcel(s) to which the permit would apply or the area encompassed by the common plan of development, whichever is greater.

Land disturbance is defined as activity that results in a change or alteration in the existing ground cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to, development, redevelopment, construction, reconstruction, clearing, grading, filling, stockpiling, excavation, and borrow pits. Road milling/overlay, demolition, and routine vegetation management activities will not be considered land disturbance.

Permit Application Materials

Any project to which these standards are applicable must submit a completed LRRWMO permit application and all materials requested within that application. LRRWMO permit materials are available on the LRRWMO website. Permits from other entities, such as the city, US Army Corps of Engineers, MN DNR, MN Pollution Control Agency, or others may also be necessary.

Permit Process and Reviews

Projects may require approvals/permits from both the LRRWMO and the city. The LRRWMO permit application must be submitted to the LRRWMO, not the city. LRRWMO permit materials are available on the LRRWMO website. Questions can be directed to the LRRWMO representative or

city staff liaison to the LRRWMO for the city where the project will occur. These contacts are listed on the LRRWMO website with the permitting materials. The city and LRRWMO will coordinate their permit reviews; duplication in the review process will be minimized by a review checklist that all reviewers use.

Permit Lifespan

Permits have a fixed lifespan of two years from the date of issuance. During this lifespan the requirements of the permit shall be fixed, and the project not subject to new LRRWMO wetland protection standards enacted since the issuance of the original permit.

Permit Extensions

Extensions to LRRWMO permits may be granted. When an extension is granted, the LRRWMO wetland protection standards in effect at the time of the original permit issuance shall continue to apply. The procedure for extensions varies for platted and non-platted projects as follows:

For platted projects, LRRWMO permit extensions shall automatically follow extensions granted by the City for that same project. The applicant is responsible for notifying the LRRWMO in writing if such an extension is granted by the city.

In cases where a project must reapply to the City for a preliminary plat, either because of expiration of the original permit or changes to the project, the permittee must also reapply for a LRRWMO permit and will be subject to any new LRRWMO wetland protection standards enacted since the issuance of the original permit.

For non-platted projects, the applicant must apply to the LRRWMO for a permit extension before the end the two year permit life. Such requests will be considered by the LRRWMO Board on a case-by-case basis, and will only be granted if the proposed project has not changed since the issuance of the original permit.

Stormwater Discharge into Wetlands

Stormwater discharge into wetlands must comply with LRRWMO Stormwater Standards.

Temporary Wetland Protections During Construction

Areas within 16.5 feet of a wetland boundary must be protected from land grading and other disturbance during the construction process. The purpose is to prevent construction impacts to the wetland, such as erosion and vegetation removal. The area temporarily protected during construction:

- Must be no less than 16.5-foot wide upland from the wetland boundary.
- Must be present where ever land disturbance is occurring within 100 feet up-gradient of the wetland boundary.
- Must not be graded or disturbed.
- Must be demarcated by a properly installed heavy duty silt fence. Fiber logs or other continuous temporary erosion measures may be used if approved by the LRRWMO and/or the City. All erosion control measures must be installed and inspected prior to initiating any site disturbance activities. These materials must be in place throughout the construction process, including land grading and building.
- May be accomplished by installation of erosion control around the perimeter of land disturbance used to satisfy LRRWMO, city, or state erosion control rules provided it is consistent with the other specifications listed in this section.
- May be encroached upon for:
 - Activities associated with planting native vegetation or management to favor native vegetation. Encroachment for establishing turf grass is not allowed, EXCEPT AS SPECIFIED BELOW:
 - The installation of stormwater conveyances, such as outfalls, or grading necessary for hydrologic safeguards, such as emergency overflows.

If portions of a wetland are to be lawfully filled or drained during the construction process through a MN Wetland Conservation Act permit, the area of wetland protections shall be placed at that new wetland boundary. In this case it does not make sense to place the silt fence 16.5 feet from the new wetland boundary, because this would be within the area that is being filled or drained. Instead, the protections should be placed at the new wetland boundary. This applies only to the portion of the wetland edge where lawful wetland impact will occur during the construction process.

The provisions listed above apply until construction (including grading and building) is complete, the site is stabilized, and vegetation has been established in the project area.

Native Plant Seeding in Common Spaces at the Conclusion of Construction

Within common spaces, areas adjacent to wetlands that are disturbed through the construction process and ponding areas (stormwater management areas) should be seeded with a MN Board of Water and Soil Resources (BWSR) native seed mix which matches site conditions. Common spaces include outlots, areas transferred to city ownership, homeowners association common space, and similar. This seeding should be done as part of site stabilization following construction. Site preparation and seeding should be consistent with BWSR guidance.

The extent of seeding around wetlands shall be reviewed by the LRRWMO Board and determined on a case by case basis. Decision making will be based on the following guidance:

- All areas that will be idle for one year or more and are within 100 feet of a wetland boundary should be seeded with the native plant mix.
- Seeding all areas that will be idle for one year or more, even if more distant from the wetland, is encouraged for wildlife benefits, lower long-term maintenance, and aesthetics. Native plant seeding adjacent to stormwater management areas is also encouraged.
- Areas where the city or land manager plans an active land use inconsistent with unmowed vegetation can be excluded from the native plant seeding requirement. For example, if an area is planned to be developed into a playground within one year, native plant seeding need not occur.
- Seeding should only occur within the 16.5-foot wide area around the wetland that was left undisturbed during construction if it is dominated by invasive or noxious weeds. In all other cases this area should remain undisturbed.

The LRRWMO does not require this native plant seeding to be maintained. Native plants are favored in areas near wetlands and on idle lands because of their benefits to wildlife and water quality. However if the desired use or landscaping of the area changes, the vegetation may be replaced without any restrictions or penalties imposed by the LRRWMO.

These provisions do not apply to private properties; they only apply to common spaces.

Wetland Protections After Construction

Following construction, site stabilization, and vegetation establishment certain activities shall be prohibited within 16.5 feet of the wetland edge. Activities prohibited include:

- Structures, excluding fences. Fences are not allowed inside the wetland boundary.
- Paving, except projects with a public purpose such as public trails.
- Retaining walls.
- Filling, dumping, or yard waste disposal.
- Fertilization.
- Septic systems.

