Lac qui Parle-Yellow Bank Comprehensive Watershed Management Plan

Developed for the

Lac qui Parle – Yellow Bank Watershed Partnership

January 2023

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List of Abbreviations

AqL	Aquatic Life
AqR	Aquatic Recreation
BWSR	Minnesota Board of Water and Soil Resources
CDL	Cropland Data Layer
CEC	Contaminants of Emerging Concern
CWMP	Comprehensive Watershed Management Plan
CRP	Conservation Reserve Program
DO	Dissolved Oxygen
EPA	Environmental Protection Agency
GIS	Geographic Information System
HSPF	Hydrologic Simulation Program-FORTRAN
LqP-YB	Lac qui Parle – Yellow Bank
LqP-YB WD	Lac qui Parle – Yellow Bank Watershed District
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MOA	Memorandum of Agreement
MPCA	Minnesota Pollution Control Agency
MSHA	MPCA Stream Habitat Assessment
N	Nitrogen
NGP	Northern Glaciated Plains
NOAA	National Oceanic and Atmospheric Administration
NWR	National Wildlife Refuge
P	Phosphorus
PFAS	per and polyfluroalkyl substances
PPCP	Pharmaceuticals and personal care products
PTMApp	Prioritize, Target, and Measure Application

1W1P	One Watershed, One Plan
RIM	Reinvest in Minnesota
SSTS	Subsurface Sewage Treatment System
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TSS	Total Suspended Solids
TSA	Technical Service Area
USDA-NASS	US Department of Agriculture – National Agricultural Statistics Service
WHAF	Watershed Health Assessment Framework
WBIF	Watershed-based Implementation Funding
WCBP	Western Corn Belt Plains
WMA	Wildlife Management Area
WPLMN	Watershed Pollution Load Monitoring Network
WRAPS	Watershed Restoration and Protection Strategy

A. Executive Summary

A. Executive Summary

The Lac qui Parle – Yellow Bank (LqP-YB) Watershed in southwest Minnesota is an agriculturally rich watershed with fertile soils, gently rolling topography, and surface waters enjoyed for recreation. With approximately 10,000 residents, the LqP-YB Watershed overlaps three counties: Lac qui Parle County, Yellow Medicine County, and Lincoln County. Approximately 30.9% of the LqP-YB Watershed is in South Dakota, and many of the surface waters originate in South Dakota. The LqP-YB Watershed encompasses the Lac qui Parle Watershed (HUC 08) and four smaller watersheds, the North and South Fork Yellow Bank Watersheds, the Marsh Lake Watershed, and the Lac qui Parle Reservoir Watershed (HUC 10s).

Water flowing on the landscape does not follow traditional political boundaries. Because of this, resource management at a watershed scale rather than at political ones has become necessary to manage water resources. The LqP-YB Comprehensive Watershed Management Plan (CWMP) planning area was created based on hydrological flow patterns, watershed districts, boundaries with South Dakota, as well as preexisting neighboring watershed boundaries (**Figure A.1**).

The resulting CWMP contains 970 square miles or 622,700 acres. The towns located within the Watershed include Bellingham, Boyd, Burr, Canby, Dawson, Hendricks, Lac qui Parle Village, Louisburg, Madison, Marietta, Nassau, and Rosen.

The LqP-YB CWMP was developed between 2021-2023 through the One Watershed, One Plan (1W1P) program administered by the Minnesota Board of Water and Soil Resources (BWSR; Minnesota Statutes §103B.801). The CWMP will guide watershed partners including local counties, Soil and Water Conservation Districts, the LqP-YB WD, and other local stakeholders through the implementation processes to restore, protect, and ensure the Watershed's water management and sustainability moving forward.

Administration and Coordination

CWMP planning began with a Memorandum of Agreement (MOA; **Appendix A**) between cooperating local governmental agencies and organizations, including:

- Lac qui Parle, Lincoln, and Yellow Medicine Counties
- Lac qui Parle, Lincoln, and Yellow Medicine SWCDs
- The Lac qui Parle-Yellow Bank Watershed District (LqP-YB WD)
- The Area II Minnesota River Basin Projects

Throughout the planning process, guiding committees have developed and detailed the CWMP for implementation. These committees include:

- **Policy Committee** which is comprised of board members from counties, SWCDs, LqP-YB WD, and other local groups. The policy committee represented their respective organizations, as well as guided general decision-making regarding the CWMP

- **Advisory and Steering Team** which are composed of members from SWCDs, LqP-YB WD, counties, landowners, city and township officials, and other stakeholders including state agencies

such as BWSR, Minnesota Department of Natural Resources (MDNR), Minnesota Department of Agriculture (MDA), Minnesota Department of Health (MDH), Minnesota Pollution Control Agency (MPCA).

For plan implementation, these groups continue much of their responsibilities (full responsibilities outlined in **Section F**). The Policy Committee continues to guide decision making and works closely with BWSR for implementation. The Advisory and Steering Team will provide reports and develop working plans.

Planning Regions

Due to the varied topography and surface water features throughout the LqP-YB Watershed, planning regions were developed to best implement priorities in an effective manner. The 10 planning regions in the CWMP can be seen in **Figure A.1** and were generated based on land use, hydrology, geology, and vegetation. Implementation of this plan will occur based on these defined planning regions derived from issue prioritization which has occurred in each region.

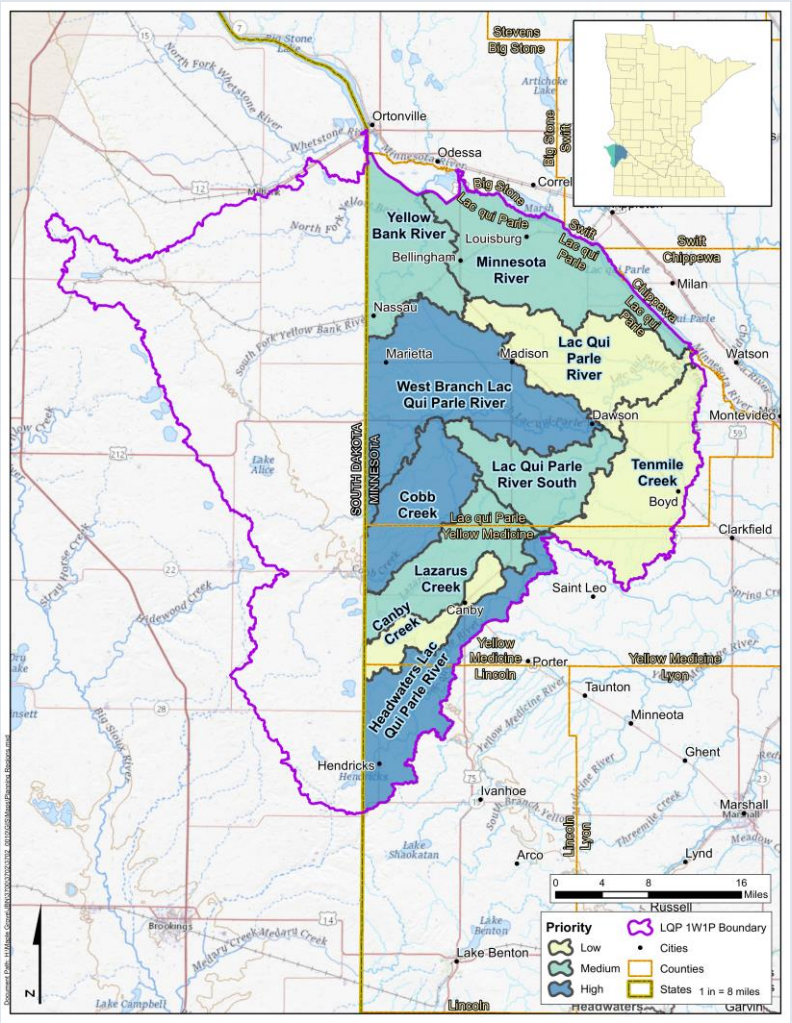


Figure A.1. LqP-YB Planning Regions with issue prioritization (see **Section D**).

Issue Prioritization

To identify and prioritize issues both on a watershed and planning region scale, a planning process occurred with public input. Public participation consisted of an online survey and a kick-off meeting where members of the community could provide feedback about resource concerns in the watershed to begin identifying issues. Public participation identified four areas of resource concern: groundwater (including drinking water), surface water (including lakes and streams, erosion), land stewardship (including soil health and planning for future climate), and habitat (including wildlife and wetlands) (**Figure A.2**).

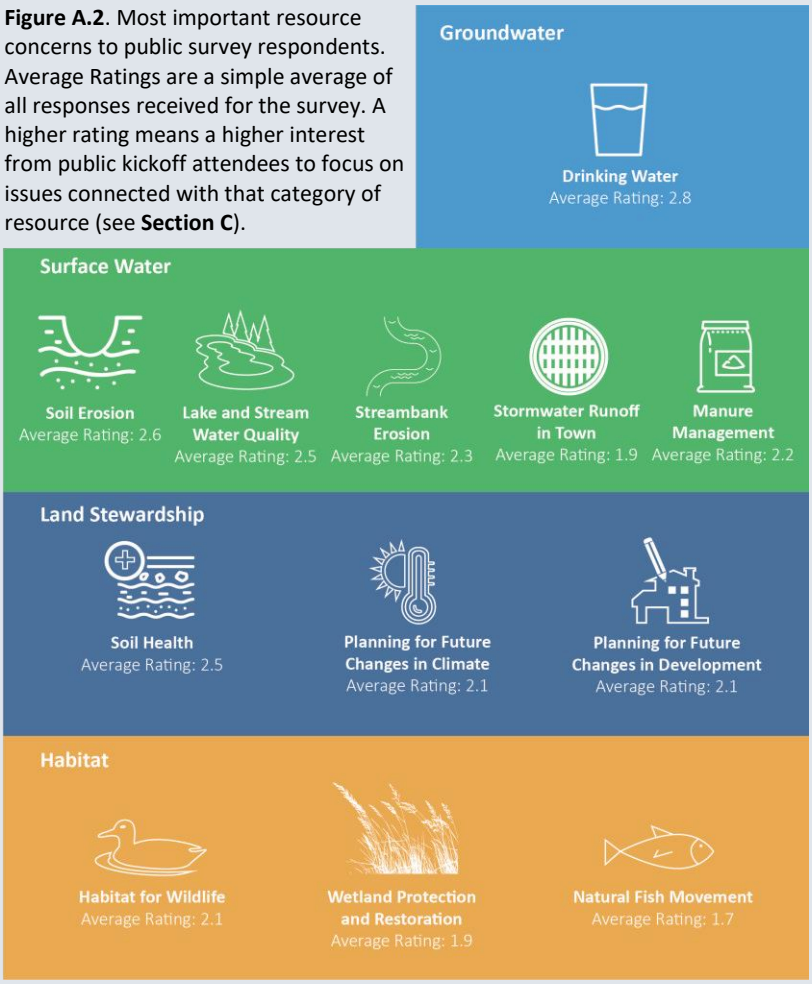
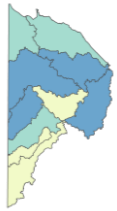


Figure A.2. Most important resource concerns to public survey respondents. Average Ratings are a simple average of all responses received for the survey. A higher rating means a higher interest from public kickoff attendees to focus on issues connected with that category of resource (see **Section C**).

Watershed-wide issues were then selected by the committees based on public feedback, existing studies, and current local knowledge of concerns and divided into four priority levels: high (**Table A.1**), medium-high (**Table A.2**), medium, and low. High priority items are the initial focus for plan implementation, medium-high issues will be addressed with additional funding, medium priority items will receive attention if time and funding allow, and low priority issues will likely not be addressed in the 10-year timeframe of the plan but may be moved up in priority in plan updates based on current needs. The high and medium-high watershed-wide issues were then geographically prioritized as high, medium, and low priority for each planning region based on the needs of each planning region (**Table A.1**, **Table A.2**). This geographic prioritization was completed to address the variation in the prevalence of issues across the planning area.

High Priority Issues

Table A.1. Planning Region Prioritization Key: = high priority = medium priority = low priority

Resource Category	Resource	Issue	Planning Region Prioritization	Description
Groundwater	Drinking Water	Groundwater contamination of public water supplies		Groundwater contamination, specifically of public water supplies including arsenic, nitrates, and pesticides
Land Stewardship	Agricultural Lands	Soil health		Reduction in soil organic matter resulting in less water-holding capacity, lack of rainfall infiltration, higher erosion and nutrient loss, as well as lower agricultural productivity
Land Stewardship	Rural and Urban Areas	Changes to land use, land cover, and land management that affect habitat, drainage, flooding, and erosion		Increases in land use changes such as removing vegetation, creating impervious surfaces, and removing surface and subsurface storage areas that have impacts to resources in the planning area. Through the stakeholder engagement process for this plan, the planning partners identified this issue as a need to maintain and improve current conditions. There is not a perception that large amounts of conversion are currently occurring.
Surface Water	Streams and Drainage Systems	Excess runoff that transports contaminants to surface waters		Excess runoff from increased precipitation or rapid snowmelt causing impacts to downstream waters (e.g., *E. coli,* sedimentation, nutrients, pesticides) that may drive water quality impairments.

Surface Water	Streams and Drainage Systems	Surface water quality impairments (DO, AqL, AqR, pH, *E. coli*, mercury, biological)		Aquatic life and recreation impairments caused by TSS, DO, P, N, pH, *E. coli*, mercury, temperature, and other contaminants.
Surface Water	Streams and Drainage Systems	Connectivity and hydrologic changes that degrade streams and drainage systems		Hydrologic changes such as altered hydrology, dams, bridges, and culverts causing flow conditions (e.g., low base flow, increased peak, and base flows) that degrade the quality streams, and longitudinal (upstream and downstream) connectivity issues for aquatic fish and macroinvertebrates.
Surface Water	Streams and Drainage Systems	In-channel erosion contributing to impacts on water quality and habitat		Includes streambank erosion, channel stability, and channelization that have a negative impact on water quality, infrastructure and aquatic habitat associated with lateral (floodplain) connectivity.
Surface Water	Streams and Drainage Systems	Accelerated erosion leading to sedimentation and other water quality issues		Accelerated soil, wind, and stormwater erosion leading to turbidity, sedimentation, and other water quality issues. Notwithstanding, many in the watershed have a long history of adopting conservation measures.

Medium-High Priority Issues

Table A.2. Planning Region Prioritization Key: = high priority = medium priority = low priority

Resource Category	Resource	Issue	Planning Region Prioritization	Description
Groundwater	Aquifer	Decreased groundwater recharge and supply		Any decrease in groundwater or aquifer availability that may result in an impact to water supplies (quantity).
Groundwater	Drinking Water	Contamination of private wells		Pollutants entering into a private well that may impact the use of the water supply.
Land Stewardship	Rural and Urban Areas	Flood damages to private and public lands		Flood damage to crops, ag land, urban areas, infrastructure, and Lac qui Parle State Park resulting from channel debris, land use changes, improperly sized culverts and bridges, and other causes.

Land Stewardship	Rural and Urban Areas	Subsurface sewage treatment systems and small communities with wastewater needs		Small communities with wastewater needs and failing septic systems contributing *E. coli* to surface water.
Habitat	Aquatic Habitat	Loss of aquatic habitat		A decrease in the quantity or quality of available aquatic habitat. May be driven by landscape changes that result in changes to aquatic systems such as dams, and undersized or perched culvert crossings. May result in impacts to aquatic species and result in biological impairments.

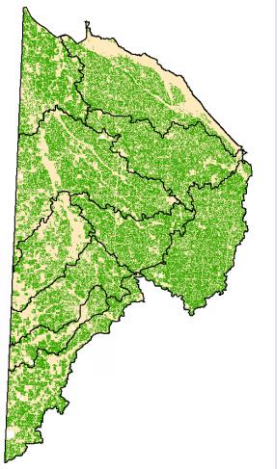
Measurable Goals

To successfully implement the CWMP and make progress towards improving priority issues, setting and tracking measurable goals are essential. Demonstrating progress towards goals over the 10-year timeframe of this plan will ensure its success. To do this, specific, measurable outcomes were set to track progress (**Table A.3**). Like issue prioritization, measurable goals were set on both on the watershed scale and for each planning region.

Prioritize, Target, and Measure Application (PTMApp), a geographic information system (GIS) tool, was used in this plan to develop goals and identify the locations of practices that would both be effective in cost and outcome over the 10-year course of this plan. PTMApp projections allow for setting of specific goals related to surface waters, sediment, nutrient loading, and altered hydrology. Locations identified as priority areas by the Committees were a focus of these goals. The Total Maximum Daily Load (TMDL) and Watershed Restoration and Protection Strategy (WRAPS) were utilized in PTMApp projections and helped define measurable goals for the CWMP. Below is an example of a watershed-wide goal. More specific goals for each planning region were also developed using PTMApp, with resource specific targets identified.

Example Goal

Soil Health (Watershed-Wide Goal)



Short-Term:

- Treat 40,000 acres of working lands, including acres with existing conservation practices
- Implement soil health practices and increase soil organic matter on 20% of acres

Long-Term:

- Treat all acres in watershed, including acres with existing conservation practices
- Implement soil health practices and increase soil organic matter on 70% of acres

Example Table. Multiple benefits addressed through progress towards the watershed-wide soil health goal

Priority Issue	Assessing Progress
Groundwater contamination of public water supplies	Reduced nitrate and other contaminants concentrations
Excess runoff that transports contaminants to surface waters	acre-feet of storage
Water quality impairments (DO, AqL, AqR, pH, E. coli, mercury, biological)	tons/year of sediment lbs/year of total phosphorus lbs/year of total nitrogen
Accelerated erosion leading to sedimentation and other water quality issues	tons/year of sediment
Flood damages to private and public lands	acre/feet of storage

Table A.3. Measurable goals outlined in **Section D**.

Measurable Goal	Short-Term Goal(s)	Long-Term Goal(s)
Soil Health	❍ Treat 40,000 acres of working lands, including acres with existing conservation practices ❍ Implement soil health practices and increase soil organic	❍ Treat all acres in watershed, including acres with existing conservation practices ❍ Implement soil health practices and increase soil organic matter on 70% of acres
Testing and Sealing of Private Wells	❍ Conduct one outreach event per year about well testing and sealing for private well owners ❍ Host one well testing clinic per year ❍ Seal 10 wells per year	❍ Provide resources and host well testing clinics for private well users to have their wells tested for Coliform Bacteria (yearly), Nitrate (biennially), Arsenic, Lead and Manganese (all once) ❍ Seal all unused wells
Subsurface Sewage Treatment Systems and Small Communities with Wastewater Needs	❍ Replace 10 failing or imminent public health threat SSTS per year ❍ Metric: Number of replaced SSTS	❍ Replace all failing or imminent public health threat SSTS
Decreased groundwater recharge and supply	❍ Host two education and outreach events per year focused on ways to conserve groundwater	❍ Monitor and maintain aquifer levels over time
Groundwater contamination of public water supplies	❍ 20 Outreach events	❍ Continued outreach ❍ Testing of drinking water supplies to ensure no degradation
Changes to land use, land cover, and land management that affect habitat, drainage, flooding, and erosion	❍ Increase continuous cover by 5%, while maintaining existing cover	❍ Increase continuous cover by 10%, while maintaining existing cover
Excess runoff that transports contaminants to surface waters	❍ Increase storage by 0.05 inch (2,934 acre-feet)*	❍ Increase storage by 0.39 inch (22,880 acre-feet)*

Measurable Goal	Short-Term Goal(s)	Long-Term Goal(s)
Surface water quality impairments (DO, AqL, AqR, pH, *E. coli*, mercury, biological)	❍ Phosphorus – 10% reduction in annual loading (6,384 lbs/year) ❍ Bacteria – 10% reduction in bacteria concentration ❍ Total Nitrogen – 10% reduction in annual loading (140,764 lbs/year)	❍ Phosphorus – 35% reduction in annual loading (22,343 lbs/year) ❍ Bacteria – 52% reduction in bacteria concentration ❍ Total Nitrogen – 45% reduction in annual loading (633,436 lbs/year)
Connectivity and hydrologic changes that degrade streams and drainage systems	❍ Modify 10% of dams, culverts, and bridges that inhibit aquatic life ❍ 9 miles of channel restored	❍ All dams, culverts, and bridges allow for fish passage ❍ Restore all degraded channel beds
In-channel erosion contributing to impacts on water quality and habitat	❍ 9 miles of channel restoration	❍ Restore all degraded channel beds
Accelerated erosion leading to sedimentation and other water	❍ Reduce sediment by 10% or about 5,134 tons/year to reduce stressors on biological impairments	❍ Reduce sediment by 25% or about 12,834 tons/year to reduce stressors on biological impairments
Flood damages to private and public lands	❍ Increase storage by 0.05 inch (2,934 acre-feet)	❍ Increase storage by 0.39 inch (22,880 acre-feet)
Loss of Aquatic Habitat	❍ 5 miles of channel restoration	❍ Compare and reassess aquatic habitat based on MPCA's updated WRAPS

Targeted Implementation

To successfully implement the CWMP, a series of action tables were developed that outline actions that can be taken to address specific issues in the watershed, to the planning region scale. These action tables outline where and when the actions should be targeted, how they will be measured, and the costs of implementation. These tables can be found in **Section E** of the CWMP. There are seven implementation programs, as outlined in **Figure A.3.**

Figure A.3. Implementation Programs for implementing the targeted actions described in this plan section. These programs are full described in Section F. Plan Implementation Programs.

The plan will be implemented to the degree that funding is acquired over the course of the 10-year implementation period. The pace and process of implementation will be decided by local groups. There are three funding levels for the CWMP, described in **Table A.4.** The Partnership expects to implement at a Funding Level 2 and costs were developed in **Table A.5** with this as the assumed level of funding.

Table A.4. Funding Levels for the Lac qui Parle-Yellow Bank Comprehensive Watershed Management Plan

Funding Level	Name	Description
1	**Current Funding**	This level is based largely upon existing local funding sources. It assumes that this funding will continue during plan implementation.
2	**Current Funding + WBIF**	This level assumes current funding continues with the addition of an additional $625,000 per biennium (or $312,500/year) from WBIF.
3	**Added Resources**	This plan includes targeted actions that exceed the resources identified in funding levels 1 and 2. Funding level 3 acknowledges that resources beyond current funding and WBIF will be needed to achieve the targeted progress towards measurable goals.

Table A.5. Estimated cost of implementing the Lac qui Parle-Yellow Bank CWMP under Funding Level 2 (Current Funding + WBIF)

	Funding Level 2 Current + WBIF	
Implementation Programs	Est. Annual Cost	
Projects and Practices	$465,600	$4,656,000
Capital Improvement Projects	NA	NA
Data Collection and Monitoring	$6,080	$60,800
Outreach	$28,174	$281,739
Regulatory	$84,234	$842,335
Operations and Maintenance	$15,840	$158,400
Administration and Technical	$359,374	$3,593,738
Total	$954,801	$9,548,012

B. Land and Water Resources Narrative

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Introduction

The LqP-YB Watershed is a region with a rich agricultural heritage located in southwest Minnesota. Two of the watershed's major rivers, the Lac qui Parle and the Yellow Bank, are sourced in South Dakota and flow north and east to drain into the Minnesota River at the watershed's boundary.

The LqP-YB Watershed planning area encompasses the Minnesota portions of one major (HUC 08) watershed, the Lac qui Parle, and four HUC 10 subwatersheds, the North and South Fork Yellow Bank subwatersheds, the Marsh Lake subwatershed, and the Lac qui Parle Reservoir subwatershed. Minnesota contains roughly 760 square miles (486,400 acres) of the total area for the Lac qui Parle River Watershed (approximately 1,100 square miles or 704,000 acres), while South Dakota's portion is approximately 340 square miles (217,600 acres). The total area for the HUC 10 watersheds is approximately 600 square miles (384,000 acres) of which 210 square miles (134,400 acres) are in Minnesota and the remaining 390 square miles (249,600 acres) are in South Dakota.

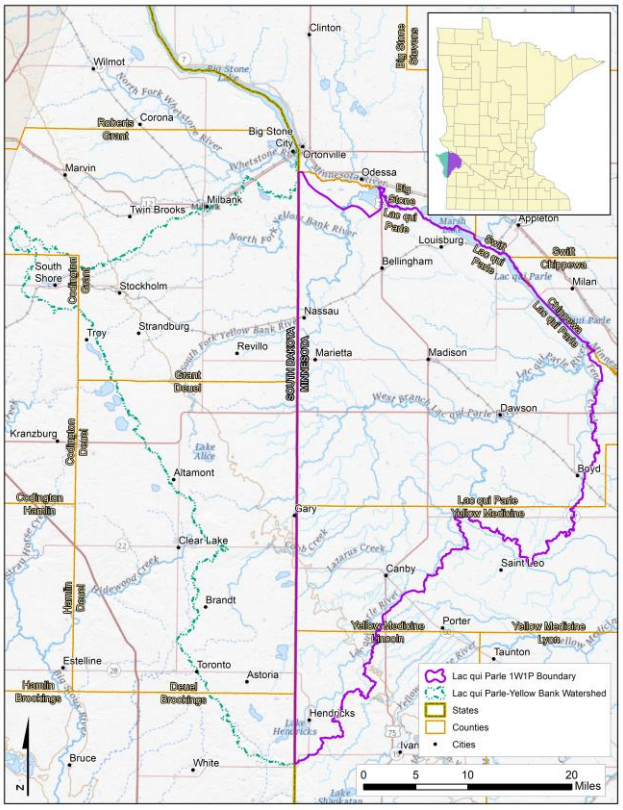


Figure B.1. Lac qui Parle – Yellow Bank Location Map

The LqP-YB CWMP planning area combined these watersheds based on hydrologic flow, watershed district, and neighboring watershed boundaries. The resulting CWMP planning area is approximately 970 square miles (620,800 acres) (**Figure B.1**). The LqP-YB planning area overlaps three Minnesota counties: Lac qui Parle County,

Yellow Medicine County, and Lincoln County. Minnesota towns within the watershed include Nassau, Marietta, Bellingham, Louisburg, Madison, Dawson, Boyd, Canby, Lac qui Parle Village, Burr, Rosen, and Hendricks. Canby is the most populated city in the watershed at just over 1,700 residents.

History

Lac qui Parle means “the lake that speaks” and is the French translation of the Dakota name for the lake, though there is some debate about why. Whether it’s the chorus of waterfowl piercing an otherwise quiet morning (DNR, 2021c); bluffs that respond to a caller by echo; or the creaking, groaning, and whistling of the ice on the lake in the winter (Upham, 1920), the speaking lake—through multiple senses—connects listeners with the water.

The Lac qui Parle Mission neighbors present-day Lac qui Parle State Park where the Lac qui Parle River meets the Minnesota. The Mission was first established as a trading post along the Red River Trails. The West Plains Trail, one of the Red River Trails, is a series of ox cart trails that led fur traders between Canada and Saint Paul and ran along the Minnesota River (Minnesota Valley History Learning Center). The path of the West Plains Trail began as Native American footpaths that the Scottish and Métis traders in Pembina, Canada, used to transport furs to the American Fur Company in Saint Paul, MN.

Photo Credit: Lincoln County Water Management Plan

The Yankton and Yanktonai Dakota (Sioux, Očhéthi Šakówiŋ) populated the Minnesota River Valley prior to the Dakota War of 1862. During and after the war, many left or fled the region. Today, some Sioux communities remain along the Minnesota River.

Prior to European settlement, land cover was predominantly tallgrass prairie with scattered wetlands and some lowland and floodplain forest. The same ice sheet that created Lake Agassiz left behind prairie potholes—water-filled indentations in the prairies—throughout the Minnesota River Valley.

Since this time, an agrarian lifestyle has driven much of the character of the LqP-YB Watershed (**Figure B.4)**. Pigs and cattle are the principal livestock in the region while corn and soybeans are now the primary crops, replacing small grains (DNR, 2017).

Topography, Soils, and General Geology

Most of the geological features within the LqP-YB Watershed were formed during the Late Wisconsin glaciation (LqPYB Watershed District, 2009). Visitors and residents in the region can see glacial moraines that are exposed in the northern part of the watershed as well as in Lincoln County. Within the watershed, glacial till deposits of up to 400 feet overlay Cretaceous shale (LqPYB Watershed District, 2009).

One of the several important geological features in the watershed is the large valley containing the Minnesota River, which forms the northern boundary of the LqP-YB Watershed (LqPYB Watershed District, 2009). In some places, this valley forms deep crevices below the land surface. As the glaciers receded, glacial meltwater formed Lake Agassiz and the Red River Valley. In turn, drainage from Lake Agassiz created Glacial River Warren, which flowed through what is now the Minnesota River Valley.

Another prominent geologic feature in the watershed is the Coteau des Prairies. The Coteau des Prairies is a plateau composed of glacial deposits that extends from South Dakota toward the Missouri River, running slightly west of and parallel to the Minnesota River. Most of the streams in the LqP-YB Watershed originate in this highlands plateau (LqPYB Watershed District, 2009).

The steeper slopes along the bluffs of the Minnesota River Valley and the Coteau des Prairies contrast with the gently rolling topography of the LqP-YB Watershed. The dramatic change in elevation within the watershed is one cause of flooding in the region (LqPYB Watershed District, 2009). There is a 1,070-foot drop in elevation in the first 60 miles of drainage from the Coteau des Prairies and a 931-foot drop over the next 1,000 miles (LqPYB Watershed District, 2009) as the LqP-YB planning area transitions from the Northern Glaciated Plains (NGP) EPA Level III ecoregion in the west to the Western Corn Belt Plains (WCBP) in the east (**Figure B.2**). The NGP ecoregion has a flat to gently rolling topography with a high density of wetlands and very fertile soils (MPCA, 2021b). The WCBP ecoregion consists of level to gently rolling glacial till plains and hilly loess plains with warm, moist soils making it one of the most productive corn and soybean areas of the world (MPCA, 2021b). Soils across the watershed are largely calcareous till with silt, sand, and gravel along river floodplains.

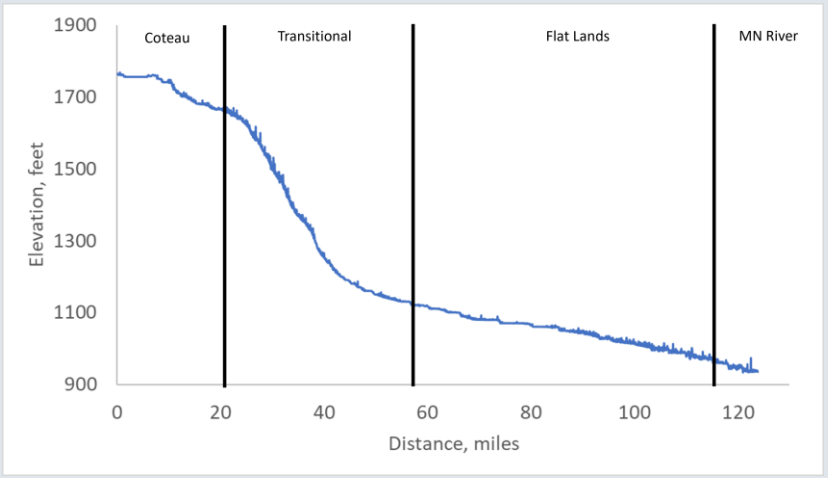


Figure B.2. Elevation Profile for the Lac qui Parle – Yellow Bank Planning Area

Existing Land Uses and Anticipated Land Use Changes

Water quality is closely linked with land use. Stream and riparian conditions influence habitat and sedimentation. Runoff contributes contaminants from the land, often increasing in speed and volume based on development and vegetation. Changing land uses in the LqP-YB Watershed have altered some stream courses to aid in both drainage of and irrigation for farmland in the region. **Figure B.3** shows the predominance of cultivated crops in the central region and hay/pasture in the southwest where the Coteau des Prairies crosses the watershed.

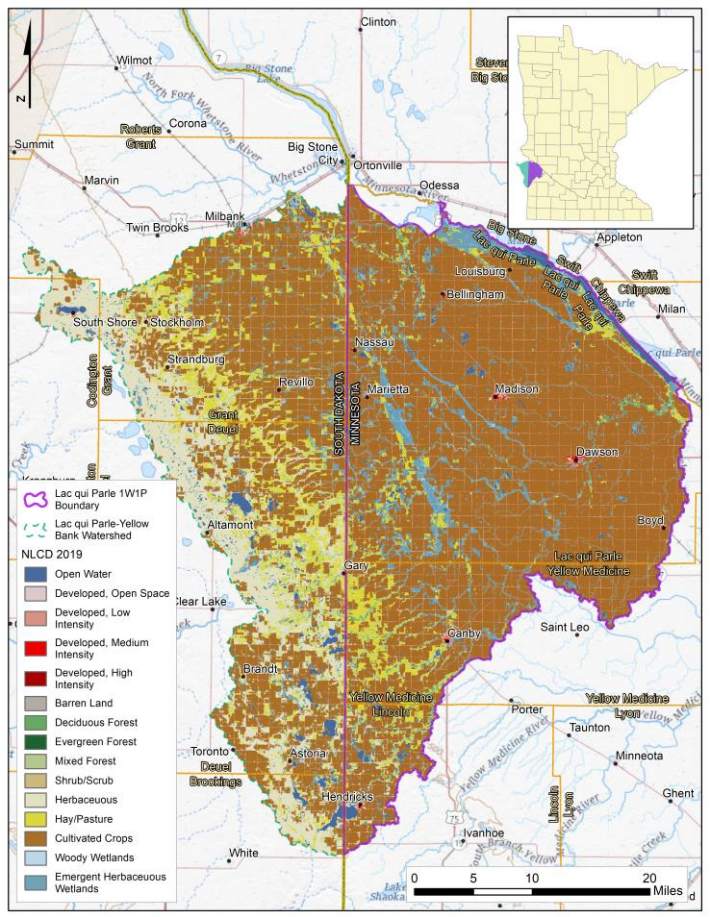


Figure B.3. Land Use in the Lac qui Parle - Yellow Bank Watershed

Currently, cropland comprises approximately 78% (487,800 acres) of the LqP-YB planning area (the planning area does not include the 30.9% of the watershed in South Dakota). According to the 2020 US Department of Agriculture – National Agricultural Statistics Service (USDA-NASS) Cropland Data Layer (CDL), corn and soybeans make up an overwhelming majority of agricultural production in the watershed (**Figure B.4**). Approximately 43% (216,100 acres) of the crops grown in the LqP-YB Watershed are soybeans, while 45% (227,500 acres) are corn. The remaining land area is wetland (15%, 91,000 acres), developed land (4%, 23,800 acres), and forest (1%, 7,600 acres). In comparison, the portion of the LqP-YB Watershed within South Dakota is only about 55% (252,700 acres) cropland but contains approximately 33% (150,600 acres) grassland/pasture (USDA-NASS, 2015). Corn and soybeans are the predominant crops.

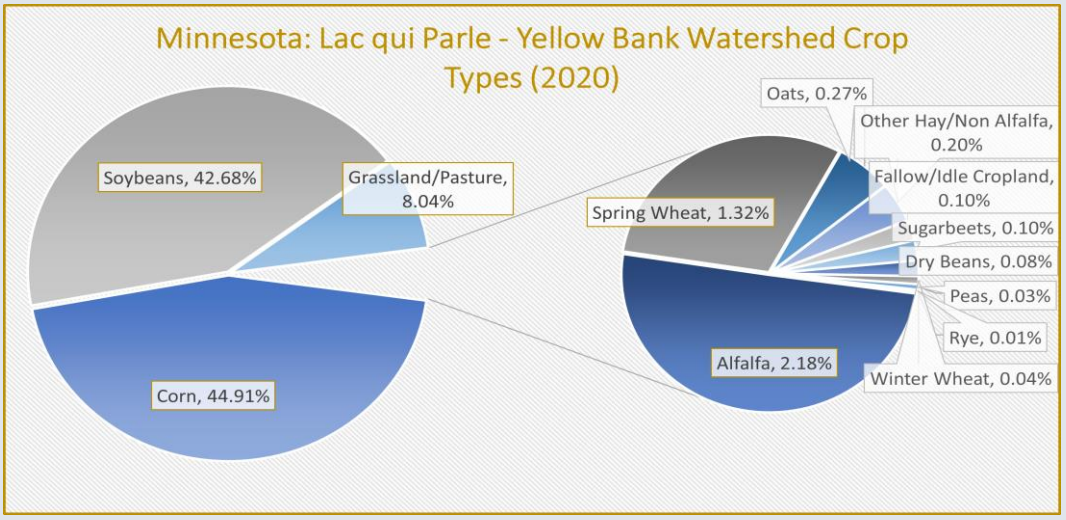


Figure B.4. Lac qui Parle - Yellow Bank Watershed Crop Types as Percent of Total Cropland (CDL, 2020)

Since the mid-1970s, small grains such as wheat and oats have largely been replaced with soybeans in the region (MPCA, 2021b). At the same time, the percentage of the watershed that has been planted to corn has increased nearly 15% since the mid-1980s. This land use change may contribute to changes in hydrology within the watershed (MPCA, 2021b). Land use in the LqP-YB planning area is expected to remain relatively consistent with current use during the implementation of the plan while new artificial drainage systems such as ditching and tiling continue to be installed. Previous agricultural drainage in the area focused on draining prairie potholes, while a renewed interest in drainage in the past two decades has seen increased use of pattern tiling to ensure proper growing conditions for farming operations (MGA, 2018).

Solar and wind energy are expanding in Minnesota, providing opportunities for economic growth and conservation. In 2014, wind energy supplied approximately 16% of electricity generated in Minnesota, with the state ranking in the top 10 for wind energy generation (MN Commerce Department). Already, wind farms line the Coteau des Prairies. Within LqP-YB 1W1P boundaries, there are 87 documented wind turbines, largely within Lincoln County (**Figure B.5**) (MnGeo, 2021). When implemented, wind and solar farms can provide opportunities to fund native habitat projects such as grassland and pollinator restoration using matching funds from energy companies (Minnesota Farmers Union, 2019).

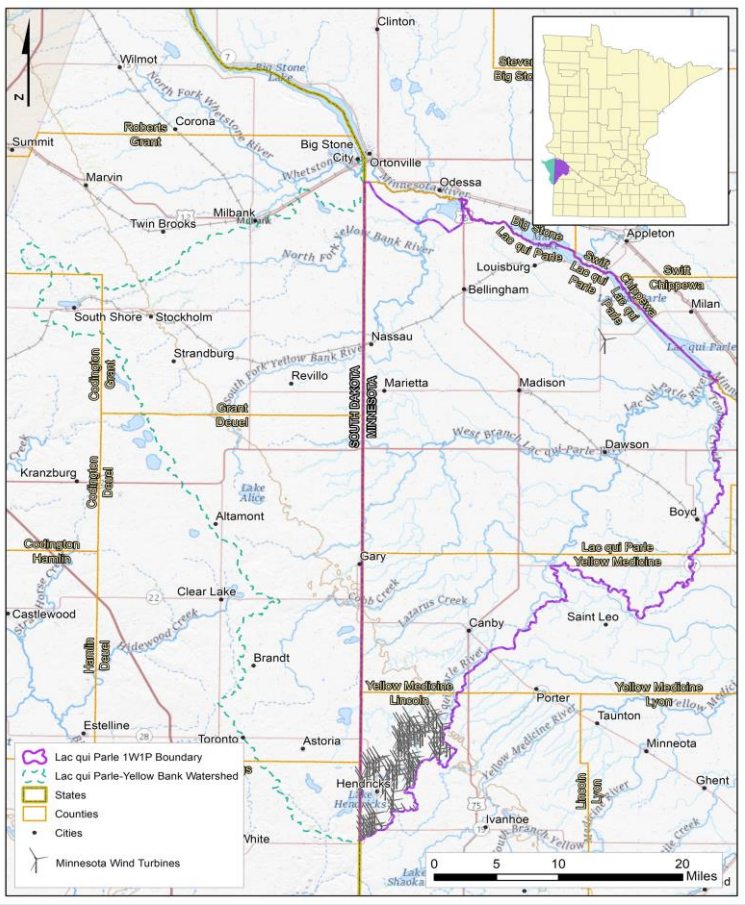


Figure B.5. Wind Turbines in the LQPYB Planning Area

Relevant Socio-Economic Information

As a rural watershed, the LqP-YB has a sparse population with concentrations of individuals residing in towns dotted across the landscape. There are 12.41 people per square mile in the Lac qui Parle Watershed, including cities (DNR, 2017). The cities in the watershed—Nassau, Marietta, Bellingham, Louisburg, Madison, Dawson, Boyd, Canby, Lac qui Parle Village, Burr, Rosen, and Hendricks—have an estimated total population of 6,200 (US Census Bureau, 2019). Based on census block groups, the approximate 2020 population for the LqP-YB Watershed was 10,274, up 7% from 2010 estimates (US Census Bureau, 2020).

Educational services, health care, and social assistance comprised the largest segment of civilian employment in Lac qui Parle County between 2014 and 2019 at 27% (US Census Bureau, 2019). Agriculture was the second most populous industry (13%) followed by manufacturing (12%) and retail trade (11%). In addition, Lac qui Parle County, through a combination of grants and local investments, is a state leader in developing rural broadband access.

At the time of writing the WRAPS report, there were no tracts within the planning area that met MPCA criteria as an area of concern with regards to environmental justice. More information about environmental justice can be found on the MPCA website.

Climate and Precipitation

LqP-YB Watershed residents are accustomed to the short growing seasons and hard winters that define this region's climate and way of life. The crop production season lasts from May through September, with the average first fall frost occurring October 2nd and the last freeze of the year occurring May 10th (LqPYB Watershed District, 2009). The average number of annual frost-free days is 144. The average annual season snowfall amounts to about 36 inches.

Climate Statistics

- Average Annual Temperature: 44.4°F
- Average Annual Precipitation: 26.5 inches
- Average Number of Frost-Free Days: 144 days
- Average First Fall Frost: October 2

Minnesota DNR's Watershed Health Assessment Framework provides watershed reports on climate and precipitation for each of the two major watersheds in the LqP-YB Watershed (DNR, 2019). For purposes of this narrative, the Lac qui Parle River Watershed is used as a proxy for the LqP-YB Watershed as a whole. Average annual precipitation for the 1989-2018 period in the Lac qui Parle River Watershed is 26.5 inches (DNR, 2019). The average annual temperature is 44.4°F.

Recent observations of the 30-year average temperature compared to the entire historical climate record (1895-2018) shows that in the Lac qui Parle River Watershed, the annual average temperature has increased 1°F from the historical average (DNR, 2019). At the same time, local stations show that precipitation has increased 2 inches from the historical annual average. Farmers in Minnesota are already preparing for the possibility that these trends will continue.

Photo Credit: Lac qui Parle-Yellow Bank Watershed District

Surface Water

Streams

The Lac qui Parle and Yellow Bank Rivers and most of their tributaries originate on the northeast slope of the Coteau des Prairies (LqPYB Watershed District, 2009). Runoff water from the steeply sloping land to the west flows down waterways and ravines, which merge to form numerous small creeks, most of them unnamed. These small creeks merge to form the major tributaries, which combine on the flood plains to form the major river channels in the watershed. The general flow direction is from southwest to northeast. There are 203 Public Water reaches in the watershed, including the major rivers, creeks, legal ditches, and many unnamed streams.