If portions of a wetland have been lawfully impacted (filled, drained, etc.) during the construction process through a MN Wetland Conservation Act permit, the 16.5-foot area of wetland protections shall be measured from the new, post-impact wetland boundary.

Relationship to Drainage and Utility Easement

The LRRWMO wetland protections after construction are similar to restrictions cities impose within drainage and utility easements. In most cases the drainage and utility easement (defined by the designed or designated 100 year flood elevation) extends more than 16.5 feet from the

wetland boundary, so in most cases these LRRWMO wetland protection standards impose no new restrictions after construction.

Occasionally a wetland boundary may be outside of the drainage and utility easement. The 16.5-foot wide area of LRRWMO wetland protections would be outside of the normal drainage and utility easement. In these cases, the drainage and utility easement should be expanded to encompass the area within 16.5 feet from the wetland edge.

Variations

A variance may be granted in the following circumstances:

- For public road projects whenever the road right of way does not provide sufficient space to implement the wetland protections.
- Whenever the permitting authority determines substitute activities will be used that will provide the same level of protection.
- Other factors, as determined by the permitting authority.

Performance Surety

A performance surety will be collected to ensure the proper execution of wetland protection measures. The surety may be used to correct any deficiencies. Performance sureties shall be collected by the city, except in cases of wetland mitigation when the LRRWMO will collect the surety. Any surety shall be returned at completion of the construction process and proper execution of wetland protection measures.

The performance surety will be waived for public projects.

Appendix G

Stormwater BMP retrofit opportunities identified in Anoka Conservation District Stormwater Retrofit Analyses for City of Anoka and City of Ramsey

Table 2: Cost-effectiveness of retrofits with respect to TP reduction. Projects ranked 1 – 16 are shown on this table. TSS and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/lb-TP/year (30-year) ¹
1	7-H1	73	New Pond	7th Ave.	A-7	111.6	54,558	0.9	\$802,138.00	\$5,500.00	\$289.00
2	7-D	69	Infiltration Basin	Colfax Ave. and Blackoaks Ln.	A-7	9.6	3,256	8.1	\$118,796.00	\$225.00	\$436.00
3	7-H2	74	New Pond	7th Ave.	A-7	31.5	13,452	0.4	\$360,484.00	\$1,800.00	\$439.00
4	7-E	70	Infiltration Basin	Sunny Ln.	A-7	1.7	676	1.8	\$22,796.00	\$225.00	\$579.00
5	10-C	97	Infiltration Basin	5th Ave. and Polk St.	A-10	2.6	808	2.1	\$43,796.00	\$225.00	\$648.00
6	7-I1	75	IESF Bench	7th Ave.	A-7	26.6	0	0	\$580,991.00	\$4,591.00	\$902.00
7	16-A	128	Curb-Cut Rain Garden	Washington St.	A-16	0.5-1.0	157-315	0.4-0.8	\$8,982-\$17,234	\$225-\$450	\$1,024-\$1,049
8	1-A	38	Curb-Cut Rain Garden	Ferry St. and Front Ave.	A-1	0.5	187	0.5	\$8,982.00	\$225.00	\$1,049.00
9	3-A	48	Curb-Cut Rain Garden	Various locations in catchment	A-3	0.5-3.5	157-1,089	0.4-2.7	\$15,844-\$65,356	\$225-\$1,575	\$1,072-\$1,506
10	7-A	66	Curb-Cut Rain Garden	Various locations in catchment	A-7	0.5-8.1	153-2,539	0.4-6.2	\$15,844-\$147,876	\$225-\$3,825	\$1,081-\$1,506
11	9-A	87	Curb-Cut Rain Garden	Various locations in catchment	A-9	0.5-2.0	155-623	0.4-1.5	\$15,844-\$40,600	\$225-\$900	\$1,127-\$1,506
12	8-B	81	Pond Modification	4th Ave. and Grant St.	A-8	10.5	6,443	0	\$330,840-\$690,840	\$1,300.00	\$1,174-\$2,317
13	15-A	125	Curb-Cut Rain Garden	Various locations in catchment	A-15	0.4-4.4	135-1,343	0.4-3.7	\$15,844-\$90,112	\$225-\$2,250	\$1,194-\$1,883
14	3-D	51	IESF Bench	Green Haven Golf Course Pond	A-3	10.4	0	0	\$282,955.00	\$3,214.00	\$1,216.00
15	3-E	52	Stomwater Reuse	Green Haven Golf Course Pond	A-3	18.2	3,409	46.4	\$608,760.00	\$3,000.00	\$1,280.00
16	8-A	80	Curb-Cut Rain Garden	Various locations in catchment	A-8	0.7-0.8	190-301	0.7-1.1	\$17,234.00	\$450.00	\$1,281-\$1,464

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TP Reduction)]