Originating in South Dakota, the Lac qui Parle River begins at the outlet of Hendricks Lake near the town of Hendricks, Minnesota (MPCA, 2021b). Several tributaries feed the Lac qui Parle River from South Dakota into Minnesota, either directly flowing into the main stem of the river (Lazarus and Canby Creeks) or into its West Branch (Lost, Crow, Monigham, Cobb, and Florida Creeks). The West Branch of the Lac qui Parle River joins the main stem near Dawson, Minnesota. Additionally, a smaller southern tributary (Ten Mile Creek) meets the Lac qui Parle River further downstream from Dawson near the watershed outlet. This river converges with the Minnesota River at Lac qui Parle State Park near the outlet of the Minnesota River Headwaters Watershed, about 9 miles northwest of Montevideo, Minnesota.

The Yellow Bank River has two main branches, the North and South Forks, which join in Yellow Bank Township, Lac qui Parle County. From that point, the river flows almost due north into the Upper Minnesota River Watershed District and discharges into the Minnesota River 3 miles south of Odessa (LqPYB Watershed District, 2009). The North Fork of the Yellow Bank River originates near Stockholm, in Grant County, South Dakota. It flows from there in a northeasterly direction and enters Minnesota in Yellow Bank Township, Lac qui Parle County. Most of the North Fork subwatershed is in South Dakota, with only a small portion in Minnesota. The South Fork of the Yellow Bank River originates at Lake Alice in Deuel County, South Dakota. It flows north into Grant County and then northeasterly, entering Minnesota near Nassau.

The Minnesota River begins to define the northern boundary of the LqP-YB Watershed 1W1P planning area just east of the Big Stone National Wildlife Refuge (NWR), where the river exits the Big Stone NWR

East Pool. The Minnesota River passes through Marsh and Lac qui Parle lakes before it exits the planning boundary just south of Lac qui Parle Lake.

Lakes

There are 157 public water basins in the LqP-YB Watershed; 26 of those are named. Of the 74 lakes identified in the DNR Shoreland Classification, only Lake Hendricks is classified as General Development. General and Recreational Development lakes attract recreational tourism opportunities, providing economic benefit to the area. The remaining lakes are classified as Natural Environment. Natural Environment lakes are generally less appealing for water recreation but serve as valuable fish and wildlife habitat. Hendricks Lake (1,530 acres), which straddles the border near the southern end of the watershed, and Del Clark Lake, near Canby, Minnesota, are important lakes to the citizens of the watershed. Lac qui Parle Lake and Marsh Lake are nationally significant for goose management and pelican nesting.

Del Clark Lake

Stormwater Systems, Drainage Systems, and Control Structures

Various types of modifications can change the way water has historically moved across a landscape. Developed, urban land accounts for 4% of the land cover in the LqP-YB Watershed. In these urban areas, contaminants such as motor oil, grass clippings, pesticides, and road salt can be carried by runoff into subsurface storm sewers, as impervious surfaces increase the speed and volume of water reaching a waterbody.

Across the LqP-YB Watershed, streams have been straightened to drain water from moist soils for agricultural production, though most ditching occurs in the north and east. At the same time, the conversion of prairie in the watershed has increased the overland flow of water and pollutants resulting from a decrease in groundwater infiltration/subsurface recharge. An increase in surface runoff has been associated with increases in the nonpoint source transport of sediment, nutrients, agricultural and residential chemicals, and feedlot runoff. In drained agricultural areas of the watershed, subsurface tile drainage pathways can also deliver pollutants to waterbodies. Altered watercourse scores for the major watersheds in the Lac qui Parle River Watershed range from 0-93 out of 100, with a mean score of 30 (DNR, 2015a). The DNR's altered watercourse scores in the Minnesota River Headwaters Watershed north of the Lac qui Parle River range from 1-100 (DNR, 2015b). In addition, the LqP-YB Watershed has numerous public drainage systems that support drainage and the maintenance of productive agricultural lands. **Figure B.6** shows public drainage systems in the watershed.

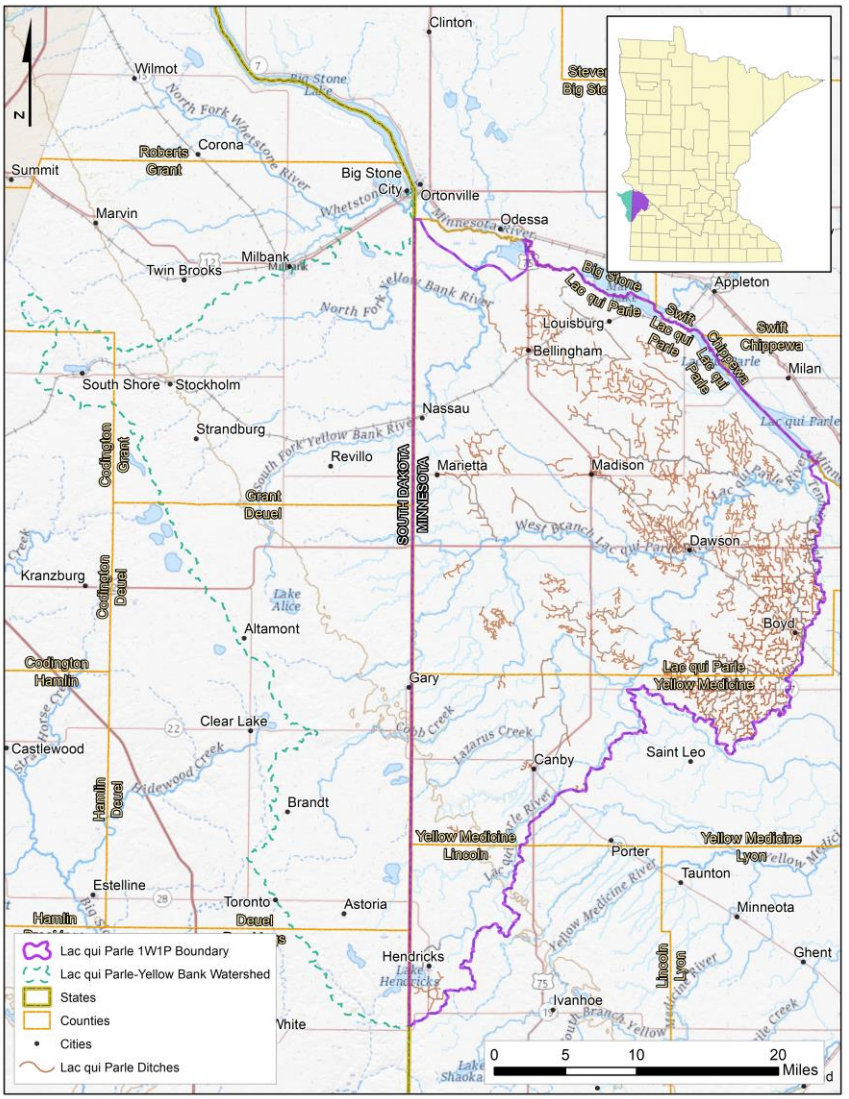


Figure B.6. Public Drainage Systems in the Lac qui Parle Watershed

Flooding can result from changes in land use as well as natural precipitation events, lateral connectivity (floodplain integrity), water tables, soil types, storage on the landscape, etc. The LqP-YB Watershed District was established to aid residents in controlling flooding (LqPYB Watershed District, 2009). Most flood damage in the watershed is from annual over-bank flooding of streams and tributaries during spring runoff or heavy summer precipitation events rather than major floods, causing damage to crops and agricultural land (LqPYB Watershed District, 2009).

Multiple dams, constricted road crossings, and control structures exist in the watershed, including those that prevent fish passage (MPCA, 2021b). Flood retention and storage are essential to saving lives and property in the LqP-YB Watershed and projects can be implemented to meet the needs of both aquatic life and flood damage reductions. Some dams in the watershed have been modified for fish passage. For example, a low-head dam on the West Branch of the Lac qui Parle River in Dawson was removed and

rock arch rapids were installed in its place, restoring fish migration potential to the river (MPCA, 2021b). In this way, floodwater retention and fisheries can have mutual benefits. Features such as rock arch rapids and expanded floodplains can retain water during high flows while providing fish passage.

Surface Water Quality

In 2021, the Minnesota Pollution Control Agency (MPCA) published the Watershed Restoration and Protection Strategy (WRAPS) report for the Lac qui Parle River Watershed (MPCA, 2021b). The WRAPS study for the Minnesota River Headwaters was completed in March, 2022. These associated monitoring efforts consist of assessing existing data and collecting new data, which result in the identification of waterbodies that do not meet state standards for water quality, as seen in **Figure B.7**.

Eleven creeks, rivers, and ditches were assessed in the Lac qui Parle River Watershed WRAPS process, counting the West Branch as separate from the main channel of the Lac qui Parle River. Thirty-eight reaches were assessed and 32 had aquatic life and/or aquatic recreation impairments. Sediment, bacteria, and aquatic habitat are the main concerns for these reaches. Seven streams that are included within CWMP planning boundaries were analyzed in the Minnesota River Headwaters Watershed, with the North Fork Yellow Bank River counted as separate streams. Each of these streams were impaired. Aquatic habitat and bacteria were the major impairments in these reaches.

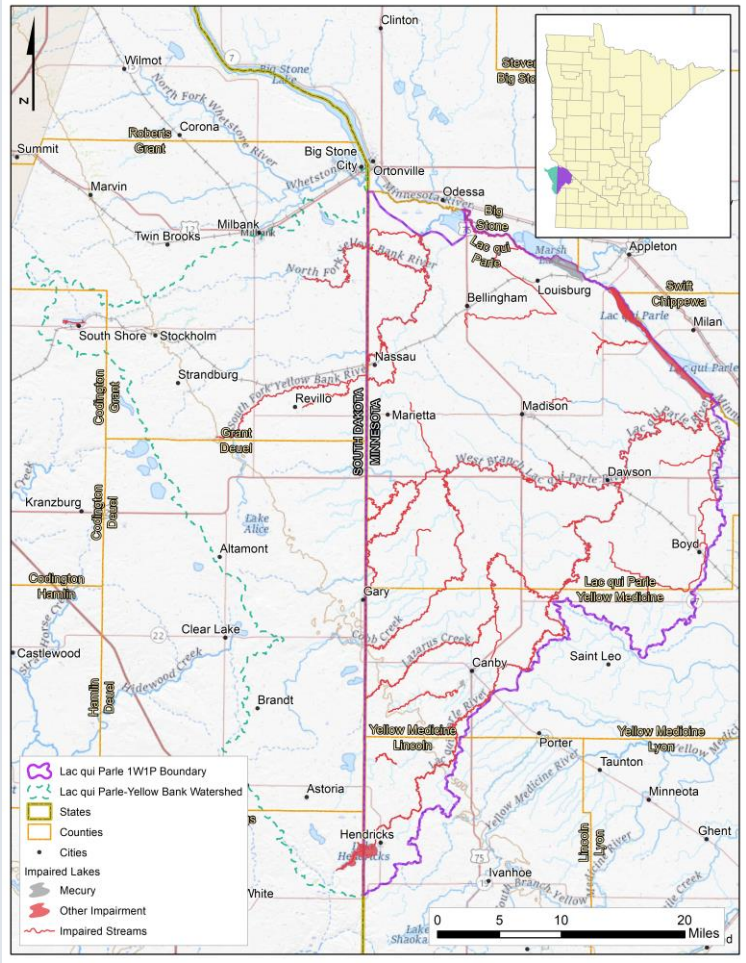


Figure B.7. Impairments in the Lac qui Parle Watershed

Water-Based Recreation Areas

The LqP-YB Watershed has several opportunities for water-based recreation locally (**Table B.1**). Lac qui Parle Lake, Marsh Lake, Lake Hendricks, and Del Clark Lake are popular locations for fishing, swimming, boating, and wildlife viewing. Visitors to Lac qui Parle State Park on the northern boundary of the watershed will find 33,000 acres of Wildlife Management Area (WMA), the historic Fort Renville, and the Lac qui Parle Mission site.

Numerous WMAs, Waterfowl Protection Areas (WPAs), Scientific and Natural Areas (SNAs), and other protected areas dot the landscape, allowing nearby sites for birdwatching and wildlife viewing no matter where you are in the watershed. While most of the Big Stone NWR lies just outside watershed boundaries, its southern edge is connected to runoff from the LqP-YB Watershed and is available for watershed residents to enjoy. The Lac qui Parle County Park is located on the Lac qui Parle River and provides carry-in access for canoes and kayaks. In addition to paddling the Lac qui Parle River, watershed residents take advantage of the Minnesota River as a designated Minnesota State Water Trail.

Snowmobile trails also offer winter recreation with the Ridge Runners snowmobile club managing approximately 72 miles of trail throughout the northeastern portion of the watershed. Hunting opportunities are also available on Walk-In Access (WIA) lands. WIAs are lands that private landowners open to hunters through the State of Minnesota program.

Table B.1. Water-Based Recreational Opportunities in the Lac qui Parle - Yellow Bank Watershed

Recreational Lakes and Streams		
	Type	**Activities**
Lac qui Parle Lake	Lake	State Park - camping, fishing, bird watching, swimming, waterfowl hunting, hiking
Marsh Lake	Lake	Waterfowl hunting, bird watching
Lake Hendricks	Lake	Fishing, swimming, boating
Del Clark Lake	Lake	Fishing, swimming, boating
Minnesota River	River	State Water Trail – canoeing, kayaking, swimming, fishing, bird watching
Lac qui Parle River	River	Canoeing, kayaking

Groundwater Resources

The LqP-YB Watershed chiefly occupies Minnesota's Western Groundwater Province. Bedrock in this zone is of "Limited" use as an aquifer but does contain sparse extents of surficial sands aquifer in its fine-grained glacial sediment (DNR, 2021a). The Minnesota River overlies the Central and Arrowhead/Shallow Bedrock Provinces, with the latter having "Limited' groundwater available for use and the former providing a "Good" degree of groundwater availability (DNR, 2021a). The main supply of drinking water in the watershed is groundwater, either from private wells, community wells, or a rural water supplier (MPCA, 2021b) (MPCA, 2021a).

Groundwater withdrawals have been increasing in the past two decades, largely driven by agricultural irrigation. Sometimes this withdrawal interferes with wells, so groundwater quantity may be an emerging concern. Locations of surface and groundwater withdrawals are demonstrated for the Lac qui Parle River Watershed in **Figure B.8.**

The watershed's groundwater sensitivity is primarily determined by its river valleys, which have high susceptibility to contamination (DNR, 2021b). Outside of these valleys, the watershed has medium pollution susceptibility, with spotted areas on the lower end. This means that what is washed from the land could potentially end up in drinking water, with a specific concern in the watershed for nitrates (MPCA, 2021b). Drinking Water Supply Management Areas (DWSMAs) overlie the Lincoln Pipestone Rural Water's Burr wellfields west of Canby and the towns of Bellingham, Madison, Dawson, and Canby. DWSMA vulnerabilities range from high to low. Aquifer vulnerability determines the level of management required to protect a drinking water supply and provides an opportunity to target implementation practices in accordance with the level of risk

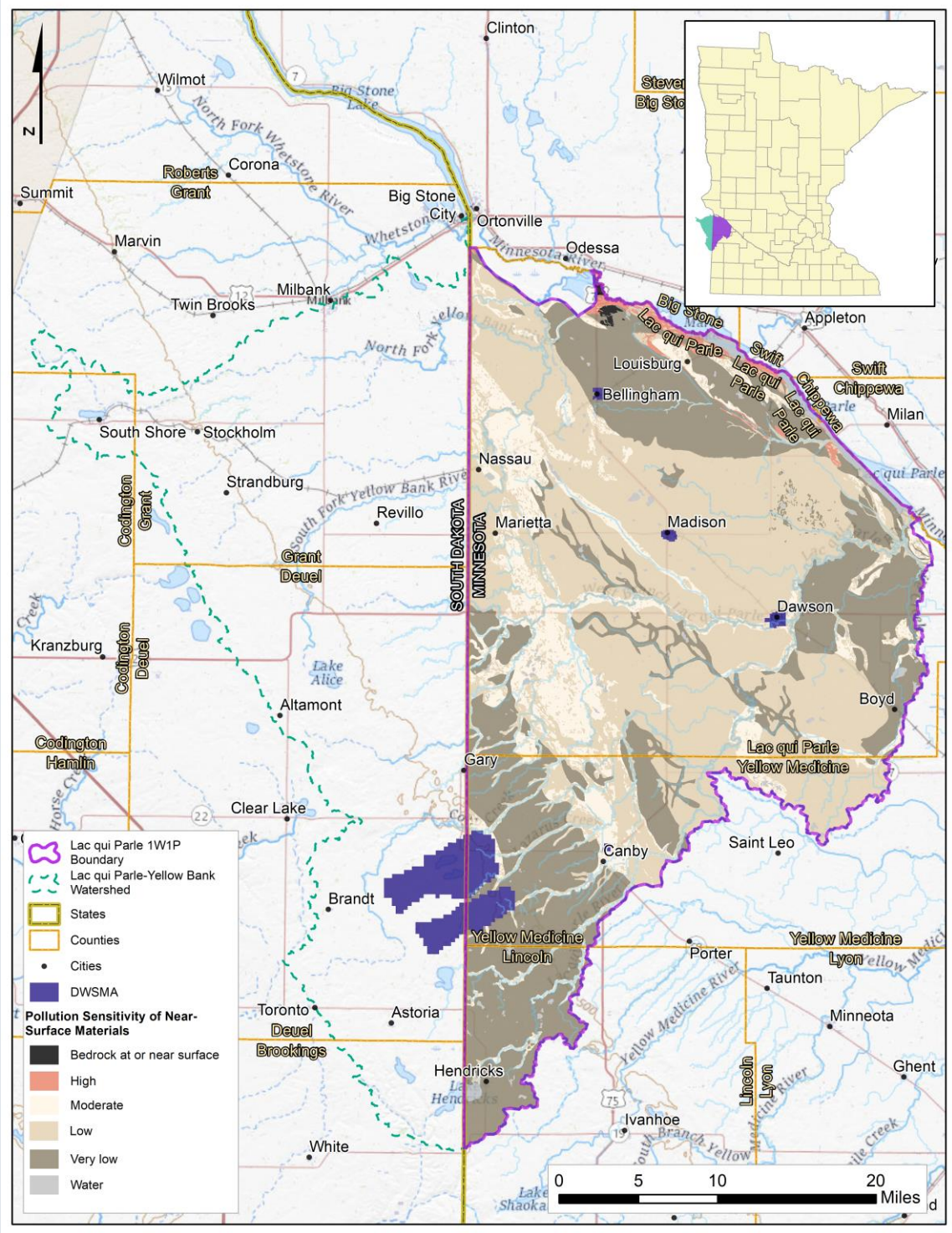


Figure B.8. DWSMAs and Pollution Sensitivity of Near-Surface Materials in the LQPYB Watershed

Fish and Wildlife Habitat and Rare and Endangered Species

The LqP-YB Watershed is located within the Coteau Moraines Prairie and Minnesota River Prairie subsections of the North Central Glaciated Plains section of the Prairie Parkland Province (Minnesota Ecological Classification System). The watershed is in a predominately agricultural setting whose prehistoric vegetation was mostly tallgrass prairie. There are some wooded areas, especially near Lac qui Parle Lake, and wetland habitat, which would be home to various invertebrates, mammals, bird species, and reptiles. Additionally, many native plant communities occur in the watershed throughout the Minnesota River Valley and along the Coteau, including a set of calcareous fens at the Lincoln Pipestone Rural Water Supply DWSMA.

In the Minnesota River Prairie Subsection, 116 Species in Greatest Conservation Need (SGCN) are known or predicted to occur (DNR, 2006). Fifty-two of these species are federally or state endangered, threatened, or of special concern. There are 78 SGCN species within the Coteau Moraines Prairie ecological subsection. Of these species, 30 are federal or state-listed endangered, threatened, or of special concern. Many of these species are expected to be found in or near the Big Stone NWR and Lac qui Parle Lake.

Lac qui Parle State Park. Photo credit: Explore MN

Species' habitat degradation and loss are generally the main cause of listing species on threatened and endangered (T&E) lists, followed by invasive species and competition, pollution, human impacts, and other reasons. Prairie and wetland non-forest habitats are key habitats that support the species that naturally reside in this region. Managing invasive species and using prescribed fire, grassland management, prairie protection and restoration, and wetland protection/enhancement/restoration would assist native prairie habitats and the species they support. T&E species in this subsection include those listed in **Table B.2** (USFWS, 2021).

Two critical habitats exist within the watershed. Designated critical habitats contain physical or biological features essential to the conservation of a species (NOAA). The first is a small area southeast of Big Stone NWR owned or in easement by The Nature Conservancy (TNC) that is set aside for *Oarisma poweshiek* (Poweshiek skipperling). The second is the northern edge of critical habitat for the *Notropis topeka* (Topeka shiner), though this species is not listed as inhabiting the watershed.