Table 3: Cost-effectiveness of retrofits with respect to TP reduction. Projects ranked 17 – 31 are shown on this table. TSS and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/lb-TP/year (30-year) ¹
17	8-C	82	IESF Bench	4th Ave. and Grant St.	A-8	7.2	0	0	\$282,955.00	\$1,607.00	\$1,534.00
18	7-I2	76	IESF Bench	7th Ave.	A-7	7.2	0	0	\$305,875.00	\$1,837.00	\$1,669.00
19	7-G	72	Stomwater Reuse	38th Ave. and 7th Ave.	A-7	17.5	5,987	18.7	\$958,760.00	\$3,000.00	\$1,998.00
20	10-E	99	New Pond	Rudy Johnson Park	A-10	4	1,712	0.1	\$239,925.00	\$300.00	\$2,074.00
21	9-E	91	Boulevard Bioswale	Various locations in catchment	A-9	0.2	112	0.2	\$8,526.00	\$225.00	\$2,131.00
22	13-D	112	Hydrodynamic Device	5th Ave. and Main St.	A-13	1.4	644	0	\$109,752.00	\$630.00	\$3,063.00
23	2-A	44	Boulevard Bioswale	Maple Ave.	A-2	0.2	55	0.1	\$8,526.00	\$225.00	\$3,140.00
24	7-F	71	Boulevard Bioswale	Various locations in catchment	A-7	0.2	61	0.1	\$8,526.00	\$225.00	\$3,264.00
25	10-D	98	Boulevard Bioswale	Various locations in catchment	A-10	0.1	52	0.1	\$8,526.00	\$225.00	\$3,427.00
26	11-A	102	Boulevard Bioswale	3rd Ave.	A-11	0.1	49	0.1	\$8,526.00	\$225.00	\$3,523.00
27	7-B	67	Hydrodynamic Device	38th Ln. and 8th Ave.	A-7	1.2	491	0	\$109,752.00	\$630.00	\$3,574.00
27	9-B	88	Hydrodynamic Device	7th Ave. and Pierce St.	A-9	1.2	686	0	\$109,752.00	\$630.00	\$3,574.00
29	9-D	90	Hydrodynamic Device	Main St. and 8 1/2 Ave.	A-9	1.1	777	0	\$109,752.00	\$630.00	\$3,899.00
30	3-C	50	Hydrodynamic Device	Main St. and State Ave.	A-3	0.6	302	0	\$55,752.00	\$630.00	\$4,147.00
31	1-B	39	Hydrodynamic Device	Ferry St.	A-1	1	584	0	\$109,752.00	\$630.00	\$4,288.00
31	9-C	89	Hydrodynamic Device	7th Ave. and Harrison St.	A-9	1	407	0	\$109,752.00	\$630.00	\$4,288.00

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TP Reduction)]

Table 4: Cost-effectiveness of retrofits with respect to TP reduction. Projects ranked 33 – 48 are shown on this table. TSS and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/lb-TP/year (30-year) ¹
33	13-C	111	Hydrodynamic Device	Main St. and 5th Ave.	A-13	0.9	427	0	\$109,752.00	\$630.00	\$4,765.00
34	13-A	109	Hydrodynamic Device	Main St. and 1st Ave.	A-13	0.5	272	0	\$55,752.00	\$630.00	\$4,977.00
34	13-B	110	Hydrodynamic Device	Main St. and 3rd Ave.	A-13	0.5	285	0	\$55,752.00	\$630.00	\$4,977.00
34	3-B	49	Hydrodynamic Device	Main St. and State Ave.	A-3	0.5	280	0	\$55,752.00	\$630.00	\$4,977.00
37	13-H	116	Boulevard Bioswale	Various locations in catchment	A-13	0.1	22	0.1	\$8,526.00	\$225.00	\$5,092.00
38	4-A	55	Hydrodynamic Device	Maple Ln.	A-4	0.3	113	0	\$28,752.00	\$630.00	\$5,295.00
39	14-A	121	Hydrodynamic Device	Parking lot off 1st Ave.	A-14	0.8	385	0	\$109,752.00	\$630.00	\$5,361.00
39	7-C	68	Hydrodynamic Device	7th Ave.	A-7	0.8	383	0	\$109,752.00	\$630.00	\$5,361.00
41	17-A	133	Hydrodynamic Device	Oakwood Dr.	A-17	0.6	244	0	\$109,752.00	\$630.00	\$7,147.00
42	10-A	95	Hydrodynamic Device	6th Ave. and Taylor St.	A-10	0.5	211	0	\$109,752.00	\$630.00	\$8,577.00
43	10-B	96	Hydrodynamic Device	5th Ave. and Taylor St.	A-10	0.5	195	0	\$109,752.00	\$630.00	\$8,577.00
44	16-B	129	Hydrodynamic Device	Oakwood Dr. and Washington St.	A-16	0.4	163	0	\$109,752.00	\$630.00	\$10,721.00
45	13-F	114	Permeable Pavement	St. Stephen's Catholic School	A-13	1.6	562	1.6	\$282,796.00	\$20,925.00	\$18,970.00
46	13-E	113	Permeable Pavement	St. Stephen's Catholic Church	A-13	0.9	320	0.9	\$162,796.00	\$11,925.00	\$19,279.00
47	13-G	115	Permeable Pavement	St. Stephen's Catholic School	A-13	1.9	672	1.9	\$343,796.00	\$25,500.00	\$19,453.00
48	1-C	40	Permeable Pavement	Anoka-Hennepin Education Center	A-1	2.9	1,325	3.5	\$552,656.00	\$41,165.00	\$20,547.00

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TP Reduction)]

Table 5: Cost-effectiveness of retrofits with respect to TSS reduction. Projects ranked 1 – 16 are shown on this table. TP and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/1,000lb-TSS/year (30-year) ¹
1	7-H1	73	New Pond	7th Ave.	A-7	111.6	54,558	0.9	\$802,138.00	\$5,500.00	\$591.00
2	7-H2	74	New Pond	7th Ave.	A-7	31.5	13,452	0.4	\$360,484.00	\$1,800.00	\$1,027.00
3	7-D	69	Infiltration Basin	Colfax Ave. and Blackoaks Ln.	A-7	9.6	3,256	8.1	\$118,796.00	\$225.00	\$1,285.00
4	7-E	70	Infiltration Basin	Sunny Ln.	A-7	1.7	676	1.8	\$22,796.00	\$225.00	\$1,457.00
5	8-B	81	Pond Modification	4th Ave. and Grant St.	A-8	10.5	6,443	0	\$330,840-\$690,840	\$1,300.00	\$1,913-\$3,776
6	10-C	97	Infiltration Basin	5th Ave. and Polk St.	A-10	2.6	808	2.1	\$43,796.00	\$225.00	\$2,085.00
7	1-A	38	Curb-Cut Rain Garden	Ferry St. and Front Ave.	A-1	0.5	187	0.5	\$8,982.00	\$225.00	\$2,804.00
8	16-A	128	Curb-Cut Rain Garden	Washington St.	A-16	0.5-1.0	157-315	0.4-0.8	\$8,982-\$17,234	\$225-\$450	\$3,252-\$3,340
9	8-A	80	Curb-Cut Rain Garden	Various locations in catchment	A-8	0.7-0.8	190-301	0.7-1.1	\$17,234.00	\$450.00	\$3,404-\$5,392
10	3-A	48	Curb-Cut Rain Garden	Various locations in catchment	A-3	0.5-3.5	157-1,089	0.4-2.7	\$15,844-\$65,356	\$225-\$1,575	\$3,447-\$4,797
11	7-A	66	Curb-Cut Rain Garden	Various locations in catchment	A-7	0.5-8.1	153-2,539	0.4-6.2	\$15,844-\$147,876	\$225-\$3,825	\$3,448-\$4,922
12	9-A	87	Curb-Cut Rain Garden	Various locations in catchment	A-9	0.5-2.0	155-623	0.4-1.5	\$15,844-\$40,600	\$225-\$900	\$3,617-\$4,859
13	15-A	125	Curb-Cut Rain Garden	Various locations in catchment	A-15	0.4-4.4	135-1,343	0.4-3.7	\$15,844-\$90,112	\$225-\$2,250	\$3,912-\$5,579
14	9-E	91	Boulevard Bioswale	Various locations in catchment	A-9	0.2	112	0.2	\$8,526.00	\$225.00	\$4,561.00
15	10-E	99	New Pond	Rudy Johnson Park	A-10	4	1,712	0.1	\$239,925.00	\$300.00	\$4,847.00
16	9-D	90	Hydrodynamic Device	Main St. and 8 1/2 Ave.	A-9	1.1	777	0	\$109,752.00	\$630.00	\$5,519.00

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TSS Reduction/1,000)]

Table 6: Cost-effectiveness of retrofits with respect to TSS reduction. Projects ranked 17 – 32 are shown on this table. TP and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/1,000lb-TSS/year (30-year) ¹
17	7-G	72	Stomwater Reuse	38th Ave. and 7th Ave.	A-7	17.5	5,987	18.7	\$958,760.00	\$3,000.00	\$5,839.00
18	9-B	88	Hydrodynamic Device	7th Ave. and Pierce St.	A-9	1.2	686	0	\$109,752.00	\$630.00	\$6,251.00
19	13-D	112	Hydrodynamic Device	5th Ave. and Main St.	A-13	1.4	644	0	\$109,752.00	\$630.00	\$6,659.00
20	3-E	52	Stomwater Reuse	Green Haven Golf Course Pond	A-3	18.2	3,409	46.4	\$608,760.00	\$3,000.00	\$6,833.00
21	1-B	39	Hydrodynamic Device	Ferry St.	A-1	1	584	0	\$109,752.00	\$630.00	\$7,343.00
22	3-C	50	Hydrodynamic Device	Main St. and State Ave.	A-3	0.6	302	0	\$55,752.00	\$630.00	\$8,240.00
23	7-F	71	Boulevard Bioswale	Various locations in catchment	A-7	0.2	61	0.1	\$8,526.00	\$225.00	\$8,352.00
24	13-B	110	Hydrodynamic Device	Main St. and 3rd Ave.	A-13	0.5	285	0	\$55,752.00	\$630.00	\$8,731.00
25	7-B	67	Hydrodynamic Device	38th Ln. and 8th Ave.	A-7	1.2	491	0	\$109,752.00	\$630.00	\$8,734.00
26	3-B	49	Hydrodynamic Device	Main St. and State Ave.	A-3	0.5	280	0	\$55,752.00	\$630.00	\$8,887.00
27	13-A	109	Hydrodynamic Device	Main St. and 1st Ave.	A-13	0.5	272	0	\$55,752.00	\$630.00	\$9,149.00
28	2-A	44	Boulevard Bioswale	Maple Ave.	A-2	0.2	55	0.1	\$8,526.00	\$225.00	\$9,202.00
29	10-D	98	Boulevard Bioswale	Various locations in catchment	A-10	0.1	52	0.1	\$8,526.00	\$225.00	\$9,853.00
30	13-C	111	Hydrodynamic Device	Main St. and 5th Ave.	A-13	0.9	427	0	\$109,752.00	\$630.00	\$10,043.00
31	11-A	102	Boulevard Bioswale	3rd Ave.	A-11	0.1	49	0.1	\$8,526.00	\$225.00	\$10,342.00
32	9-C	89	Hydrodynamic Device	7th Ave. and Harrison St.	A-9	1	407	0	\$109,752.00	\$630.00	\$10,537.00

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TSS Reduction/1,000)]

Table 7: Cost-effectiveness of retrofits with respect to TSS reduction. Projects ranked 33 – 48 are shown on this table. TP and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/1,000lb-TSS/year (30-year) ¹
33	14-A	121	Hydrodynamic Device	Parking lot off 1st Ave.	A-14	0.8	385	0	\$109,752.00	\$630.00	\$11,139.00
34	7-C	68	Hydrodynamic Device	7th Ave.	A-7	0.8	383	0	\$109,752.00	\$630.00	\$11,197.00
35	4-A	55	Hydrodynamic Device	Maple Ln.	A-4	0.3	113	0	\$28,752.00	\$630.00	\$14,057.00
36	17-A	133	Hydrodynamic Device	Oakwood Dr.	A-17	0.6	244	0	\$109,752.00	\$630.00	\$17,575.00
37	10-A	95	Hydrodynamic Device	6th Ave. and Taylor St.	A-10	0.5	211	0	\$109,752.00	\$630.00	\$20,324.00
38	10-B	96	Hydrodynamic Device	5th Ave. and Taylor St.	A-10	0.5	195	0	\$109,752.00	\$630.00	\$21,992.00
39	13-H	116	Boulevard Bioswale	Various locations in catchment	A-13	0.1	22	0.1	\$8,526.00	\$225.00	\$23,072.00
40	16-B	129	Hydrodynamic Device	Oakwood Dr. and Washington St.	A-16	0.4	163	0	\$109,752.00	\$630.00	\$26,309.00
41	1-C	40	Permeable Pavement	Anoka-Hennepin Education Center	A-1	2.9	1,325	3.5	\$552,656.00	\$41,165.00	\$44,971.00
42	13-F	114	Permeable Pavement	St. Stephen's Catholic School	A-13	1.6	562	1.6	\$282,796.00	\$20,925.00	\$54,006.00
43	13-E	113	Permeable Pavement	St. Stephen's Catholic Church	A-13	0.9	320	0.9	\$162,796.00	\$11,925.00	\$54,224.00
44	13-G	115	Permeable Pavement	St. Stephen's Catholic School	A-13	1.9	672	1.9	\$343,796.00	\$25,500.00	\$55,000.00
48	3-D	51	IESF Bench	Green Haven Golf Course Pond	A-3	10.4	0	0	\$282,955.00	\$3,214.00	N/A
48	7-11	75	IESF Bench	7th Ave.	A-7	26.6	0	0	\$580,991.00	\$4,591.00	N/A
48	7-12	76	IESF Bench	7th Ave.	A-7	7.2	0	0	\$305,875.00	\$1,837.00	N/A
48	8-C	82	IESF Bench	4th Ave. and Grant St.	A-8	7.2	0	0	\$282,955.00	\$1,607.00	N/A