Table B.2. Threatened and Endangered Species in the Lac qui Parle - Yellow Bank Watershed

Species Name	Common Name	Type	Status
Myotis septentrionalis	Northern long-eared bat	Mammal	Threatened
Calidris canutus rufa	Red knot	Bird	Threatened
Hesperia dacotae	Dakota skipper	Insect	Threatened
Danaus plexippus	Monarch butterfly	Insect	Candidate
Oarisma poweshiek	Poweshiek skipperling	Insect	Endangered
Platanthera praeclara	Western prairie fringed orchid	Flower	Threatened

C. Priority Issues and Resources

C. Priority Issues and Resources

A major part of the planning process is to determine the needs of the communities within the LqP-YB Watershed, what the natural and cultural resources are, and what issues affect those resources. For the purposes of this process, an **issue** is defined as a problem, risk, or opportunity for a resource. A **resource** is a natural feature on the landscape that can be grouped into categories for management activities. Once issues and resources are identified, they need to be **prioritized**, which involves determining the most immediate needs and what can be accomplished in the 10-year CWMP planning process. Not all issues can be adequately addressed in a 10-year plan. To focus time, energy, and funding available during implementation, the planning partners developed and prioritized an initial list of issues and resources through existing documents and input. The details of this process and the final prioritized issues lists are described in this section.

Identifying Issues and Resources

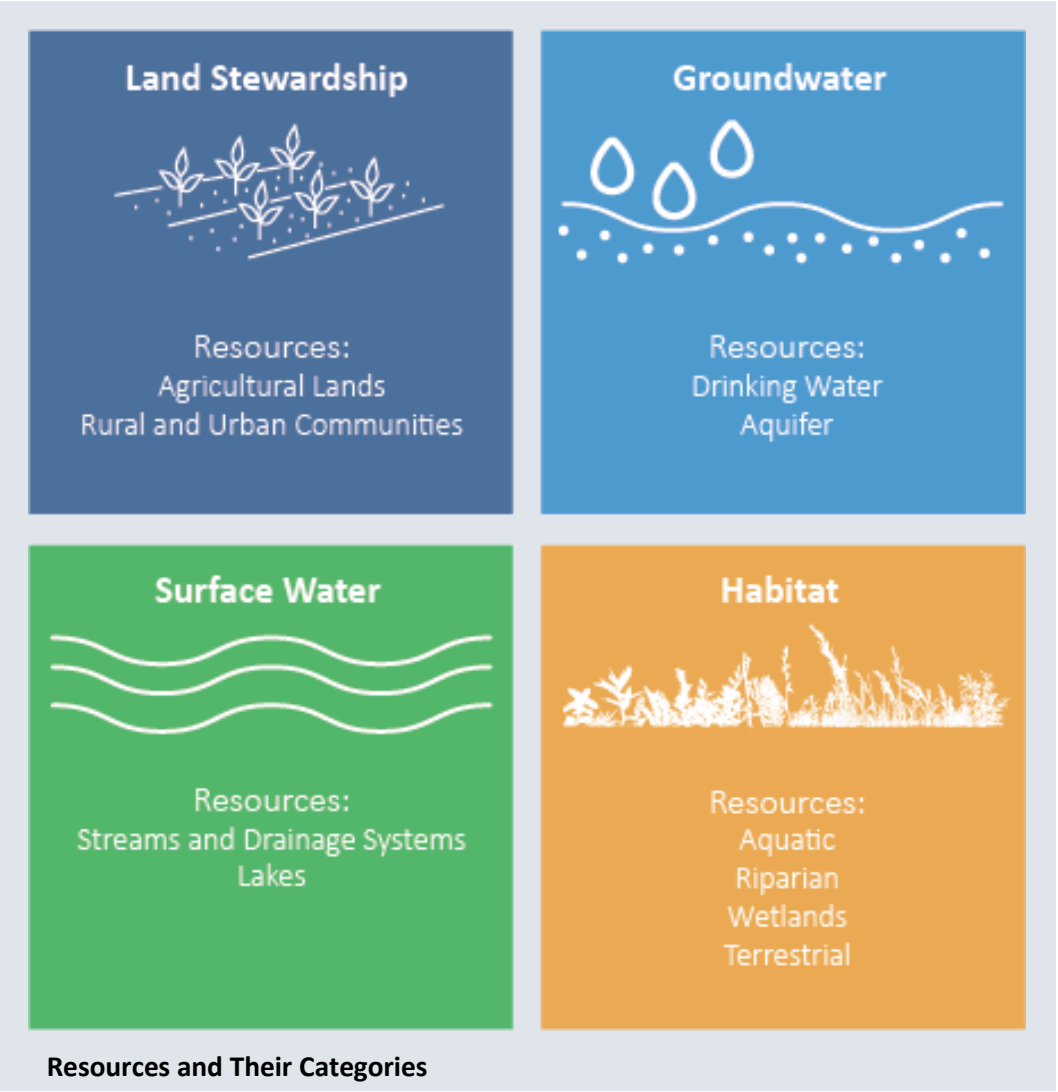
Existing Reports

The first step in formulating a plan for water management across a watershed is to identify problems and opportunities, or issues. To pinpoint issues and resources that have already been identified, the planning partners gathered existing local reports and plans that include descriptions of issues in the LqP-YB Watershed. These reports and plans were created by local and partnering entities managing natural and water resources in the watershed and include public input:

- County Water Management Plans
- Lac qui Parle – Yellow Bank Watershed District Watershed Management Plan
- Lac qui Parle and Minnesota Headwaters Watershed Characterization Reports
- Lac qui Parle and Minnesota Headwaters WRAPS, TMDL, and associated reports
- Comment letters and supporting materials provided by state agencies (**Appendix B**)

Committees

The Steering Team guided the beginning stages of the LqP-YB CWMP kick-off and public input process and made decisions about what would be included in the plan. One of those decisions involved creating categories that identify how issues affect important resources in the watershed. These resource categories are detailed on the following page with their corresponding resources. Each issue is then assigned to a resource category based on the resource to which it is most closely connected.



Resources and Their Categories

Prioritizing Issues

Often times, deciding to merge or split specific issues or resources can be difficult. For example, this plan merges streams and drainage systems into one resource. In many instances, streams that have not been altered can have distinct issues and regulatory oversight. However, many of the actions that the plan partners can implement are similar, so the decision was made to merge these resources into one resource. There are multiple issues and resources that may have been split or merged in another manner than is presented in this plan.

Public Participation

Feedback from the public is critical in creating a plan that reflects the community it serves. Planning partners sought public input through several methods to identify and prioritize resources and issues that are important for the watershed. Resources that were identified in initial stages were presented to the public for prioritization. In addition to utilizing local knowledge by forming committees and compiling data from existing reports, partners conducted a public survey and held a public kick-off meeting.

Survey

A public survey was conducted before and after the kick-off meeting and was posted on the LqP-YBWD website. The survey asked participants to provide input on the resources that are most important to them and to rate their top natural resource concerns. Most respondents said they own land or reside in a town within the LqP-YB Watershed and use its natural resources for farming, fishing, hunting, swimming, and hiking. A total of 35 respondents provided input on the importance of resources (**Figure C.1**) and resource concerns (**Figure C.2**) within the watershed. The results of this survey were linked with the final issue statements and considered as one part of the prioritization process.

Kick-off Meeting

The LqP-YB CWMP is a local plan that requires voluntary implementation to be successful. Considering this, the public kick-off meeting was held at the Dawson Public Library on September 21, 2021, with more than 20 people in attendance. During the meeting, participants were invited to visit large maps of the watershed and fill out the public survey while in attendance at the meeting.

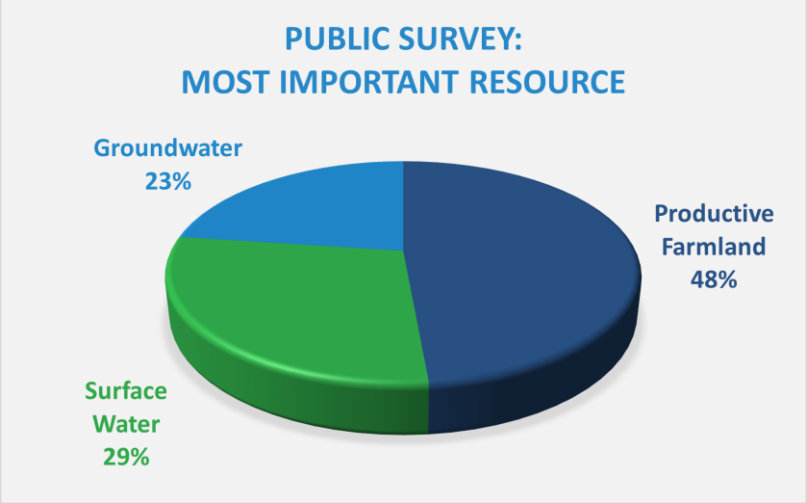
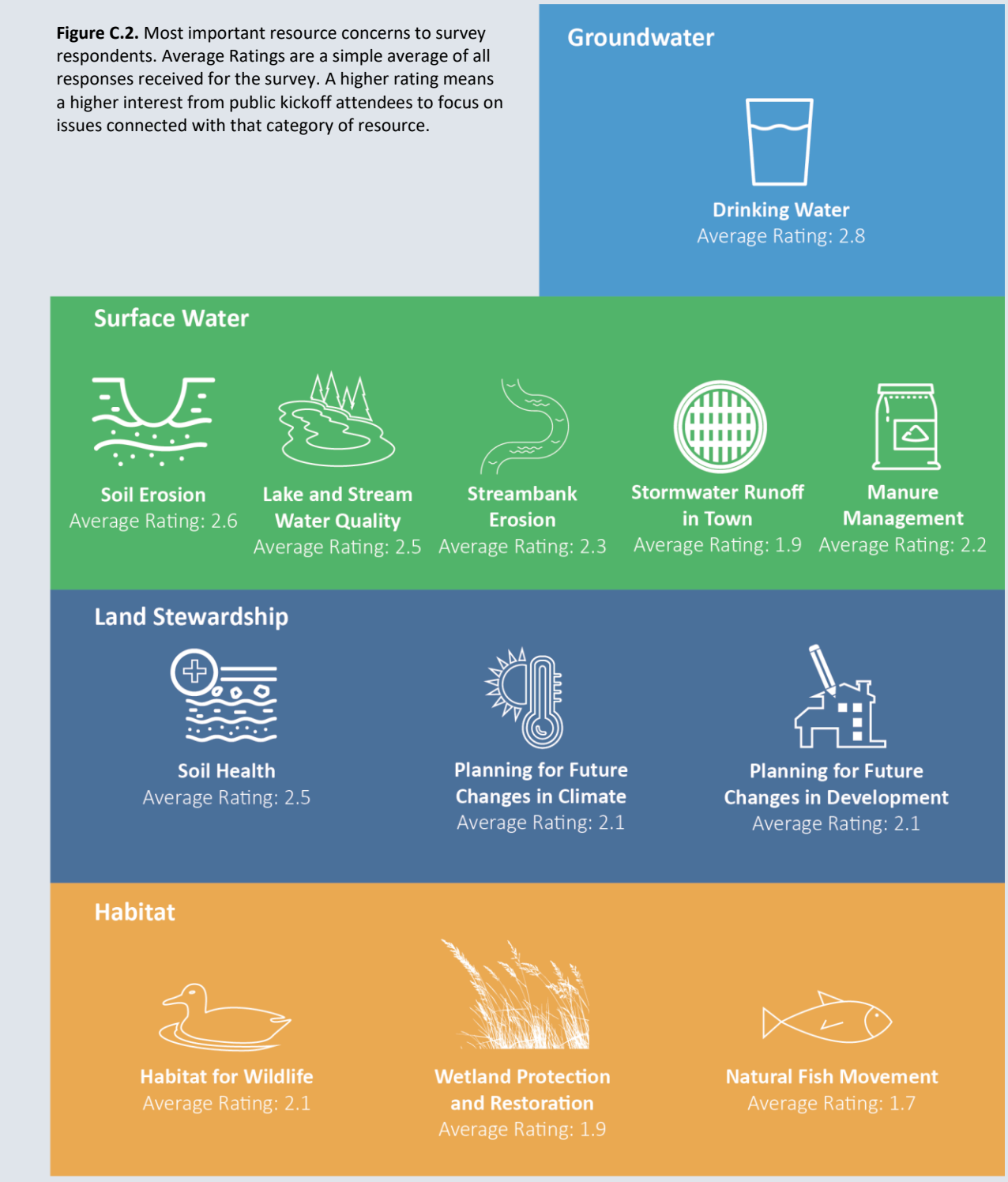


Figure C.1. Breakdown of most important resources from the public survey.

Figure C.2. Most important resource concerns to survey respondents. Average Ratings are a simple average of all responses received for the survey. A higher rating means a higher interest from public kickoff attendees to focus on issues connected with that category of resource.



Issues by Planning Region

The topography of the LqP-YB Watershed is varied with gently rolling hills to steep bluffs along the Coteau des Prairies and in the Minnesota River Valley. This variation leads to different priorities for different parts of the watershed. As a result, planning partners delineated 10 planning regions that can be addressed independently during implementation (**Figure C.3**). These regions were defined based on land use, hydrology, geology, and vegetation. They provide the framework for this plan section on how issues are identified and prioritized.

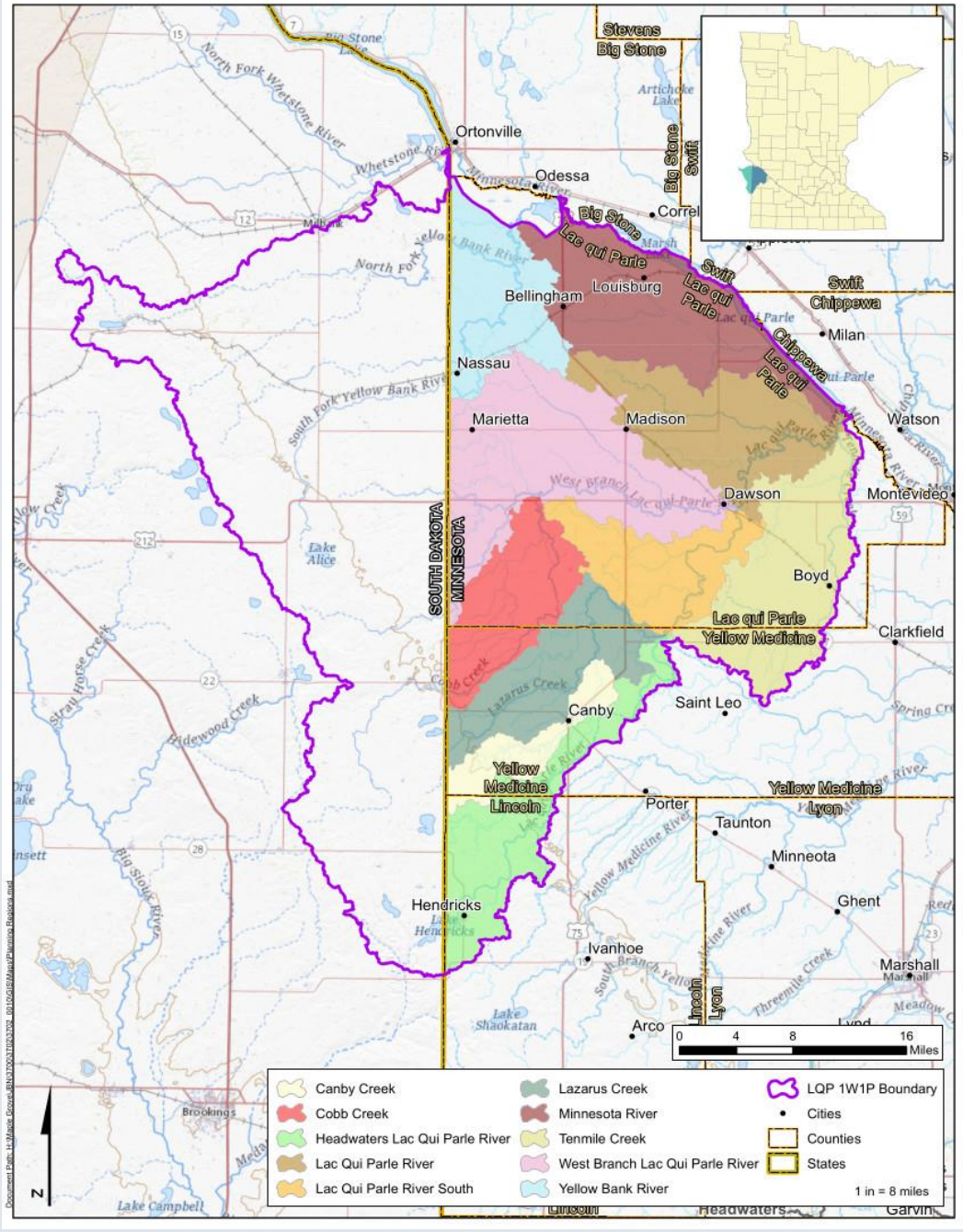


Figure C.3. LqP-YB Planning Regions

Final Prioritization

Issues were finalized and prioritized based on input from the public, the Steering Team, as well as the Advisory and Policy Committees.

In December 2021, the Steering Team reviewed feedback from the public as well as the prominence of the issues in existing studies and discussed each issue as it pertained to a fixed set of criteria:

- Feasibility of addressing the issue
- Urgency of need
- Economic importance
- Ecosystem importance
- Cultural and social importance

Then, Steering Team members ranked the issues and assigned each of them a level of priority: High, Medium-High, Medium, and Low. Ranking results for each issue are provided in **Appendix C**. The significance of each priority level and how it will be used to implement projects is described below:

High Priority Issues

Issues that will be the focus of initial implementation efforts during the 10-year plan.

Medium-High Priority Issues

Issues that will be addressed during the 10-year plan, likely with additional funding.

Medium Priority Issues

These issues will not be assigned prioritization but may receive attention if time and funding allow. Medium priority issues may also be addressed through partner groups.

Low Priority Issues

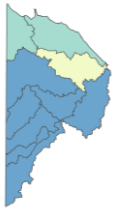
It is not anticipated that these issues will be addressed within the 10-year timeframe of this plan by planning partners, but the issues may be moved up in priority based upon need in future plan updates.

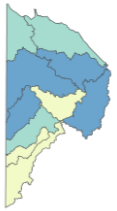
Once the Steering Team reached consensus on the priority designations for each issue, they were forwarded along to the Policy Committee for their consideration and approval. The prioritized issues were approved by the Policy Committee during their February 23, 2022 meeting. These issues are summarized by priority level in the tables on the following pages.

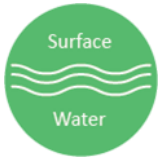
High Priority Issues

High priority issues will be the focus of initial implementation efforts during the 10-year plan. Planning regions are then prioritized as high, medium, or low based on the prominence of each issue in that planning region.

Planning Region Prioritization Key: = high priority = medium priority = low priority

Resource Category	Resource	Issue	Planning Region Prioritization	Description
Groundwater	Drinking Water	Groundwater contamination of public water supplies		Groundwater contamination, specifically of public water supplies including arsenic, nitrates, and pesticides
Land Stewardship	Agricultural Lands	Soil health		Reduction in soil organic matter resulting in less water-holding capacity, lack of rainfall infiltration, higher erosion and nutrient loss, as well as lower agricultural productivity
Land Stewardship	Rural and Urban Areas	Changes to land use, land cover, and land management that affect habitat, drainage, flooding, and erosion		Increases in land use changes such as removing vegetation, creating impervious surfaces, and removing surface and subsurface storage areas that have impacts to resources in the planning area. Through the stakeholder engagement process for this plan, the planning partners identified this issue as a need to maintain and improve current conditions. There is not a perception that large amounts of conversion are currently occurring.

Resource Category	Resource	Issue	Planning Region Prioritization	Description
Surface Water	Streams and Drainage Systems	Excess runoff that transports contaminants to surface waters		Excess runoff from increased precipitation or rapid snowmelt causing impacts to downstream waters (e.g., *E. coli,* sedimentation, nutrients, pesticides) that may drive water quality impairments.
Surface Water	Streams and Drainage Systems	Surface water quality impairments (DO, AqL, AqR, pH, *E. coli*, mercury, biological)		Aquatic life and recreation impairments caused by TSS, DO, P, N, pH, *E. coli*, mercury, temperature, and other contaminants.
Surface Water	Streams and Drainage Systems	Connectivity and hydrologic changes that degrade streams and drainage systems		Hydrologic changes such as altered hydrology, dams, bridges, and culverts causing flow conditions (e.g., low base flow, increased peak, and base flows) that degrade the quality streams, and longitudinal (upstream and downstream) connectivity issues for aquatic fish and macroinvertebrates.
Surface Water	Streams and Drainage Systems	In-channel erosion contributing to impacts on water quality and habitat		Includes streambank erosion, channel stability, and channelization that have a negative impact on water quality, infrastructure and aquatic habitat associated with lateral (floodplain) connectivity.

Resource Category	Resource	Issue	Planning Region Prioritization	Description
	Streams and Drainage Systems	Accelerated erosion leading to sedimentation and other water quality issues		Accelerated soil, wind, and stormwater erosion leading to turbidity, sedimentation, and other water quality issues. Notwithstanding, many in the watershed have a long history of adopting conservation measures.

Medium-High Priority Issues

Medium-high priority issues will be addressed during the 10-year plan, likely with additional funding. Planning regions are then prioritized as high, medium, or low based on the prominence of each issue in that planning region.

Planning Region Prioritization Key: = high priority = medium priority = low priority

Resource Category	Resource	Issue	Planning Region Prioritization	Description
Groundwater	Aquifer	Decreased groundwater recharge and supply		Any decrease in groundwater or aquifer availability that may result in an impact to water supplies (quantity).
Groundwater	Drinking Water	Contamination of private wells		Pollutants entering into a private well that may impact the use of the water supply.
Land Stewardship	Rural and Urban Areas	Flood damages to private and public lands		Flood damage to crops, ag land, urban areas, infrastructure, and Lac qui Parle State Park resulting from channel debris, land use changes, improperly sized culverts and bridges, and other causes.