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TSS Reduction/1,000)]

Table 2: Mississippi River Network. Cost-effectiveness of retrofits with respect to TP reduction. TSS and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/lb-TP/year (30-year) ¹
1	MR6-A	57	Infiltration Basin	Southeastern Portion of MR6	MR6	3.6 - 4.9	2,110 - 2,836	3.8 - 5.4	\$43,796 - \$83,796	\$225	\$468 - \$616
2	MR3-A	44	Infiltration Basin	Riverdale Dr.	MR3	2.5 - 3.0	867-1,034	2.2-2.7	\$33,796 - \$53,796	\$225	\$541 - \$673
3	MR5-A	52	Curb-Cut Rain Garden	Tungsten St. and Rivlyn Ave.	MR5	0.4-0.5	155-249	0.4-0.6	\$8,982	\$225	\$1,049 - \$1,311
4	MR1-C	36	IESF Bench	Hematite Cir. and Garnet St.	MR1	7.6	0	0.0	\$235,035	\$1,377	\$1,212
5	MR2-A	40	Curb-Cut Rain Garden	Ebony St. and 137th Ave.	MR2	0.4-1.2	112-336	0.3-0.9	\$8,982 - \$26,946	\$225 - \$675	\$1,311
6	MR1-A	34	Curb-Cut Rain Garden	Various locations in MR1	MR1	0.8-2.3	166-493	1.5-3.3	\$32,348 - \$81,860	\$675 - \$2,025	\$2,033 - \$2,192
7	MR1-B	35	IESF Bench	Feldspar St. and Garnet St.	MR1	2.4	0	0.0	\$143,475	\$459	\$2,202
8	MR5-B	53	Boulevard Bioswales	Riverdale Dr.	MR5	0.1	61	0.1	\$8,526	\$225	\$2,603
9	MR2-B	41	Boulevard Bioswales	Riverdale Dr. and Ebony St.	MR2	0.1	61	0.1	\$8,526	\$225	\$3,395
10	MR7-A	60	IESF Check Dam	US-10	MR7	0.2	15	0.0	\$15,448	\$365	\$4,526
11	MR4-A	49	IESF Check Dam	US-10	MR4	0.2	15	0.0	\$15,448	\$365	\$4,549
12	MR5-C	54	Hydrodynamic Device	Tungsten St. and Rivlyn Ave.	MR5	0.9	682	0.0	\$109,752	\$630	\$4,765
13	MR3-B	45	Hydrodynamic Device	Riverdale Dr.	MR3	0.4	211	0.0	\$109,752	\$630	\$10,721

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TP Reduction)]

Table 3: Mississippi River Network. Cost-effectiveness of retrofits with respect to TSS reduction. TP and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/1,000lb-TSS/year (30-year) ¹
1	MR6-A	57	Infiltration Basin	Southeastern Portion of MR6	MR6	3.6 - 4.9	2,110 - 2,836	3.8 - 5.4	\$43,796 - \$83,796	\$225	\$799 - \$1,064
2	MR3-A	44	Infiltration Basin	Riverdale Dr.	MR3	2.5 - 3.0	867-1,034	2.2-2.7	\$33,796 - \$53,796	\$225	\$1,559 - \$1,952
3	MR5-A	52	Curb-Cut Rain Garden	Tungsten St. and Rivlyn Ave.	MR5	0.4-0.5	155-249	0.4-0.6	\$8,982	\$225	\$2,106 - \$3,383
4	MR2-A	40	Curb-Cut Rain Garden	Ebony St. and 137th Ave.	MR2	0.4-1.2	112-336	0.3-0.9	\$8,982 - \$26,946	\$225 - \$675	\$4,682
5	MR5-B	53	Boulevard Bioswales	Riverdale Dr.	MR5	0.1	61	0.1	\$8,526	\$225	\$4,839
6	MR5-C	54	Hydrodynamic Device	Tungsten St. and Rivlyn Ave.	MR5	0.9	682	0.0	\$109,752	\$630	\$6,288
7	MR2-B	41	Boulevard Bioswales	Riverdale Dr. and Ebony St.	MR2	0.1	61	0.1	\$8,526	\$225	\$8,526
8	MR1-A	34	Curb-Cut Rain Garden	Various locations in MR1	MR1	0.8-2.3	166-493	1.5-3.3	\$32,348 - \$81,860	\$675 - \$2,025	\$9,642 - \$10,562
9	MR3-B	45	Hydrodynamic Device	Riverdale Dr.	MR3	0.4	211	0.0	\$109,752	\$630	\$20,324
10	MR7-A	60	IESF Check Dam	US-10	MR7	0.2	15	0.0	\$15,448	\$365	\$58,662
11	MR4-A	49	IESF Check Dam	US-10	MR4	0.2	15	0.0	\$15,448	\$365	\$59,056
13	MR1-B	35	IESF Bench	Feldspar St. and Garnet St.	MR1	2.4	0	0.0	\$143,475	\$459	N/A
13	MR1-C	36	IESF Bench	Hematite Cir. and Garnet St.	MR1	7.6	0	0.0	\$235,035	\$1,377	N/A

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TSS Reduction/1,000)]

Table 4: Rum River Network. Cost-effectiveness of retrofits with respect to TP reduction. TSS and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/lb-TP/year (30-year) ¹
1	RR6-A	83	Infiltration Basin	142nd LN.	RR6	4.2 - 4.8	1,139 - 1,267	2.6 - 2.9	\$63,796 - \$83,796	\$225	\$560 - \$629
2	RR3-A	71	Curb-Cut Rain Garden	Waco St.	RR3	0.6 - 0.7	188 - 204	0.5	\$8,982	\$225	\$749 - \$874
3	RR8-A	89	Pond Modification	Rivers Bend Park	RR8	7.7	3,672	0.2	\$140,840 - \$215,840	\$900	\$779 - \$1,203
4	RR1-A	64	Curb-Cut Rain Garden	Oneida St.	RR1	0.4 - 0.5	111 - 118	0.6 - 0.7	\$8,982	\$225	\$1,049 - \$1,311
4	RR4-A	75	Curb-Cut Rain Garden	Waco St.	RR4	0.4 - 0.5	122 - 155	0.3 - 0.4	\$8,982	\$225	\$1,049 - \$1,311
6	RR2-A	67	Curb-Cut Rain Garden	Various locations in RR2	RR2	0.5 - 5.0	155 - 1,551	0.4 - 3.8	\$15,844 - \$90,112	\$225 - \$2,250	\$1,051 - \$1,506
7	RR5-A	79	Curb-Cut Rain Garden	142nd LN.	RR5	0.37 - 0.43	110 - 129	0.26 - 0.30	\$8,982	\$225	\$1,220 - \$1,417
8	RR7-A	86	Infiltration Basin	Rivers Bend Park Parking Lot	RR7	0.20 - 0.32	59 - 72	0.12 - 0.15	\$7,796 - \$9,796	\$225	\$1,724 - \$2,424
9	RR9-A	94	Hydrodynamic Device	St. Francis Blvd. and Bunker Lake Blvd.	RR9	0.7	364	0.0	\$55,752	\$630	\$3,555
10	RR4-B	76	Hydrodynamic Device	Waco St.	RR4	0.5	200	0.0	\$55,752	\$630	\$4,977
11	RR5-B	80	Hydrodynamic Device	142nd LN.	RR5	0.3	111	0.0	\$28,752	\$630	\$5,295
12	RR2-B	68	Hydrodynamic Device	Xkimo St.	RR2	0.8	322	0.0	\$109,752	\$630	\$5,361
13	RR3-B	72	Hydrodynamic Device	Waco St.	RR3	0.4	167	0.0	\$55,752	\$630	\$6,221
14	RR8-B	90	Hydrodynamic Device	142nd Ave.	RR8	0.2	108	0.0	\$28,752	\$630	\$7,942
15	RR8-C	91	Hydrodynamic Device	Xkimo St.	RR8	0.5	220	0.0	\$109,752	\$630	\$8,577

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TP Reduction)]

Table 5: Rum River Network. Cost-effectiveness of retrofits with respect to TSS reduction. TP and volume reductions are also shown. For more information on each project refer to either the Catchment Profile or BMP Descriptions pages in this report. Volume and pollutant reduction benefits cannot be summed with other projects that provide treatment for the same source area.

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/1,000lb-TSS/year (30-year) ¹
1	RR8-A	89	Pond Modification	Rivers Bend Park	RR8	7.7	3,672	0.2	\$140,840 - \$215,840	\$900	\$1,633 - \$2,522
2	RR6-A	83	Infiltration Basin	142nd LN.	RR6	4.2 - 4.8	1,139 - 1,267	2.6 - 2.9	\$63,796 - \$83,796	\$225	\$2,065 - \$2,382
3	RR4-A	75	Curb-Cut Rain Garden	Waco St.	RR4	0.4 - 0.5	122 - 155	0.3 - 0.4	\$8,982	\$225	\$3,383 - \$4,298
4	RR2-A	67	Curb-Cut Rain Garden	Various locations in RR2	RR2	0.5 - 5.0	155 - 1,551	0.4 - 3.8	\$15,844 - \$90,112	\$225 - \$2,250	\$3,387 - \$4,859
5	RR3-A	71	Curb-Cut Rain Garden	Waco St.	RR3	0.6 - 0.7	188 - 204	0.5	\$15,844	\$225	\$3,692 - \$4,006
6	RR5-A	79	Curb-Cut Rain Garden	142nd LN.	RR5	0.37 - 0.43	110 - 129	0.26 - 0.30	\$8,982	\$225	\$4,065 - \$4,767
7	RR1-A	64	Curb-Cut Rain Garden	Oneida St.	RR1	0.4 - 0.5	111 - 118	0.6 - 0.7	\$8,982	\$225	\$4,444 - \$4,724
8	RR9-A	94	Hydrodynamic Device	St. Francis Blvd. and Bunker Lake Blvd.	RR9	0.7	364	0.0	\$55,752	\$630	\$6,836
9	RR7-A	86	Infiltration Basin	Rivers Bend Park Parking Lot	RR7	0.20 - 0.32	59 - 72	0.12 - 0.15	\$7,796 - \$9,796	\$225	\$7,660 - \$8,218
10	RR4-B	76	Hydrodynamic Device	Waco St.	RR4	0.5	200	0.0	\$55,752	\$630	\$12,442
11	RR2-B	68	Hydrodynamic Device	Xkimo St.	RR2	0.8	322	0.0	\$109,752	\$630	\$13,318
12	RR5-B	80	Hydrodynamic Device	142nd LN.	RR5	0.3	111	0.0	\$28,752	\$630	\$14,310
13	RR8-B	90	Hydrodynamic Device	142nd Ave.	RR8	0.2	108	0.0	\$28,752	\$630	\$14,707
14	RR3-B	72	Hydrodynamic Device	Waco St.	RR3	0.4	167	0.0	\$55,752	\$630	\$14,901
15	RR8-C	91	Hydrodynamic Device	Xkimo St.	RR8	0.5	220	0.0	\$109,752	\$630	\$19,493