Land Stewardship	Rural and Urban Areas	Subsurface sewage treatment systems and small communities with wastewater needs		Small communities with wastewater needs and failing septic systems contributing *E. coli* to surface water.
Habitat	Aquatic Habitat	Loss of aquatic habitat		A decrease in the quantity or quality of available aquatic habitat. May be driven by landscape changes that result in changes to aquatic systems such as dams, and undersized or perched culvert crossings. May result in impacts to aquatic species and result in biological impairments.

Medium Priority Issues

Medium priority issues will not be assigned prioritization but may receive attention if time and funding allow. These issues may also be addressed through partner groups.

Resource Category	Resource	Issue	Description
Land Stewardship	Rural and Urban Areas	Changing precipitation	A change in the character of precipitation events that results in impacts to water and natural resources.
Habitat	Wetlands	Drained and declining quality of wetlands	Any loss in the quality or quantity of wetlands.
Habitat	Riparian	Loss of riparian buffers	Loss of riparian and lake shoreline buffers.
Habitat	Riparian	Lack of floodplains and lateral connectivity	Lack of the ability for a surface water to access its floodplain resulting in an impact on the overall quality or quantity of riparian habitat.
Surface Water	Lakes	Algae growth and harmful algal blooms due to excess phosphorus and nitrogen	Algae growth and harmful algal blooms due to phosphorus and nitrogen, reducing recreational opportunities, posing a public health hazard, and affecting aquatic life.
Surface Water	Streams and Drainage Systems	Drainage increasing total runoff and further accelerating water quantity and quality impacts	Surface and subsurface drainage systems increasing total runoff and further accelerating water quantity and quality impacts. For example, these impacts can be associated with volume and timing of flow in streams as well as held on the landscape.

Low Priority Issues

It is not anticipated that low priority issues will be addressed within the 10-year timeframe of this plan by planning partners, but the issues may be moved up in priority based upon need in future plan updates.

Resource Category	Resource	Issue	Description
Land Stewardship	Rural and Urban Areas	Stormwater/urban water management	The impacts of urban or developed areas on runoff and the delivery of contaminants to water resources.
Land Stewardship	Rural and Urban Areas	Too many regulations	To many or overly redundant regulations that result in impacts to the livelihood of rural and urban communities.
Habitat	Terrestrial	Decline in habitat, wildlife populations, and plant populations	Decline in wildlife populations and habitat and private ownership of wildlife habitat.
Surface Water	Lakes	Accelerated erosion leading to sedimentation and other water quality issues	Levels of surface erosion that result in excess delivery of sediments and other contaminants to lakes.
Surface Water	Streams and Drainage Systems	Municipal/industrial discharge (incl. WWTPS)	Discharge from public and private facilities that may result in impacts to surface waters, typically considered point sources.
Surface Water	Streams and Drainage Systems	Inadequate agricultural drainage	A lack of sufficient drainage on agricultural lands that results in negative impacts to the productivity of the area.

Inter-State Governance

Many of the areas within the planning boundary for this CWMP receive water from South Dakota (**Figure C.3**). The issues identified and prioritized for this plan are Minnesota specific. However, achieving long-term goals for issues in the planning boundary will, at times, be contingent upon collaboration between South Dakota and Minnesota. The partners in the LqP-YB Watershed have a history of this collaboration and will continue to pursue collaborative management opportunities through the implementation of this plan. For example, Lake Hendricks sits on the border between South Dakota and Minnesota with much of the lake's contributing watershed in South Dakota. Lake Hendricks is an important local resource for both Minnesotans and South Dakotans and, as such, has been the focus of collaborative resource management efforts.

Emerging Issues

Emerging issues are those that are either addressed by other plans and entities or lack detailed data but may affect the resources within the LqP-YB Watershed. Emerging issues are expected to be periodically monitored by planning partners with respect to how they may affect plan implementation. Action items are included within the targeted implementation schedule (**Section E**) to clarify the technical data needed to address emerging issues. If new emerging issues are identified during implementation, goals included in this plan may shift.

Pollinator Crisis

Across the globe, pollinator populations are shrinking due to a range of issues, including habitat fragmentation, pesticide use, climate change, and the spread of pathogens. Future efforts implemented through this plan may be able to support efforts to reduce issues associated with the global decline of pollinator populations.

Contaminants of Emerging Concern

The category of environmental pollutants labeled by the Environmental Protection Agency (EPA) as contaminants of emerging concern (CEC) contains a variety of chemicals whose impacts are sometimes still unknown, but for which there is a growing body of research indicating that we should consider them in long-range planning (EPA, 2020). CECs include but are not limited to pharmaceuticals and personal care products (PPCP) and per- and polyfluoroalkyl substances (PFAS), which are used in industrial applications and consumer products such as carpeting and upholstery, non-stick cookware, waterproof clothing, and fire-fighting foams (MPCA, 2021). When these contaminants end up in drinking water, they linger for generations, causing hormonal disruptions in humans and aquatic life and other water quality problems.

Many CECs do not have Minnesota human health-based guidance (how much of a substance is safe) or have new or changing health or exposure information. The State of Minnesota and the MPCA are in the process of investigating where fish and drinking water have been contaminated in the state and how to address the issue (MPCA, 2021).

Climate Change

Extreme weather and other impacts of climate change are already affecting farmers and residents in the LqP-YB Watershed. However, data is not always available to drive local decisions on how to address this issue directly. Building an adaptive plan for a resilient watershed is key to having the capacity to address future effects of climate change.

While climate change and climate resiliency (the ability to prepare for and respond to climate change) where not identified as priority issues for this planning effort, the planning partners acknowledge that this is an emerging issue that may need to be addressed during the lifespan of this plan. Where possible, the planning group will align actions with the State of Minnesota's Climate Action Framework (Minnesota's Climate Action Framework | Our Minnesota Climate (state.mn.us)). In general, when an action undertaken through this plan can also serve to address progress towards goals of the Climate Action Framework like those identified for natural and working lands (Goal 2: Climate-smart natural and working lands | Engage with DNR | Minnesota Department of Natural Resources (state.mn.us)), this planning partnership will seek to align with the Climate Action Framework.

Minnesota has seen an approximate 3-inch increase in precipitation since 1895 alongside an approximate 3°F temperature increase over the same period, statewide (1895-2020) (DNR, 2022). Winter is warming faster than summer and nights faster than days (DNR, 2019). Temperature and precipitation increases are expected to continue throughout the century (DNR, 2019). Trends in the Lac qui Parle River Watershed (used as a proxy for the greater LqP-YB Watershed) show higher annual precipitation than Minnesota overall (approximately +3.75 in.), though the temperature is increasing more slowly (approximately +2.25°F). **Figure C.4** and **Figure C.5** show average annual precipitation and temperature trends for the Lac qui Parle River Watershed.

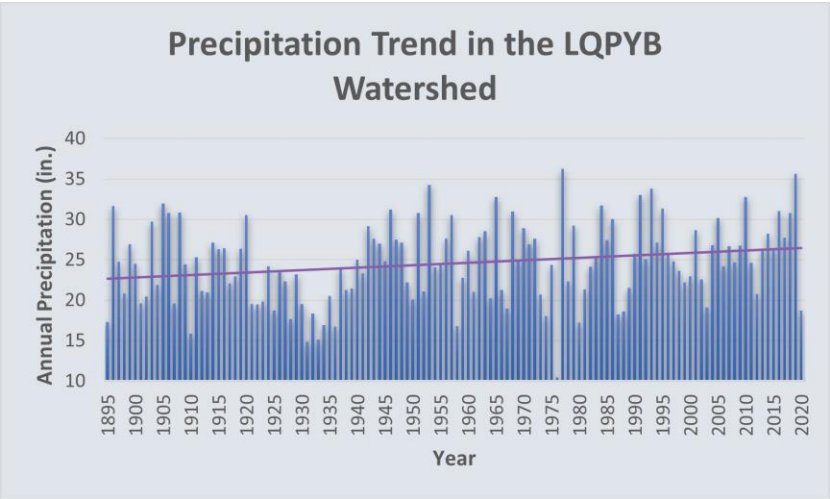


Figure C.4. Annual precipitation trend for the LqP-YB Watershed, 1895 - 2020 (DNR, 2022).

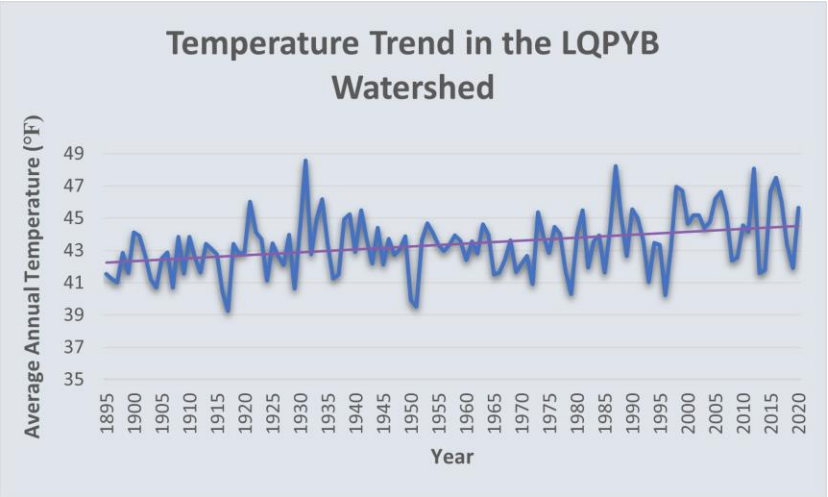


Figure C.5. Annual temperature trend for the LqP-YB Watershed, 1895 - 2020 (DNR, 2022).

These incremental temperature and precipitation changes over a 125-year period are enough to increase flooding, impact agricultural production, disrupt plant and wildlife communities, and affect water quality. To address the potential implications of climate change in the watershed, the activities implemented in this plan aim to include both mitigation (practices that mitigate the effects of climate change by storing carbon in the soil) and adaptation (enhancing the resiliency of the watershed to future changes) (BWSR, 2019).

Invasive Species

Aquatic and terrestrial invasive species are those that are introduced into a region and that outcompete native species, causing environmental, economic, or human health harm. In Minnesota, the Department of Natural Resources (DNR) is charged with assisting counties in managing invasive species, and counties develop plans to address this issue.

Zebra Mussels

Within the LqP-YB Watershed, the Minnesota River and Lac qui Parle Lake are listed by the DNR as being infested water bodies due to Dreissena polymorpha (zebra mussels). Zebra mussels disrupt lake and riverine ecosystems and cause damage to industrial machinery.

Minnesota maintains a list of noxious weeds—plants that affect the environment, livestock, and property—and counties often add their own troublesome species to this list. Not all noxious weeds are invasive or introduced. Lincoln and Yellow Medicine counties include *Cirsium vulgare* (bull thistle) and *Carduus nutans* (musk thistle) on their noxious weed lists. Two additional noteworthy invasive species, *Agrilus planipennis* (emerald ash borer) and *Lymantria dispar* (formerly gypsy moth), are found in Minnesota. In addition, the Chinese Mystery Snail is a non-native species that has been identified in Del Clark Lake. While it is a regulated species in Minnesota due to its popularity in the aquarium trade, the banded mystery snail is found within our watershed and has negative impacts on recreation as it quickly reproduces and fouls shorelines. Education to the public is critical in preventing new populations from taking hold.

Irrigation

With nearly 25 inches of precipitation on average per year, near that of the statewide average, farms in the LqP-YB Watershed traditionally receive enough rainfall to ensure a healthy, productive crop without supplementation. However, as climate change increases the chances of extreme weather conditions and market forces evolve, more producers may turn to irrigation to adapt to changing conditions.

The DNR manages water supply and use in Minnesota. In the LqP-YB Watershed, there are 48 active agricultural irrigation permits, with over half of those having been established within the last decade (**Figure C.6**) (DNR, 2020). More information about water use permits in Minnesota and the LqP-YB Watershed can be found on the DNR's website (available online: https://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/permits.html). Permits are concentrated in the Cobb Creek and West Branch Lac qui Parle River planning regions. The DNR tracks groundwater levels through an observation well network (publicly available online: https://www.dnr.state.mn.us/waters/cgm/index.html).

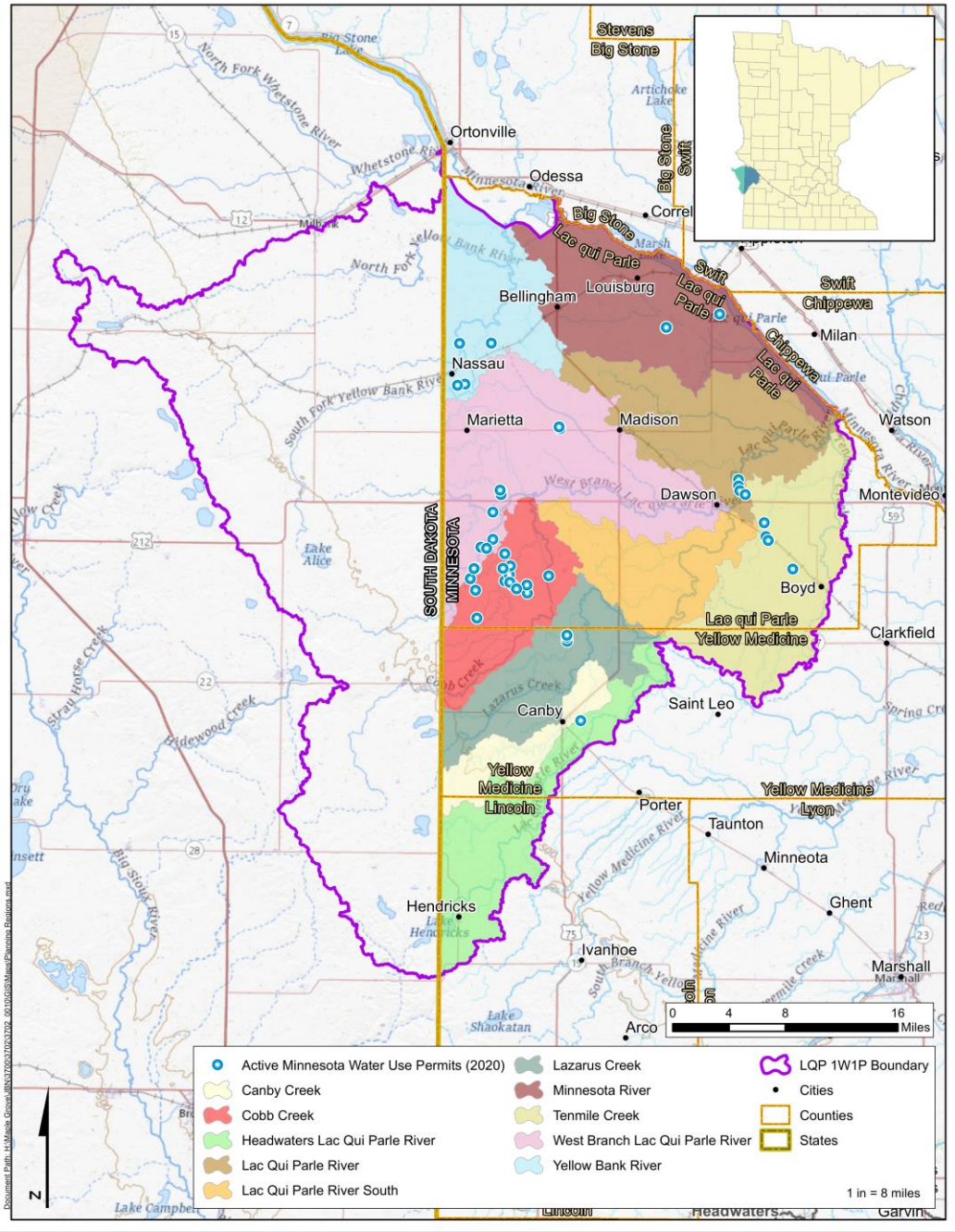


Figure C.6. Active Water Use Permits in the LqP-YB Watershed (DNR, 2020).

With water being a limiting factor in crop productivity, the desire to manipulate available water could lead producers to explore different management strategies such as irrigation or tile drainage water management to limit the risk of crop production impacts. To reduce stress on and prevent contention amongst community members for a limited resource, future conversations and planning could prevent problems associated with water supply.

Aging Infrastructure

Aging infrastructure can affect water quality and habitat through leaky pipes, eroding roadways and railways, and undersized culverts. Failure of major infrastructure can also cause a change in priority of local efforts, which would reduce those efforts allocated to conservation programs (Yellow Medicine One Watershed One Plan Partnership, 2016). In Minnesota, more than half of all roadways are more than 50 years old and much of the state's stormwater systems are more than 100 years old (MnDOT, 2018). Implementing projects related to infrastructure, including roads, bridges, drainage systems, utilities, and railroads, can provide multiple ecological, social, and economic benefits. There may be new opportunities to combine efforts with multiple benefits within the life of this plan as infrastructure funding becomes available, and planning partners will monitor these options.

Renewable Energy

As described in **Section B**, solar and wind energy provide an opportunity in the LqP-YB Watershed for multiple benefits. The phrase **multiple benefits** is defined as "conservation efforts designed to simultaneously benefit local communities of people, enhance ecological function, and improve habitat quality for fish and wildlife" (Gardali, E., Dybala, K.E., Seavy, N.E., 2021). For example, wind and solar farms can provide opportunities to implement native habitat projects such as grassland and pollinator restoration using funds from an array of sources. These types of renewable energy can help reduce the impacts of energy production on the atmosphere as well as increase carbon sequestration and runoff filtration and infiltration, addressing multiple issues. It is worth noting that additional utilities may also result in a need for added resources and additional conservation actions. As utilities continue to develop, planning partners will continue to seek opportunities to collaborate with utilities on opportunities to maintain or improve priority issues.

D. Measurable Goals

D. Measurable Goals

This section identifies the progress that will be made towards improving priority issues impacting resources within the planning area. Each priority issue identified in **Section C** has been assigned a short-term and long-term measurable goal. Short-term goals are intended to identify the progress that will be made in addressing the priority issues during the life span of this plan. Long-term goals identify the desired future condition of the resource and are intended to address priority issues throughout the watershed. Measurable goals were set at one of two scales for this plan:

1. Watershed-wide goals, or
2. Planning region goals.

This plan section describes all watershed-wide goals set for this plan. Planning region-specific goals are described in **Section E.** The table on the following pages provides a recap of the priority issues along with the scale that was used to set a measurable goal for that issue. Each planning region specific goal is summarized in this plan section by aggregating the information presented in **Section E.** In addition, all watershed-wide goals are addressed by actions described in planning region specific tables in **Section E** that describe the actions and funding levels needed to achieve these short-term goals.

Geographic Prioritization of Priority Issue Goals

For each priority issue, the Steering Committee, with input from the Advisory Committee, decided whether the goal should be set on a watershed-wide basis or within specific planning regions. For planning region-specific goals, a goal was only set within planning regions where implementation was determined to be a high priority during the life span of this plan. The results of this process are shown in **Table D.1**. In other words, for each issue in the table, a measurable goal was set specific to the planning regions shown in dark blue for that issue.

Planning regions were geographically prioritized for measurable goals using a two-step process:

Step 1 – GIS data from existing studies (e.g., PTMApp, WRAPS, DNR WHAF) were used to do an initial high, medium, and low ranking of where the issue was the most prevalent within the watershed

Step 2 – a two-day intensive workshop was hosted that included the Steering Committee, Advisory Committee, and representatives of the Policy Committee. At this workshop, attendees adjusted the GIS data driven rankings based on local expertise. In general, ranks were most often changed to represent the areas on the landscape where work would occur to address the priority issue, as the GIS data tended to point out where the issue or resource was located rather than where the work to improve the issue would occur.

The results of this process are used to set planning region-specific measurable goals and targeted actions in **Section E.** The planning region specific goals were aggregated and presented in this plan section for each priority issue.

The results of this process were also used to identify the top priority regions for beginning work during the implementation of this plan. The finalized high, medium, and low ranks for each priority issue were

aggregated together. The planning regions containing the highest ranks were identified as the top priority planning regions to begin implementation for this plan (**Figure D.1**). This geographic prioritization of planning regions will be used as follows:

- **Dark blue** planning regions will receive a higher priority for implementation during the 10-year lifespan of this plan. In other words, for coordinated implementation efforts through this plan the partners will start here first. Higher financial incentives for practice adoption, as well as greater allocation of plan funding will all be applied to these planning regions. The specific incentives and allocations will be developed and revised as part of annual workplans.

- **Light Green** planning regions can be thought of as "on-deck" planning regions. These planning regions contained a high number of priority issues, but fell just below the cutoff. These planning regions may become a focus of implementation efforts during the lifespan of this plan if sufficient progress is made improving issues in the highest priority planning regions, if conditions change in the planning area and priorities planning regions need to be revised, or if the planning partners determined that no more progress can be made on the highest priority planning regions. Watershed-wide goals will continue to be addressed within these planning regions, along with opportunities to partner on efforts not identified in this plan.

- **Yellow** (grey here as yellow text will not display) planning regions were identified as the lowest priority for focused implementation efforts through this plan. While watershed-wide efforts will still occur within these planning regions, they are unlikely to be the focus of implementation efforts during the lifespan of this plan. This is not to say that the resources and issues within these planning regions lack importance, they most certainly are important. Instead, the intent of limiting efforts within this planning regions is an acknowledgement that the resources available to make progress towards measurable goals are limited and therefore need to be geographically prioritized.

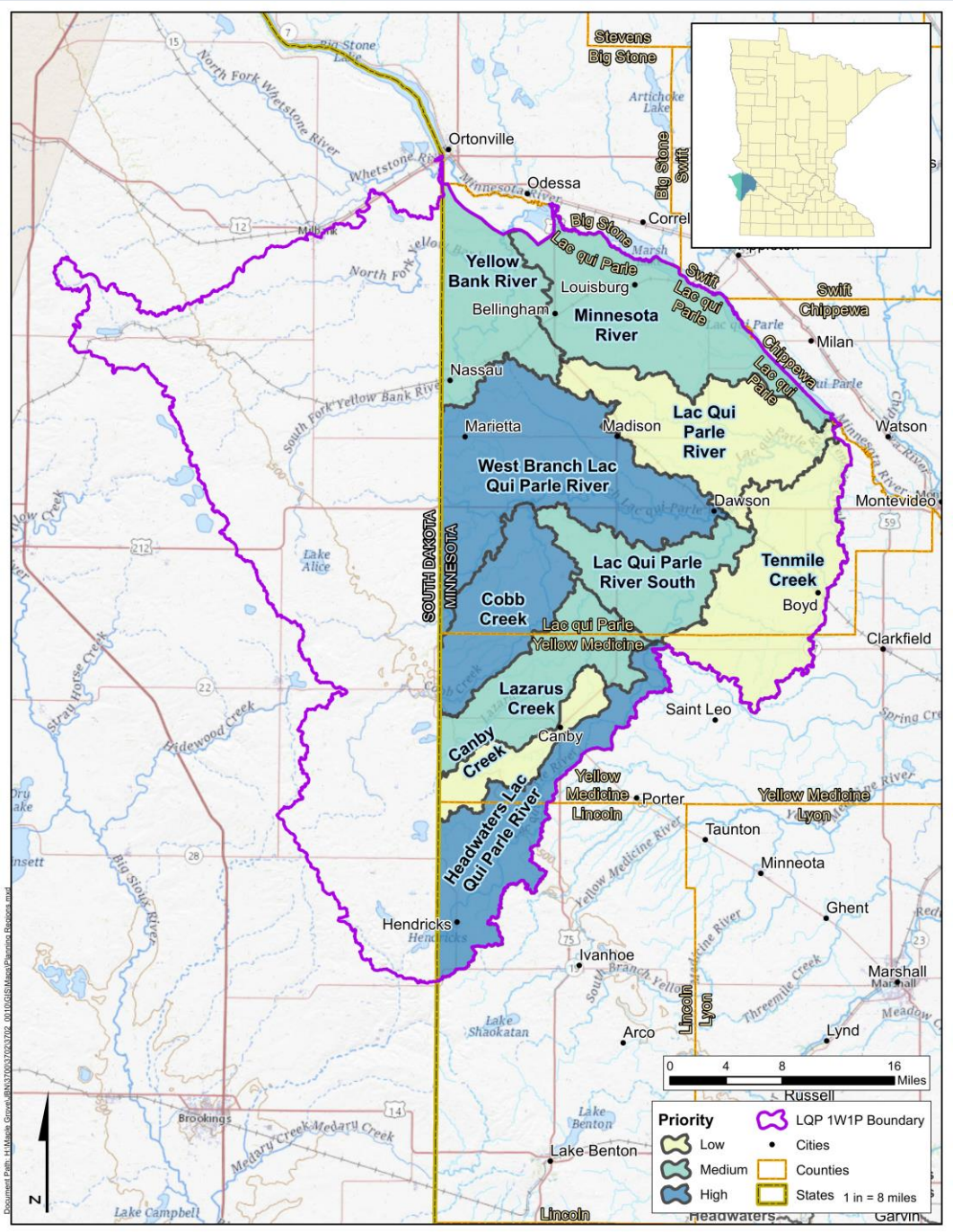
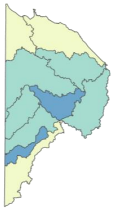
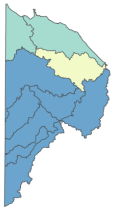


Figure D.1. LqP-YB Planning Regions with the aggregated results of geographically prioritizing high priority issues. The implementation of this plan will initially focus on high priority planning regions.

Table D.1. High priority issues and the scale at which goals where set for each issue.

Resource Category	Resource	Issue	Planning Region Prioritization	Goal Scale
Groundwater	Drinking Water	Groundwater contamination of public water supplies		Planning region (see Section E for goals)
Land Stewardship	Agricultural Lands	Soil health		Watershed-wide
Land Stewardship	Rural and Urban Areas	Changes to land use, land cover, and land management that affect habitat, drainage, flooding, and erosion		Planning region (see Section E for goals)
Surface Water	Streams and Drainage Systems	Excess runoff that transports contaminants to surface waters		Planning region (see Section E for goals)
Surface Water	Streams and Drainage Systems	Water quality impairments (DO, AqL, AqR, pH, *E. coli*, mercury, biological)		Planning region (see Section E for goals)
Surface Water	Streams and Drainage Systems	Connectivity and hydrologic changes that degrade streams and drainage systems		Planning region (see Section E for goals)

Resource Category	Resource	Issue	Planning Region Prioritization	Goal Scale
Surface Water	Streams and Drainage Systems	In-channel erosion contributing to impacts on water quality and habitat		Planning region (see Section E for goals)
Surface Water	Streams and Drainage Systems	Accelerated erosion leading to sedimentation and other water quality issues		Planning region (see Section E for goals)
Groundwater	Aquifer	Decreased groundwater recharge and supply		Watershed-wide
Groundwater	Drinking Water	Contamination of private wells		Watershed-wide
Land Stewardship	Rural and Urban Areas	Flood damages to private and public lands		Planning region (see Section E for goals)
Land Stewardship	Rural and Urban Areas	Subsurface sewage treatment systems and small communities with wastewater needs		Watershed-wide

Resource Category	Resource	Issue	Planning Region Prioritization	Goal Scale
	Aquatic Habitat	Loss of aquatic habitat		Planning region (see Section E for goals)

Watershed-Wide Goals

Issue 1 – Soil Health (Watershed-Wide)

Why It Matters

It is recognized that increasing or maintaining soil health can lead to better infiltration, water availability for agricultural production, retention of water in soil to decrease downstream flows, and decreased sediment and nutrient loss. Unfortunately, there is not a comprehensive survey of current soil health within the planning area. Therefore, a two-tiered goal was established to 1) treat working lands in the plan area and 2) increase the number of acres implementing soil health practices (reduced tillage, cover crops, etc.) and increase the number of actions occurring. These practices will be implemented in a manner that is agronomically sound while providing environmental benefits, consistent with best available science. The specific goals and indicators are presented in the column to the right. The graphic to the right shows the areas in the watershed predicted to have greater than 1.5 tons/acre/year of erosion in green. It is important to note that this map does not account for existing conservation within the planning area.

Multiple Benefits

Actions taken to make progress towards watershed-wide soil health goals will also benefit the issues shown in **Table D.2**. The table also shows the indicators for how these secondary benefits can be measured. Planning region-specific goals for these issues are provided in **Section E.**

Measurable Goals

Short-Term:

Treat 40,000 acres of working lands, including acres with existing conservation practices

Implement soil health practices and increase soil organic matter on 20% of acres

Long-Term:

Treat all acres in watershed, including acres with existing conservation practices

Implement soil health practices and increase soil organic matter on 70% of acres

Table D.2. Multiple benefits addressed through progress towards the watershed-wide soil health goal

Priority Issue	Assessing Progress
Groundwater contamination of public water supplies	Reduced nitrate and other contaminates concentrations
Excess runoff that transports contaminants to surface waters	acre-feet of storage
Water quality impairments (DO, AqL, AqR, pH, E. coli, mercury, biological)	tons/year of sediment lbs/year of total phosphorus lbs/year of total nitrogen
Accelerated erosion leading to sedimentation and other water quality issues	tons/year of sediment
Flood damages to private and public lands	acre/feet of storage

Issue 2 Contamination of Private Wells (Watershed-Wide)

Why It Matters

There have been active efforts to seal unused wells and test wells within the planning region. Some contaminates, such as arsenic and manganese, occur naturally in the environment. Other contaminates enter water supplies as a result of human behaviors. Examples include fertilizers and pesticides from lawns and farm fields, cleaners and personal care products from household drains, and industrial leaks or improper waste disposal. Any of these can lead to water contamination. Initial results from within the planning area indicate that some private wells may be at risk for nitrate contaminants (https://www.mda.state.mn.us/township-testing-program). Testing of private wells and testing clinics will be necessary. Work done to address this watershed-wide goal will seek to improve the quality of private drinking wells.

Measurable Goals

Short-Term:

Conduct one outreach event per year about well testing and sealing for private well owners

Host one well testing clinic per year

Seal 10 wells per year

Long-Term:

Provide resources and host well testing clinics for private well users to have their wells tested for Coliform Bacteria (yearly), Nitrate (biennially), Arsenic, Lead and Manganese (all once)

Seal all unused wells

Issue 3 – Subsurface Sewage Treatment Systems and Small Communities with Wastewater Needs (Watershed-Wide)

Why It Matters

Subsurface sewage treatment systems (SSTS) that are failing or pose an imminent threat to public health can contribute excessive amounts of bacteria (*E. coli*) to streams, lakes, wells, and other drinking water supplies and recreational areas. Excess bacteria can increase the risk of adverse human health impacts and decrease opportunities for the recreational use of surface waters. This goal seeks to continue to address SSTS systems that are likely to pose the greatest risk to groundwater and surface water.

Multiple Benefits

Actions taken to make progress towards watershed-wide SSTS and small communities with wastewater needs will also address the issue shown in **Table D.3**. The table also shows the indicators for how these secondary benefits can be measured. Planning region-specific goals for these issues are provided in **Section E.**

Measurable Goals

Short-Term:

Replace 10 failing or imminent public health threat SSTS per year
Metric: Number of replaced SSTS

Long-Term:

Replace all failing or imminent public health threat SSTS

Table D.3. Multiple benefits addressed through progress towards the watershed-wide SSTS and small communities with wastewater needs

Priority Issue	Assessing Progress
Water quality impairments (DO, AqL, AqR, pH, E. coli, mercury, biological)	tons/year of sediment lbs/year of total phosphorus lbs/year of total nitrogen

Issue 4 – Decreased groundwater recharge and supply (Watershed-Wide)

Why It Matters

Groundwater is the primary drinking water supply with the Lac qui Parle-Yellow Bank planning area. While the supply is currently adequate for meeting demands in the watershed, groundwater withdrawals have increased in recent years for agricultural irrigation. There has been increased interest from the University of Minnesota Extension (https://extension.umn.edu/soil-and-water/irrigation) related to scheduling, rate applications, cover crops, and nitrogen use in relation to water quality impacts, which may be valuable for outreach events. For this reason, a watershed-wide goal has been set to maintain and protect current groundwater supplies through education and outreach activities.

Measurable Goals

Short-Term:

Host two education and outreach events per year focused on ways to conserve groundwater

Long-Term:

Monitor and maintain aquifer levels over time

Planning Region Specific Goals

Issue 5 - Groundwater contamination of public water supplies

Why It Matters

The public water supplies within the planning area have relatively good water quality. Maintaining and protecting these public water supplies is important as residents in the watershed all receive drinking water from groundwater. Based upon the location of Drinking Water Supply Management areas along with local and Advisory Committee input, this plan identified planning region specific goals for two high priority planning regions (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals. Decisions will be made in consultation with public drinking water suppliers.

Measurable Goals

Short-Term:

20 Outreach events

Long-Term:

Continued outreach

Testing of drinking water supplies to ensure no degradation

Issue 6- Changes to land use, land cover, and land management that affect habitat, drainage, flooding, and erosion

Why It Matters

Land use, land cover, and land management all influence the function of habitat and surface waters. Within the planning area, land use, land cover, and land management are not expected to experience large changes in the near future. However, there may be some areas of alternative energy development (e.g., solar and wind energy), as well as increased drainage. To make progress towards improvements in habitat and surface waters, this plan has set goals to maintain and increase continuous cover in high priority planning regions shown in the thumbnail figure (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

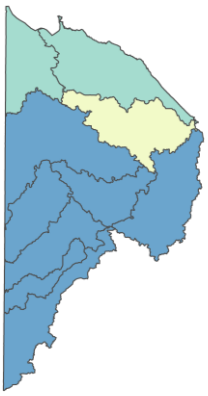
Measurable Goals

Short-Term:

Increase continuous cover by 5%, while maintaining existing cover

Long-Term:

Increase continuous cover by 10%, while maintaining existing cover



Issue 7 - Excess runoff that transports contaminants to surface waters

Why It Matters

While runoff is a natural part of watersheds, increased precipitation, land use changes, land management changes, and change to drainage can all have an impact on the amount of runoff that occurs in the planning area. When excess runoff occurs the amount of contaminants, such as sediment and nutrients, transported to surface waters can be exacerbated. To address this issue, measurable goals have been set for priority planning regions (shown in blue in the graphic) where excess runoff can be addressed during the lifespan of this plan. The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

*This goal is inclusive of structural and nonstructural practices, as well as larger storage projects.

Measurable Goals

Short-Term:

Increase storage by 0.05 inch (2,934 acre-feet)*

Long-Term:

Increase storage by 0.39 inch (22,880 acre-feet)*

Issue 8 – Surface water quality impairments (DO, AqL, AqR, pH, *E. coli*, mercury, biological)

Why It Matters

Surface waters in Minnesota are listed as impaired when they are not able to support beneficial uses. This issue focused on impairments that impact the beneficial uses of aquatic life and aquatic recreation. Several constituents can impact aquatic life and aquatic recreation. Goals were set to address impaired waters in high priority planning regions within the planning area (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

Measurable Goals

Short-Term:

Phosphorus – 10% reduction in annual loading (6,384 lbs/year)
Bacteria – 10% reduction in bacteria concentration
Total Nitrogen – 10% reduction in annual loading (140,764 lbs/year)

Long-Term:

Phosphorus – 35% reduction in annual loading (22,343 lbs/year)
Bacteria – 52% reduction in bacteria concentration
Total Nitrogen – 45% reduction in annual loading (633,436 lbs/year)

Issue 9 - Connectivity and hydrologic changes that degrade streams and drainage systems

Why It Matters

Many of the changes made to surface waters, such as dams, bridges, and culverts, have impacts on aquatic life and aquatic habitat. In addition, these changes can have impacts on proper flow conveyance leading to increased peak flows, changes in base flows, and longitudinal (upstream and downstream) connectivity issues. These impacts can degrade the quality of streams and drainage systems. Goals were set to address this issue in high priority planning regions (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

Measurable Goals

Short-Term:

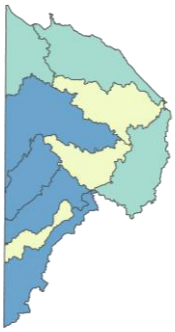
Modify 10% of dams, culverts, and bridges that inhibit aquatic life

9 miles of channel restored

Long-Term:

All dams, culverts, and bridges allow for fish passage

Restore all degraded channel beds



Issue 10 - In-channel erosion contributing to impacts on water quality and habitat

Why It Matters

Stream bank erosion, channel incision, and near-channel gully formation can all have negative impacts on water quality, infrastructure and aquatic habitat associated with lateral (i.e., floodplain) connectivity. Goals were set to address this issue in high priority planning regions (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

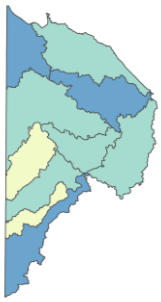
Measurable Goals

Short-Term:

9 miles of channel restoration

Long-Term:

Restore all degraded channel beds



Issue 11 - Accelerated erosion leading to sedimentation and other water quality issues

Why It Matters

Increases in soil erosion from wind or stormwater can have impacts on surface waters, infrastructure, and local communities. While many in the planning area have adopted practices to reduce accelerated erosion, there are additional opportunities to make continued progress towards improving this issue. Goals were set to address this issue in high priority planning regions (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

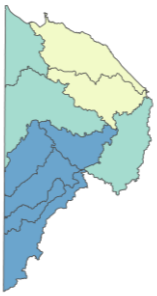
Measurable Goals

Short-Term:

Reduce sediment by 10% or about 5,134 tons/year to reduce stressors on biological impairments

Long-Term:

Reduce sediment by 25% or about 12,834 tons/year to reduce stressors on biological impairments



Issue 12 - Flood damages to private and public lands

Why It Matters

Within the planning area, regions have experienced flood damages to crops, agricultural lands, urban areas, infrastructure, and the Lac qui Parle State Park. Goals were set to address this issue in high priority planning regions (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

*Tracked using PTMApp through treated volume data following implementation.

Measurable Goals

Short-Term:

Increase storage by 0.05 inch (2,934 acre-feet)*

Long-Term:

Increase storage by 0.39 inch (22,880 acre-feet)*

Issue 13 – Loss of Aquatic Habitat

Why It Matters

There are regions within the planning area that have experienced declines in the quantity or quality of available aquatic habitat. Aquatic habitat is important for maintaining healthy and abundant aquatic life. Goals were set to address this issue in high priority planning regions (shown in blue in the graphic). The measurable goals for the specific planning regions are supplied in **Section E.** The goals provided here are an aggregate of the planning region specific goals.

Measurable Goals

Short-Term:

5 miles of channel restoration

Long-Term:

Improve MSHA score to a level indicative of supporting aquatic life. Assessed through a comparison of scores developed during the MPCA's WRAPS process.

E. Targeted Impementation Schedule

E. Targeted Implementation Schedule

This section of the plan identifies the targeted actions that will be implemented over the next 10 years to address priority issues and make progress toward measurable goals. This includes information about each action; where and when it will be targeted, how it will be measured, and how much each will cost.

The majority of actions were targeted on a planning region basis for this plan. Within each planning region, measurable goals and targeted actions were set to address those issues that were geographically prioritized as being of high importance in that planning region. Several additional actions are identified in this plan section that will be carried out on a watershed-wide basis because completing actions identified in this plan section is largely dependent on funding. This plan recognizes three funding levels (**Table E.1**). LGUs participating in the 1W1P planning process are eligible to receive non-competitive Watershed-Based Implementation Funding (WBIF) through BWSR once the plan is approved. In recognition of this important source of funding, funding levels are organized in terms of current funding, current funding with WBIF, and targeted actions that are needed, but will require added resources to complete. Actions pursued under Funding Level 2 (Current Funding + WBIF) are the focus of this plan section. Many actions in this plan did not receive a budget estimate and were simply identified as Funding Level 3 actions. These actions will require additional resources to implement as indicated in **Table E.1**. In addition, several items that require added resources (i.e., Funding Level 3) were given budget estimates, but not included in the total estimated cost for implementing this plan (i.e., Funding Level 2).

Table E.1. Funding Levels for the Lac qui Parle-Yellow Bank Comprehensive Watershed Management Plan

Funding Level	Name	Description
1	**Current Funding**	This level is based largely upon existing local funding sources. It assumes that this funding will continue during plan implementation.
2	**Current Funding + WBIF**	This level assumes current funding continues with the addition of an additional $625,000 per biennium (or $312,500/year) from WBIF.
3	**Added resources**	This plan includes targeted actions that exceed the resources identified in funding levels 1 and 2. Funding level 3 acknowledges that resource beyond current funding and WBIF will be needed to achieve the targeted progress towards measurable goals.

Building on Existing Conservation Action

It is important to recognize that conservation actions have been implemented for decades within the Lac qui Parle-Yellow Bank Watershed. This plan will build on these existing conservation efforts. The targeted actions described in this plan section are intended to make continued progress towards resource improvement goals over the next 10 years.

Targeting Conservation Action

The planning partners went through an intensive workshop process to identify the types of targeted conservation actions that would occur within each planning region. In addition, the planning partners also pinpointed several larger projects (i.e., capital projects) that they plan to implement over the 10-year lifespan of this plan. The results of this intensive workshop process are shown in the ***Planning Regions*** section below.

Yellow Bank Hills Scenic Natural Area near Pegg Lake outside of Nassau, MN.

To identify targeted in-field and edge-of-field projects and practices, the planning partners used the information from the intensive workshop to set conservation practice selection criteria for PTMApp. Specific targeting criteria were tailored to each practice type, high priority issue, and planning region to target in-field and edge-field-practices that would provide the best opportunities for making progress towards measurable goals. The specific selection criteria along with the resulting targeted conservation practices are provided in **Appendix D**. The planning partners used the targeted conservation practices in **Appendix D** to estimate the amount of in-field and edge-of-field treatment that would be needed to achieve their measurable goals.

The targeted conservation practices in **Appendix D** will serve as a guide for implementing conservation actions identified in this plan. It is important to note that the targeted practices are not meant to be prescriptive, but rather identify an expected pace of progress towards goals and anticipated range of water quality and quantity benefits from implementing conservation actions. As such, the planning partners may need to adjust the number of acres treated by any one type of conservation practices as they proceed to implement this plan.

Several factors will impact where conservation actions are implemented on the landscape. These factors include, but are not limited to:

- Voluntary participation by landowners and residents
- Existing conservation
- Field verification of practice type and location
- Amount of funding available for implementation
- New data on resource conditions
- Emerging practices
- Practices/projects ready to implement
- Effectiveness of education, outreach, and research initiatives

PTMApp estimated landscape loading values for the Lac qui Parle Watershed were compared against the MPCA Watershed Pollution Load Monitoring Network (WPLMN) values, as well as estimated loads from the Hydrologic Simulation Program - FORTRAN (HSPF). Based on the comparison, it was decided to keep PTMApp loading values as-is, without adjusting PTMApp input variables.

Differences arise between PTMApp and monitored or modeled data due to several factors. PTMApp accounts for surface runoff of sediment, TP, and TN from the landscape only. It does not account for subsurface flow, groundwater contributions, or near-stream/in-stream erosion. As a result, PTMApp estimated loads of sediment, TP, and TN are expected to be slightly lower than monitored values (**Table E.2**). PTMApp sediment loading estimates specifically are also typically lower than monitored loads because PTMApp estimates sediment loads, whereas monitored values are typically based on measurements of total suspended solids (TSS), and not specifically the sediment that is suspended. TSS included particulate organic matter and other, non-sediment objects.