¹ [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TSS Reduction/1,000)]

Appendix H

Draft LRRWMO Goal Tracking Worksheet

Appendix H – Draft Goal Tracking Worksheet

Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output	Status (updated biannually)	Notes
Stormwater Management	Level 1	SW-A	Reduce phosphorus loading by 10 lbs/year and sediment loading by 10 tons/year to the Rum River through retrofit or redevelopment of stormwater systems with limited or no existing water quality treatment	Retrofit/ redevelopment projects: 5 over 10 years; TP reduction: 10 lbs/year total; TSS reduction: 10 tons/year total	Number of relevant retrofit/ redeveloped projects: _____ TP reduction: _____ TSS reduction: _____	
		SW-B	Manage stormwater runoff with practices that mimic natural hydrology by infiltrating a volume equivalent to 1.0 inches over new and redeveloped or existing impervious surfaces for at least 90% of permitting projects	Reviewed projects: 90% of projects achieving goals through abstraction/infiltration	Number of reviewed projects: ____ Number of reviewed projects with abstraction/infiltration: _____ Percent of projects with abstraction/infiltration: _____	
		SW-C	Infiltrate an additional 5 acre-feet per year through retrofit or redevelopment of existing stormwater systems with limited or no volume reduction	Retrofit/redevelopment projects: 5 over 10 years; Volume reduction: 5 acre-feet/year total;	Number of relevant retrofitted redeveloped projects: _____ Volume reduced with above projects: _____	
		SW-D	Achieve intended water quality and quantity function from stormwater infrastructure through required inspection and maintenance of City facilities and establishment of maintenance agreements for 100% of LRRWMO-permitted projects	Summary of maintenance agreements submitted with SWPPPs; annual reports from cities	Number of projects with maintenance agreements: ____ Did cities meet their inspection and maintenance guidelines (Y/N): _____	

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Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output	Status (updated biannually)				Notes
						Round Lake	Grass Lake	Rum River	
Surface Water Quality	Level 1	WQ-A	Maintain or improve existing water quality in priority LRRWMO waterbodies: - Grass (Sunfish) Lake: (TP= 14 µg/L, Chl <i>a</i> = 5.8 µg/L, SD = 1.3 m) - Round Lake: (TP = 31 µg/L, Chl <i>a</i> = 7.9 µg/L, SD = 2.9 m) - Rum River: (TP = 100 µg/L, TSS = 30 mg/L)	Water quality monitoring results					
				TP (µg/L)					
				TSS (mg/L)					
				SD (m)					
		WQ-B	Maintain TP in the Rum River below 100 µg/L by reducing phosphorus loading to the Rum River from the LRRWMO by 100 lbs/year through non-structural and structural improvements (e.g., streambank stabilization) (supporting the 5% TP load reduction of the Rum River 1W1P)	Water quality monitoring results; TP reduction: 100 lbs/year; at least 2 capital improvements/restoration projects				Rum River average TP (µg/L): ____ TP reduction lb per year: ____ Number capital improvements/restoration projects: ____	
		WQ-C	Maintain TSS in the Rum River below 30 mg/L by reducing TSS loading to the Rum River by 75 tons/year through non-structural and structural improvements (e.g., streambank stabilization) (see also goal ES-A) (supporting the 5% sediment load reduction of the Rum River 1W1P)	TSS reduction: 75 tons/year; at least 2 capital improvements/restoration projects				Rum River average TSS (mg/L): ____ TSS reduction tons per year: ____ Number capital improvements/restoration projects: ____	
		WQ-D	Promote practices to reduce bacteria loading to the Mississippi River and Rum River through targeted outreach and education to achieve bacterial water quality standards (126 CFU/mL monthly geometric mean, April–October) in the Mississippi River (Upper Mississippi River Bacteria TMDL)	Educational distributions (at least 1 per year) addressing topics (e.g., pet waste, vegetated buffers, SSTS maintenance)				Number of educational distributions that occurred: ____ Bacteria-related topics addressed: ____	

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Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output	Status (updated biannually)	Notes
Surface Water Quality	Level 1	WQ-E	Work towards achieving MPCA water quality standards applicable to the Mississippi River (TP < 100 mg/L, TSS < 30 mg/L) by reducing phosphorus loading to the Mississippi River from the LRRWMO by 30 lbs/year through non-structural and structural improvements (e.g., streambank stabilization)	Water quality monitoring results; TP reductions from projects in the Mississippi River watershed: 30 lbs/year;	MS River average TP (µg/L): ____ TP reduction lb per year: ____ Number capital improvements/restoration projects: ____	
		WQ-F	Work towards achieving MPCA water quality standards applicable to the Mississippi River (TP < 100 mg/L, TSS < 30 mg/L) by reducing sediment loading to the Mississippi River from the LRRWMO by 25 tons/year through non-structural and structural improvements (e.g., streambank stabilization)	Water quality monitoring results; TSS reductions from projects in the Mississippi River watershed: 25 tons/year;	MS River average TSS (mg/L): ____ TSS reduction tons per year: ____ Number capital improvements/restoration projects: ____	
		WQ-G	Promote increased dissolved oxygen concentrations in Trott Brook (towards 75% of samples above 5 mg/L) over 10 years through education for riparian landowners, targeted pollution prevention practices (to reduce phosphorus and organics), and identification of shoreline restoration opportunities.	Water quality monitoring results; Targeted education materials; projects implemented in Trott Brook watershed; review of riparian restoration opportunities	Percent of Trott Brook DO samples over 5 mg/L: ____ Number of education events: ____ Number of projects in Trott Brook watershed: ____ Status of riparian opportunities: ____	
		WQ-H	Achieve 100% of member communities implementing MPCA recommended best practices for chloride management	City MS4 practices; education distributions (at least 1 per year) addressing topics	Status of MS4 chloride practices: ____ Number/type of education distributions addressing chloride: ____	