Table E.2. PTMApp loading comparisons at three resource points. These three points represent resource points that spatially overlap monitoring locations that are a part of MPCA's Watershed Pollutant Load Monitoring Network (WPLMN).

	Sediment, tons/year	TP, lbs/year	TN, lbs/year
PTMApp Priority Resource Point 23 (518,428 Acres)	31,337	43,273	844,709
MPCA-WPLMN Lac qui Parle River near Lac qui Parle (S003-087, E24023001) – Mean	40,304	235,792	2,849,142
MPCA-WPLMN Lac qui Parle River near Lac qui Parle (S003-087, E24023001) – Min	2,671	46,669	228,600
MPCA-WPLMN Lac qui Parle River near Lac qui Parle (S003-087, E24023001) - Max	127,822	760,069	7,312,094
HSPF	19,979	332,557	4,388,206
HSPF (min)	3,036	74,984	722,094
HSPF (max)	28,939	459,804	6,027,074
PTMApp Priority Resource Point 20 (255,089 acres)	14,949	23,894	477,348
MPCA-WPLMN West Branch Lac qui Parle River near Dawson (S003-089, H24059001) - Mean	6,864	86,910	716,428
MPCA-WPLMN West Branch Lac qui Parle River near Dawson (S003-089, H24059001) - Median	4,578	48,081	518,857
PTMApp Priority Resource Point 102 (208,669 Acres)	14,859	17,955	353,016
MPCA-WPLMN Lac qui Parle River near Providence (S003-079, H24053001) - Mean	17,525	81,430	3,026,924
MPCA-WPLMN Lac qui Parle River near Providence (S003-079, H24053001) - Median	14,794	52,015	748,405

Implementation Programs

This plan contains six different watershed-wide Action Tables that group similar action types together in seven implementation programs (**Figure E.1**). Projects and practices are broken out and targeted by planning regions to reflect the difference in issues, measurable goals, and actions across the planning area. Actions within the Capital Improvements, Education and Outreach, Research and Monitoring, Regulatory, Administration and Technical Assistance, and Operation and Maintenance implementation programs are implemented watershed-wide. **Section F** has more details on each of these implementation programs.

Figure E.1. Implementation Programs for implementing the targeted actions described in this plan section. These programs are full described in Section F. Plan Implementation Programs.

Planning Regions (Projects and Practices, Capital Projects)

Section D describes a process for how the planning partners set geographic priorities from Planning Regions (**Figure D.3**) and where issues will be addressed within planning regions (**Table D.1**). For each planning region, the following information is provided:

- **High, Medium, Low Priority for Implementation:** the planning region information is organized by high, medium, and low priority planning regions as described in **Section D** (**Figure D.3** and **Table D.1**).
- **Description of Planning Region:** a brief description of the planning region and the ranking of issues within the planning region.
- **Targeted Map:** a map showing areas within the planning region where high priority issues will be addressed through targeted actions.
- **Measurable Goals Table:** a table showing measurable goals for the high priority issues occurring within that planning region. These planning-region specific goals are aggregated into watershed-wide summaries for reporting purposes in **Section D.**
- **Targeted Action Table:** the targeted action table supplies the documentation of all projects and practices that have been targeted to make progress towards measurable goals. In addition, it provides planning region documentation of targeted capital projects. Capital projects are also summarized in a watershed-wide action table. Actions were targeted to address only high priority issues within that planning region. This table also documents the connection between targeted actions and multiple measurable goals.

Mallard by Jason Frank

High Priority:
Headwaters Lac qui Parle River Planning Region

The Headwaters Lac qui Parle River Planning Region is the southernmost portion of the planning area and occupies 61,675 acres of the planning area. It contains steep relief from its headwaters in South Dakota to its outlet. A 5-mile stream restoration project has been targeted near the outlet of the planning region. **Figure E.2** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **High** priority relative to other planning regions. This means that this area will be an initial focus of implementation actions and coordinated efforts among the planning partners.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Low
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	High
Excess runoff that increases contaminants to surface waters	Low
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Medium
Connectivity and hydrologic changes that degrade streams and drainage systems	High
In-channel erosion contributing to impacts on water quality and habitat	High
Accelerated erosion leading to sedimentation and other water quality issues	High
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	High
Loss of aquatic habitat	High

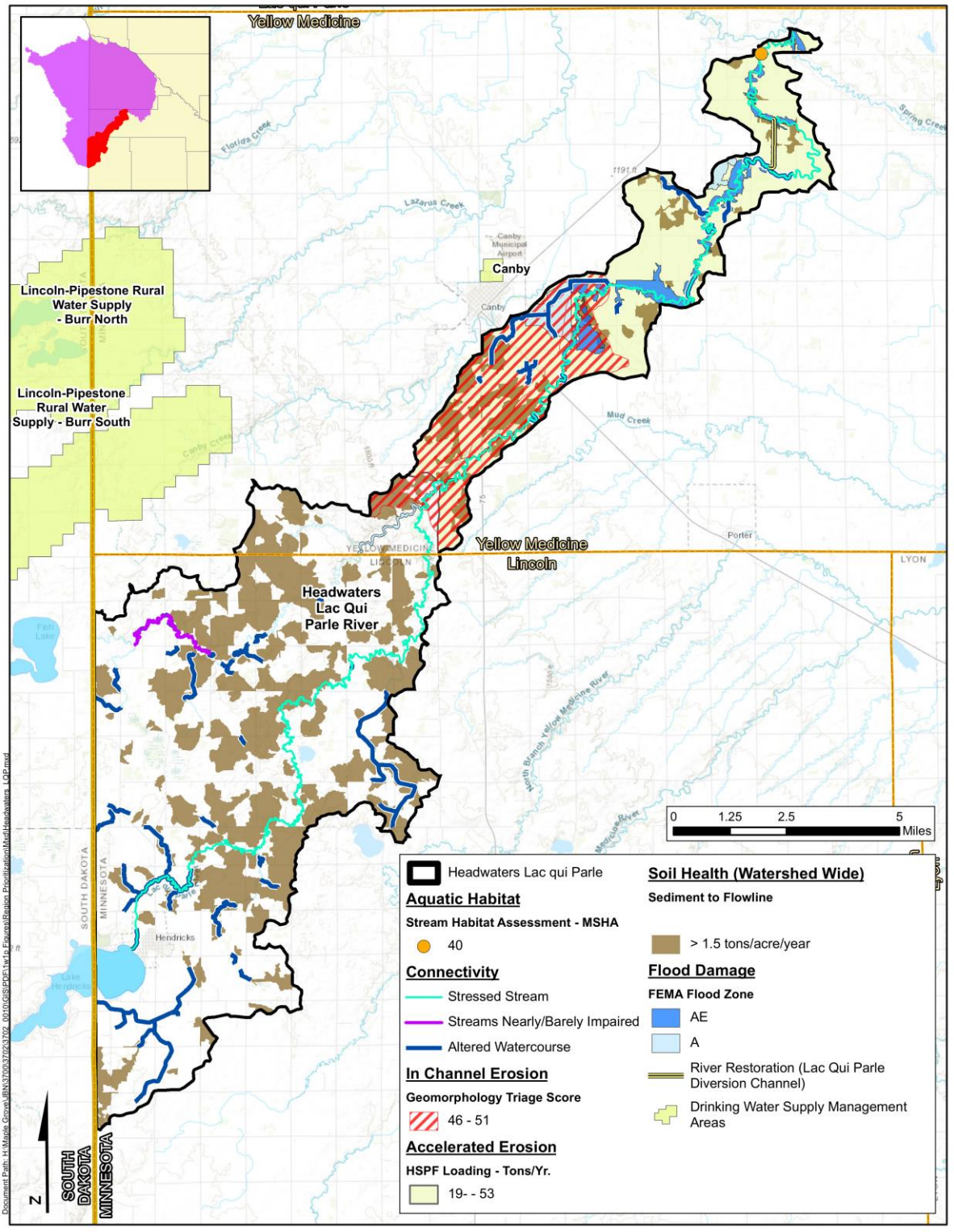


Figure E.2. Targeted map showing the locations of issues and actions being addressed within the Headwaters Lac qui Parle River Planning Region.

Measurable Goal Table - Headwaters Lac qui Parle River Planning Region. The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (Reporting Milestone)	Resource Specific Target	What is the indicator
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Short-Term: ❍ Increase continuous cover by 5%, while maintaining existing cover Long-Term: ❍ Increase continuous cover by 10%, while maintaining existing cover		Acres treated
Connectivity and hydrologic changes that degrade streams and drainage systems	Short-term: ❍ Modify 10% of dams, culverts, and bridges that inhibit aquatic life ❍ 5 miles of restored streams Long-term: ❍ All dams, culverts, and bridges allow for fish passage ❍ Restore all degraded channel beds		# of inhibitors modified Restored stream miles
In-channel erosion contributing to impacts on water quality and habitat	Short-term: ❍ 5 miles of channel restoration Long-term: ❍ Restore all degraded channel beds		Miles of channel stabilized
Accelerated erosion leading to sedimentation and other water quality issues	Short Term: ❍ Reduce Sediment by 10% or about 597 tons/year to reduce stressor on biological impairment Long Term: ❍ Reduce Sediment by 40% or about 2,386 tons/year to reduce stressor on biological impairment	Tributary to Lac qui Parle River (AUID: 07020003-530 and -569) Short Term: ❍ Reduce Sediment by 10%, or about 677 tons/year, to reduce stressor on biological impairment Long Term: ❍ Reduce Sediment by 55%, or about 3,726 tons/year, to reduce stressor on biological impairment Upper Lac qui Parle River (AUID: 07020003-505) Short Term: ❍ Reduce Sediment by 10%, or about 597 tons/year, to reduce stressor on biological impairment Long Term: ❍ Reduce Sediment by 72%, or about 4,295 tons/year, to reduce stressor on biological impairment	PTMApp
Flood damages to private and public lands	Short-Term: ❍ Increase storage by 0.05 inch (211 acre-feet) Long-Term: ❍ Increase storage by 0.39 inch (2,658 acre-feet)		PTMApp
Loss of aquatic habitat	Short-Term: ❍ 5 miles of channel restoration Long-Term: ❍ Compare and reassess aquatic habitat based on MPCA's updated WRAPS		Miles of channel restored

Targeted Action Table - Headwaters Lac qui Parle River Planning Region. The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

						Issues Addressed													Timeline						
	ID	Action	Targeting Approach	10-year Outcomes	Progress Towards Goal	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost (Funding)	Total Budget
Projects and Practices	HW-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 1,300 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	•		○	•	•	○	○	•			○	•	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA	•	•	•	•		$52,600	$526,000
	HW-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial cover	PTMApp Data	Treat at least 220 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	•	•	○	•	•	○	○	•		○	○	•	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA	•	•	•	•		$1,210	$12,100
	HW-3	Culvert Replacement that improve habitat, water quality, or water quantity	Local Partners	1	❍ Number of culverts replaced					○	•	○					•	•	**LqP-YB WD**	•	•	•			NA (Level 3)	NA (Level 3)
Capital Projects	HW-4	1 Stream Restoration Project (Lac qui Parle diversion channel)	Local partners	5 Miles of stream restoration	BWSR Estimator ❍ Tons/year sediment ❍ lbs/year phosphorus BWSR SQT Spreadsheet ❍ Stream functional lift			•		•	•	•					•	•	**LqP-YB WD**, DNR, BWSR, County	•	•	•			NA (Level 3)	NA (Level 3)

High Priority:
West Branch Lac qui Parle River Planning Region

The West Branch Lac qui Parle River Planning Region is the west-central portion of the planning area and occupies 109,693 acres of the planning area. It contains steep relief from its headwaters in South Dakota to its outlet. The West Branch of the Lac qui Parle River joins the mainstem of the Lac qui Parle River at the outlet of this planning region about one mile east of Dawson, Minnesota. This planning region contains numerus issues that are high priorities within the planning region. **Figure E.3** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **High** priority relative to other planning regions. This means that this area will be an initial focus of implementation actions and coordinated efforts among the planning partners.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Medium
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	High
Excess runoff that increases contaminants to surface waters	High
Water quality impairments (DO, pH, E. coli, mercury, biological, nutrients)	High
Connectivity and hydrologic changes that degrade streams and drainage systems	High
In-channel erosion contributing to impacts on water quality and habitat	Medium
Accelerated erosion leading to sedimentation and other water quality issues	Medium
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	High
Loss of aquatic habitat	Medium

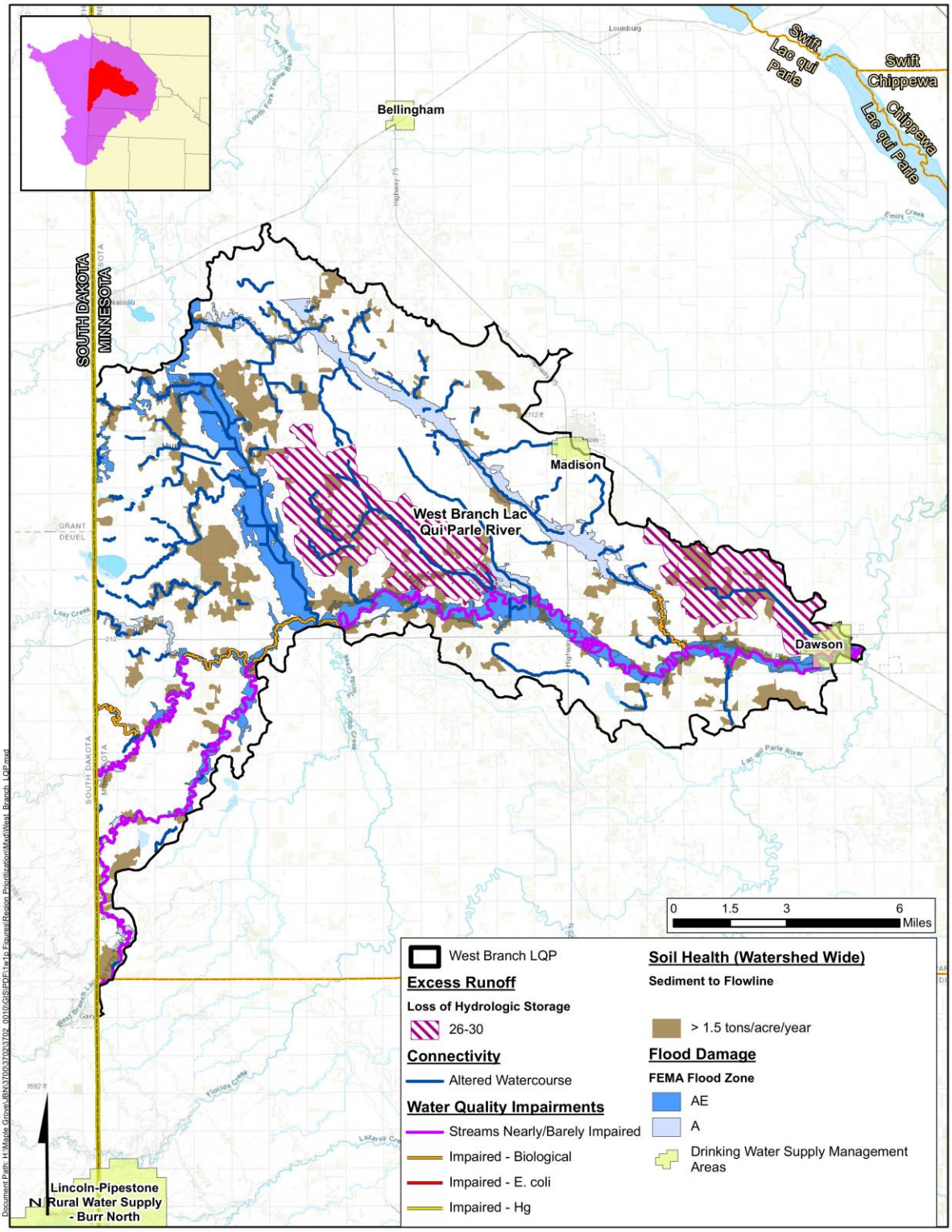


Figure E.3. Targeted map showing the locations of issues and actions being addressed within the West Branch Lac qui Parle River Planning Region.

Measurable Goal Table – West Branch Lac qui Parle River Planning Region: The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (Reporting Milestone)	Resource Specific Target	What is the Indicator
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Short-Term: ❍ Increase continuous cover by 5%, while maintaining existing cover Long-Term: ❍ Increase continuous cover by 10%, while maintaining existing cover		Acres treated
Excess runoff that increases contaminants to surface waters *(will also directly address the flooding issue)*	Short-Term: ❍ Increase storage by 0.05 inch (375 acre-feet) Long-Term: ❍ Increase storage by 0.39 inch (4,727 acre-feet)		PTMApp
Water quality impairments (DO, pH, E. coli, mercury, biological, nutrients)	**Phosphorus** Short-Term: ❍ 10% reduction in annual loading (2,502 lbs/year) to support regional and downstream goals Long-Term: ❍ 35% reduction (8,757 lbs/year) to support regional and downstream goals **Bacteria** – Short Term : ❍ Reduce bacteria by 10%, concentration based Long Term: ❍ Reduce bacteria by 50%, concentration based **Nitrogen** Short Term: ❍ Reduce Total Nitrogen by 10% to support regional goals and downstream water quality (49,337 lbs/year) Long Term: ❍ Reduce Total Nitrogen by 45% to support regional goals and downstream water quality (222,018 lbs/year)	**Phosphorus** Lost Creek (AUID: 07020003-517, -520, -567) Short-Term: ❍ Reduce phosphorus by 10% (718 lbs/year) Long-Term: ❍ Reduce phosphorus by 34% (2,442 lbs/year) **Bacteria (E. coli)** Short-Term for all impaired waterways below: ❍ 10% reduction, concentration based Long-Term: County Ditch 5 (AUID: 07020003-523) ❍ 44% reduction, concentration based Lost Creek (AUID: 07020003-517) ❍ 44% reduction, concentration based Upper West Branch Lac qui Parle River (AUID: 07020003-516) ❍ 67% reduction, concentration based Upper West Branch Lac qui Parle River (AUID: 07020003-519) ❍ 86% reduction, concentration based Tributary to West Branch Lac qui Parle River (AUID: 07020003-580) ❍ 38% reduction, concentration based Lower West Branch Lac qui Parle River (AUID: 07020003-512) ❍ 14% reduction, concentration based Lower West Branch Lac qui Parle River (AUID: 07020003-513) ❍ 64% reduction, concentration based	PTMApp 10-year monitoring program (MPCA)
Connectivity and hydrologic changes that degrade streams and drainage systems	Short-term: ❍ Modify 10% of dams, culverts, and bridges that inhibit aquatic life Long-term: ❍ All dams, culverts, and bridges allow for fish passage	**Dams, culverts, bridges:** All streams that are viable for aquatic life Lower West Branch Lac qui Parle River (AUID: 07020003-515) **Stream restoration:**	# of inhibitors modified Restored stream miles
Flood damages to private and public lands (*will also directly address the runoff issue)*	Short-Term: ❍ Increase storage by 0.05 inch (375 acre-feet) Long-Term: ❍ Increase storage by 0.39 inch (4,727 acre-feet)		PTMApp

Targeted Action Table– West Branch Lac qui Parle River Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

					Issues Addressed												Timeline						
ID	Action	Targeting Approach	10-year Outcomes	Progress towards Goal	Groundwater Contamination Soil Health	LULC Changes Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
WB-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 4,800 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA	●	●	●	●		$64,060	$640,600
WB-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial Cover	PTMApp Data	Treat at least 11,500 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	●	○	●	●	○	○	●		○	○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA	●	●	●	●		$60,060	$600,600
WB-3	❍ Manure Management ❍ STSS Upgrades ❍ Sewer upgrades ❍ Livestock exclusion	Community Outreach	10 projects focused on bacteria reduction	❍ Monitoring of stream concentration ❍ Percent of failing STSS ❍ Percent of under-sewered communities	●		○	●				●	●			**SWCD, Counties,** LqP-YB WD, BWSR, MDH, MPCA, NRCS	●	●	●	●		NA (Level 3)	NA (Level 3)
WB-4	❍ Culvert Replacement that improve habitat, water quality, or water quantity	Local Partners	1	❍ Number of culverts replaced			○	●	○					●	●	**LqP-YB WD**	●	●	●			NA (Level 3)	NA (Level 3)

High Priority:
Cobb Creek Planning Region

The Cobb Creek Planning Region contains steep relief from its headwaters in South Dakota to its outlet and occupies 48,552 acres of the planning area. This planning region contains two major streams: Cobb Creek and Florida Creek. A restoration project on Florida Creek, near the confluence of Florida Creek and Cobb Creek, has been targeted for completion during the initial years of implementing this plan. Cobb Creek joins the West Branch Lac qui Parle River at the outlet of the planning region. **Figure E.4** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **High** priority relative to other planning regions. This means that this area will be an initial focus of implementation actions and coordinated efforts among the planning partners.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Medium
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	High
Excess runoff that increases contaminants to surface waters	High
Water quality impairments (DO, pH, ***E. coli***, mercury, biological, nutrients)	High
Connectivity and hydrologic changes that degrade streams and drainage systems	High
In-channel erosion contributing to impacts on water quality and habitat	Low
Accelerated erosion leading to sedimentation and other water quality issues	High
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	High
Loss of aquatic habitat	High