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Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output	Status (updated biannually)	Notes
Flood Risk and Water Quantity	Level 2	FL-A	Maintain existing floodplain volume and function (i.e., no net loss)	LRRWMO performance standards enforced on permitted projects; city official controls maintained	Number of permits for projects that involved floodplain regulations: _____	
		FL-B	Limit flood risk to structures through the implementation of minimum building elevations and rate control standards for new development and redevelopment	LRRWMO performance standards enforced on permitted projects; city official controls maintained	Number of permits for projects with minimum building elevation: _____ Number of permits for projects that had rate control: _____	
		FL-C	Mitigate negative impacts of climate change by considering present and future climate and precipitation trends when evaluating LRRWMO performance standards at least once during Plan implementation	Review of LRRWMO performance standards	Have the negative impacts of climate change been reviewed since plan implementation (Y/N)? _____	
		FL-D	Evaluate water levels in LRRWMO priority waterbodies to evaluate hydrologic impacts of climate change, development, and other drivers	Water level and hydrology monitoring data	Was there a change in average water level in any of the LRRWMO water body (Y/N)? _____ If change, which water body and what was the water level change in (feet)? _____	
Erosion and Sedimentation	Level 2	ES-A	Reduce sediment loading from streambank erosion along the Rum River by approximately 75 tons/year through streambank stabilization and restoration actions over an estimated 500 feet. (see also goal WQ-C) (supporting the 5% sediment load reduction of the Rum River 1W1P)	2+ projects totaling 500 feet of shoreline and 75 tons/year TSS reduction over 10 years	Amount of shoreline in feet that has been improved with projects: _____ TSS reduction ton/year: _____ Number of projects: _____	
Wetlands, Shorelands, and Natural Areas	Level 2	NA-A	Work with partners to minimize the spread and negative impact of aquatic invasive species	Cooperative opportunities; education distribution (at least 1 per year) addressing topics; supporting programming of the Anoka County aquatic invasive species coordinator	Number of education events: _____ Were programs held with the Anoka County aquatic species coordinator? What type?: _____	
		NA-B	Minimize negative impacts to wetlands through continued administration of the Wetland Conservation Act	Wetland permitting process and LRRWMO performance standards	Number of permits requiring WCA action: _____ Wetland education efforts: _____	

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Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output	Status (updated biannually)	Notes
Groundwater Management	Level 2	GW-A	Cooperate with partners to limit pollutant loading to groundwater through coordinated education efforts and providing technical assistance, as requested	Cooperative opportunities; education distribution (at least 1 per year) addressing topics	Number/type of education distributions: _____ Annual coordination with Anoka County (dates): _____	
Regulatory Program Efficacy	Organization	RP-A	Improve regulatory efficiency and environmental benefits through regular (annual) review and in-depth review/updates to the LRRWMO rules and permit program at least once every five years	Review of performance standards; % of complete applications acted on in prescribed timeframe; % of permits inspected consistent with City requirements; % of applicable maintenance agreements filed with Cities;	Date of standards review: _____ Percent on-time reviews: _____ Percent inspected consistent with City requirements: _____ Percent maintenance agreements filed: _____ City annual reports reviewed?: ___	
		SW-A	Minimize increases in loading of nutrients, sediment, and other pollutants to downstream water resources resulting from development and redevelopment through the continued implementation of the LRRWMO rules and permit program	Reviewed projects: 100% of applicable projects (est. 150 over 10 years) TP prevention: 800 lbs/year total; TSS prevention: 80 tons/year	Number of projects reviewed: ___ Percent projects reviewed: _____ Total TP prevention: _____ TSS prevention: _____	
Funding and Capacity	Organization	FC-A	Evaluate the implementation and effectiveness of LRRWMO programs and activities and adjust activities using an adaptive management approach	Review of performance standards; annual meeting with city staff; annual report/progress assessment; plan amendments (as needed)	Date of annual meeting: _____ Review of City annual reports completed: _____ Progress assessment complete: ___ Do plan amendments need to be made (Y/N)?: _____	
		FC-B	Increase the use of grant funding and cost-share opportunities to achieve LRRWMO goals by pursuing at least 5 grant opportunities and/or cost-share projects over 10 years	5 grants/cost-share applications over 10 years	Number of grant/cost share applications submitted: _____	
		FC-C	Coordinate with cities and partners to most efficiently achieve LRRWMO goals through shared expertise and resources	TAC meetings (at least 1 per year)	Number of TAC meetings: _____ Number of partner projects: _____	
		FC-D	Work with partners to consider and incorporate recreational benefits in coordination with LRRWMO programs and projects	Meetings with partners (1+ per year)	Number of partner meetings: ___ Partner projects reviewed: _____	

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Issue Area	Priority Level	Goal ID	Goal Statement	Measure/Output	Status (updated biannually)	Notes
Education and Engagement	Organization	ED-A	Increase public awareness and support for LRRWMO actions through education and engagement activities (see Section 5.3.3)	ACD education coordinator actions; City articles (4 per year); CAC meetings (2 per year); Education Plan; Events attended, stakeholder group meetings (adapted from Rum River 1W1P); See Section 5.3.3	Education plan complete: _____ Number of city articles: _____ Number of CAC meetings: _____ ACD education activities: _____ _____ _____	
		ED-B	Increase community capacity to engage in behaviors and practices to improve the quality of water and natural resources through education and at least 1 volunteer opportunity per year (see Section 5.3.3)	ACD education coordinator actions; City articles (4 per year); CAC meetings (2 per year); Volunteer opportunities (1 per year); Education Plan; Events attended, stakeholder group meetings (adapted from Rum River 1W1P); See Section 5.3.3	Education plan complete: _____ Number of city articles: _____ Number of CAC meetings: _____ ACD education activities: _____ _____ Volunteer opportunities: _____ _____	

Note: Goal ID is used to correlate implementation actions to applicable goals