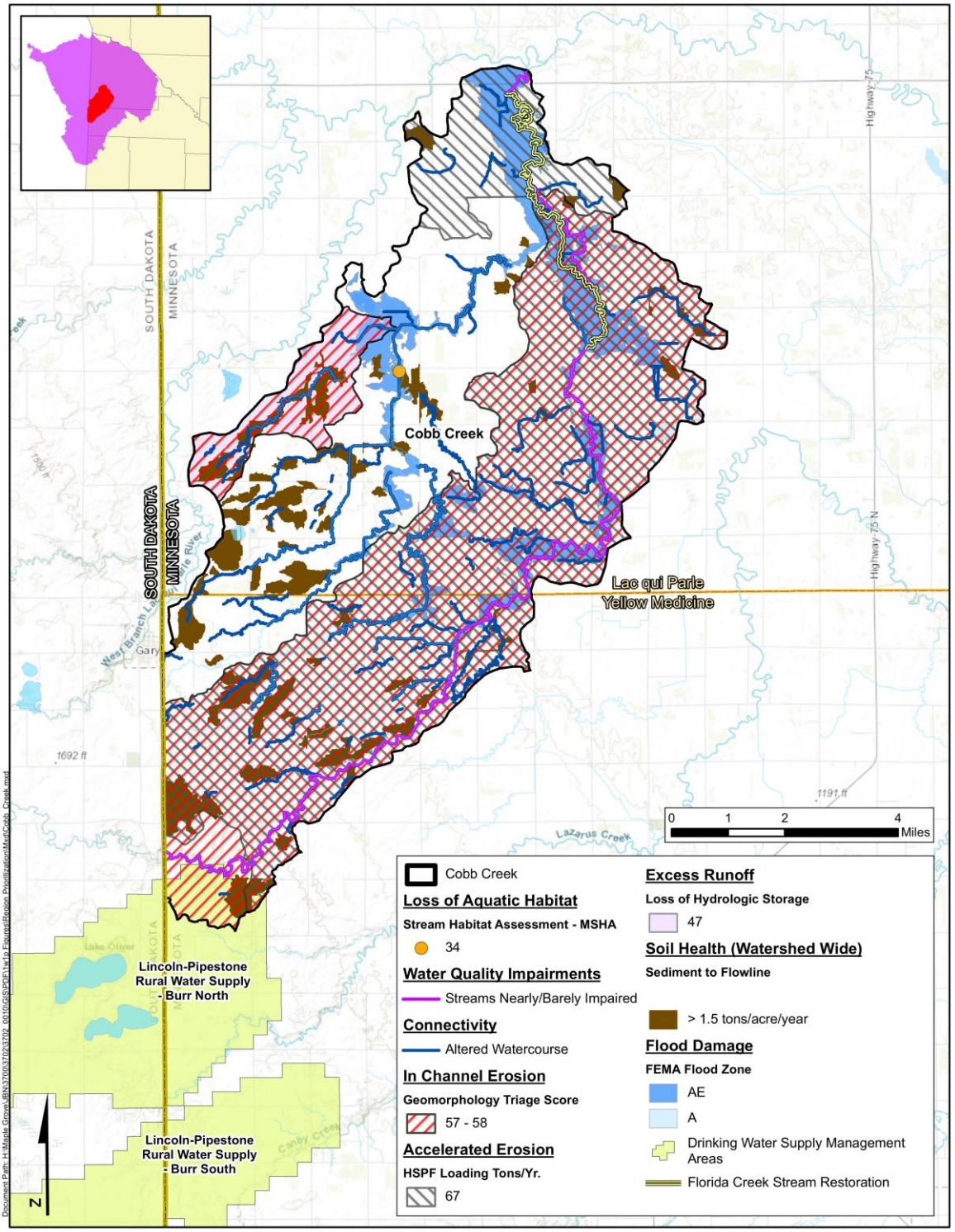


Figure E.4. Targeted map showing the locations of issues and actions being addressed within the Cobb Creek Planning Region.

Measurable Goal Table – Cobb Creek Planning Region. The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (Reporting Milestone)	Resource-Specific Target	What is the Indicator
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Short-Term: ❍ Increase continuous cover by 5%, while maintaining existing cover Long-Term: ❍ Increase continuous cover by 10%, while maintaining existing cover		Acres treated
Excess runoff that increases contaminants to surface waters *(will also directly address the flooding issue)*	Short-Term: ❍ Increase storage by 0.05 inch (166 acre-feet) Long-Term: ❍ Increase storage by 0.39 inch (2,092 acre-feet)		
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	**Phosphorus** Short-Term: ❍ Reduce Phosphorus by 10% or about 1,009 lbs/year to reduce stressor on biological impairment Long-Term: ❍ Reduce Phosphorus by 41% or about 4,135 lbs/year to reduce stressor on biological impairment **Bacteria** Short-Term: ❍ Reduce bacteria by 10%, concentration based Long-Term: ❍ Reduce bacteria by 50%, concentration based **Nitrogen** Short-Term: ❍ Reduce Total Nitrogen by 10% to support regional goals and downstream water quality (20,171 lbs/year) Long Term: ❍ Reduce Total Nitrogen by 45% to support regional goals and downstream water quality (90,768 lbs/year)	**Bacteria (*E. coli*)** Florida Creek (AUID:0702003-521) Short-Term: ❍ 10% reduction, concentration based Long-Term: ❍ 69% reduction, concentration based **Phosphorus** Florida Creek (AUID:0702003-521) Short-Term: ❍ 10% reduction in annual loading (1,009 lbs/year) to support regional and downstream goals Long-Term: ❍ 41% reduction (4,135 lbs/year) to support regional and downstream goals Cobb Creek (AUID:0702003-583) Short-Term: ❍ 10% reduction in annual loading (317 lbs/year) to support regional and downstream goals Long-Term: ❍ 52% reduction (1,649 lbs/year) to support regional and downstream goals	10-year monitoring program (MPCA) PTMApp
Connectivity and hydrologic changes that degrade streams and drainage systems	Short-Term: ❍ Modify 10% of dams, culverts, and bridges that inhibit aquatic life Long-Term: ❍ All dams, culverts, and bridges allow for fish passage ❍ Restore all degraded channel beds		# of inhibitors modified Restored stream miles

Issue	Planning Region Goal (Reporting Milestone)	Resource-Specific Target	What is the Indicator
Accelerated erosion leading to sedimentation and other water quality issues *(will also directly address the water quality impairments issue)*	Short Term: ❍ Reduce Sediment by 10%, or about 879 tons/year, to reduce stressor on biological impairment Long Term: ❍ Reduce Sediment by 83% during high flows, or about 7,296 tons/year to reduce stressor on biological impairment		PTMApp
Flood damages to private and public lands *(will also directly address the runoff issue)*	Short-Term: ❍ Increase storage by 0.05 inch (166 acre-feet) Long-Term: ❍ Increase storage by 0.39 inch (2,092 acre-feet)		PTMApp
Loss of aquatic habitat	3 Miles of Florida Creek	Florida Creek (AUID:0702003-521) and Cobb Creek (AUID:0702003-583)	Miles of channel restored

Targeted Action Table– Cobb Creek Planning Region. The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

						Issues Addressed														Timeline						
	ID	Action	Targeting Approach	10-year Outcomes	Progress towards Goal	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	CB-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 4,500 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●		○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA	●	●	●	●		$86,700	$867,000
	CB-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial Cover	PTMApp Data	Treat at least 2,900 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	●	○	●	●	○	○	●		○	○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA	●	●	●	●		$16,350	$163,500
	CB-3	❍ Manure Management ❍ STSS Upgrades ❍ Livestock exclusion	Community Outreach	10 projects focused on bacteria reduction	❍ Monitoring of stream concentration ❍ Percent of failing STSS ❍ Percent of under-sewered communities	●			○	●				●	●				**County/ NRCS,** SWCDs**,** LqP-YB WD, BWSR, MDH, MPCA	●	●	●			NA (Level 3)	NA (Level 3)
Capital Projects	CB-4	Florida Creek Restoration Project	Local partners	3 Miles of stream restoration	BWSR Estimator ❍ Tons/year sediment ❍ lbs/year phosphorus BWSR SQT Spreadsheet ❍ Stream functional lift				●		●	●	●				●	●	**LqP-YB WD**, DNR, LqP SWCD, BWSR, NRCS	●	●				NA	$3,000,000 (Level 3)

Medium Priority: Lazarus Creek Planning Region

The Lazarus Creek Planning Region contains steep relief from its headwaters in South Dakota to its outlet and occupies 50,094 acres of the planning area. About 16,000 acres drain from South Dakota into Lazarus Creek. **Figure E.5** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **Medium** priority relative to other planning regions. This means that this area will be "on deck" for focused implementation efforts, after issues in **High** priority planning regions have been addressed. While it will not immediately be the focus of coordinated implementation efforts through this plan, actions will be taken within the planning region to support progress towards watershed-wide goals.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Medium
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	High
Excess runoff that increases contaminants to surface waters	Medium
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Low
Connectivity and hydrologic changes that degrade streams and drainage systems	High
In-channel erosion contributing to impacts on water quality and habitat	Medium
Accelerated erosion leading to sedimentation and other water quality issues	High
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	Medium
Loss of aquatic habitat	Medium

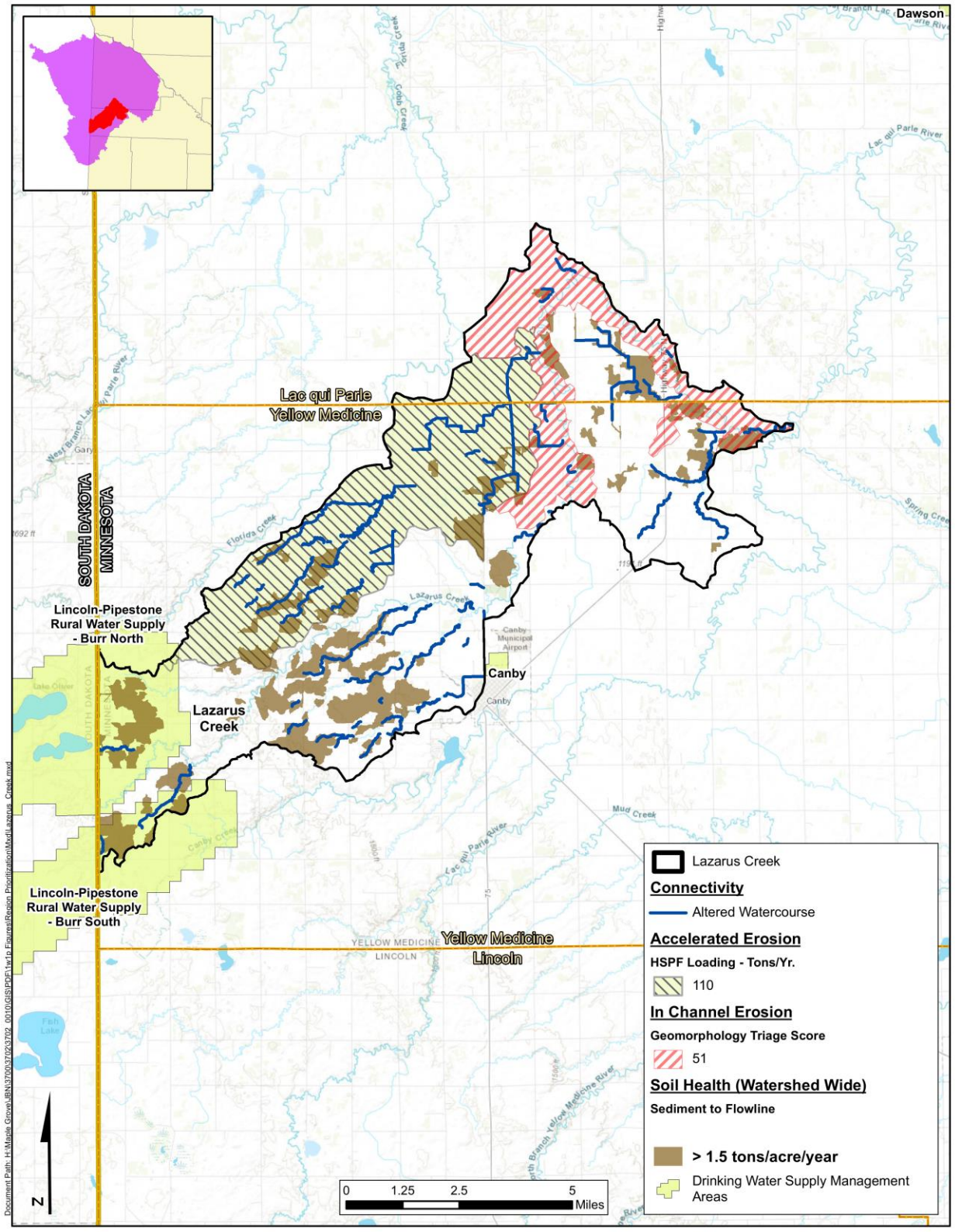


Figure E.5. Targeted map showing the locations of issues and actions being addressed within the Lazarus Creek Planning Region.

Measurable Goal Table – Lazarus Creek Planning Region: The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (Reporting Milestone)	Resource-Specific Target	What is the Indicator
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Short-Term: ❍ Increase continuous cover by 5%, while maintaining existing cover Long-Term: ❍ Increase continuous cover by 10%, while maintaining existing cover		Acres treated
Connectivity and hydrologic changes that degrade streams and drainage systems	Short-Term: ❍ Modify 10% of dams, culverts, and bridges that inhibit aquatic life ❍ 1 mile of stream restored Long-Term: ❍ All dams, culverts, and bridges allow for fish passage ❍ Restore all degraded channel beds	**Dams, culverts, bridges:** Lazarus Creek and All streams that are viable for aquatic life **Stream restoration:**	# of inhibitors modified Restored stream miles
Accelerated erosion leading to sedimentation and other water quality issues	Short-Term: ❍ Reduce Sediment by 10%, or about 1,051 tons/year, to reduce stressor on biological impairment Long-Term: ❍ Reduce Sediment by 34%, or about 3,573 tons/year to reduce stressor on biological impairment		PTMApp

Targeted Action Table– Lazarus Creek Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

						Issues Addressed													Timeline						
	ID	Action	Targeting Approach	10-year Outcomes	Progress towards Goal	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	LC-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 2,200 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●		○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				●	●	$15,640 (Level 2) $86,400 (Level 3)	$156,400 (Level 2) $864,000 (Level 3)
	LC-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial Cover	PTMApp Data	Treat at least 600 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	●	○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				●	●	$5,180 (Level 2)	$51,800 (Level 2)
Capital Projects	LC-3	Culvert Replacement that improve habitat, water quality, or water quantity	Local Partners	3 culverts replaced	❍ Miles of channel treated					○	●	○				●	●		**LqP-YB WD, LqP SWCD**				●	●	NA (Level 3)	NA (Level 3)
	LC-4	Stream Restoration Project	Local partners	1 Miles of stream restoration	BWSR Estimator ❍ Tons/year sediment ❍ lbs/year phosphorus BWSR SQT Spreadsheet ❍ Stream functional lift			●		●	●	●				●	●		**LqP-YB WD**, DNR, LqP SWCD, BWSR, NRCS				●	●	NA (Level 3)	NA (Level 3)

Medium Priority: Minnesota River Planning Region

The Minnesota River Planning Region is also referred to as the Upper Minnesota River. This planning region abuts the Upper Minnesota River Watershed District on the North side of the planning region and occupies 83,160 acres of the planning area. The planning region also contains Emily Creek. Lac qui Parle Lake is located at the outlet of the planning region along the Minnesota River. **Figure E.6** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. There were no issues that received prioritization of **High** within this planning region. Therefore, all targeted actions within this planning region are meant to address watershed-wide goals

This planning region was assigned a **Medium** priority relative to other planning regions. This means that this area will be "on deck" for focused implementation efforts, after issues in **High** priority planning regions have been addressed. While it will not immediately be the focus of coordinated implementation efforts through this plan, actions will be taken within the planning region to support progress towards watershed-wide goals.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Low
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Medium
Excess runoff that increases contaminants to surface waters	Medium
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Medium
Connectivity and hydrologic changes that degrade streams and drainage systems	Medium
In-channel erosion contributing to impacts on water quality and habitat	Medium
Accelerated erosion leading to sedimentation and other water quality issues	Low
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	Medium
Loss of aquatic habitat	Medium

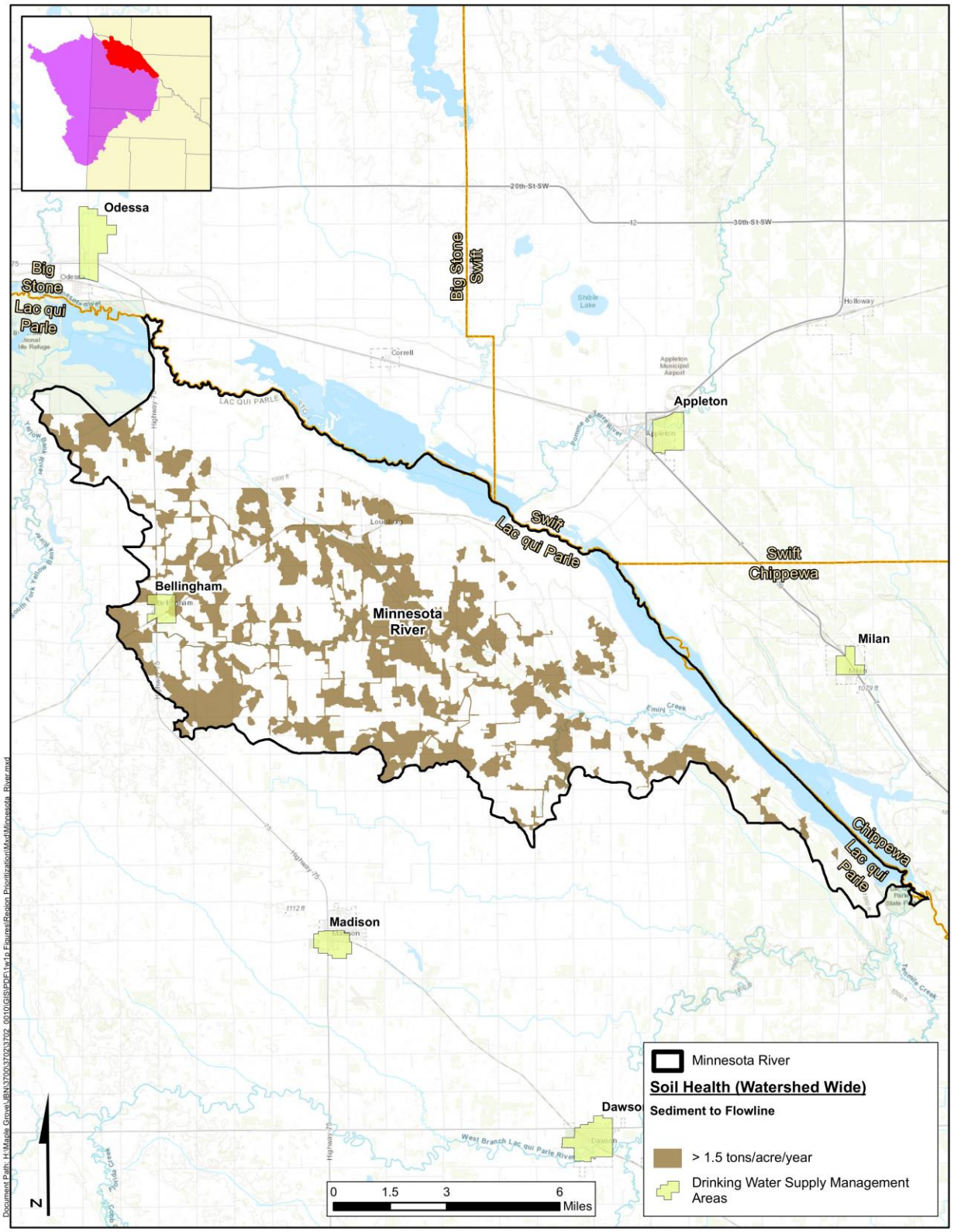


Figure E.6. Targeted map showing the locations of issues and actions being addressed within the Minnesota River Planning Region.

Targeted Action Table – Minnesota River Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issue's priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

						Issues Addressed													Timeline						
	ID	Action	Targeting Approach	10-year Outcomes	Progress towards Goal	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	MR-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 4,500 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	•		○	•	•	○	○	•			○	•	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				•	•	$15,640 (Level 2) $82,870 (Level 3)	$156,400 (Level 2) $828,700 (Level 3)
	MR-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial Cover	PTMApp Data	Treat at least 11,700 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	•	•	○	•	•	○	○	•		○	○	•	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				•	•	$15,640 (Level 2) $42,420 (Level 3)	$156,400 (Level 2) $424,200 (Level 3)

Medium Priority:
Yellow Bank River Planning Region

The Yellow Bank River Planning Region is in the northwestern most portion of the planning area and occupies 52,470 acres of the planning area. Most of the Yellow Bank River drainage area is in South Dakota. The Yellow Bank River reaches the Minnesota River upstream of Marsh Lake, within the Big Stone National Wildlife Refuge. **Figure E.7** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. In-channel erosion contributing to impacts on water quality and habitat was identified as a **High** priority issue within this planning region and was assigned a planning region specific measurable goal.

This planning region was assigned a **Medium** priority relative to other planning regions. This means that this area will be "on deck" for focused implementation efforts, after issues in **High** priority planning regions have been addressed. While it will not immediately be the focus of coordinated implementation efforts through this plan, actions will be taken within the planning region to support progress towards watershed-wide goals.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Low
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Medium
Excess runoff that increases contaminants to surface waters	Medium
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Medium
Connectivity and hydrologic changes that degrade streams and drainage systems	Medium
In-channel erosion contributing to impacts on water quality and habitat	High
Accelerated erosion leading to sedimentation and other water quality issues	Medium
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	Medium
Loss of aquatic habitat	Low

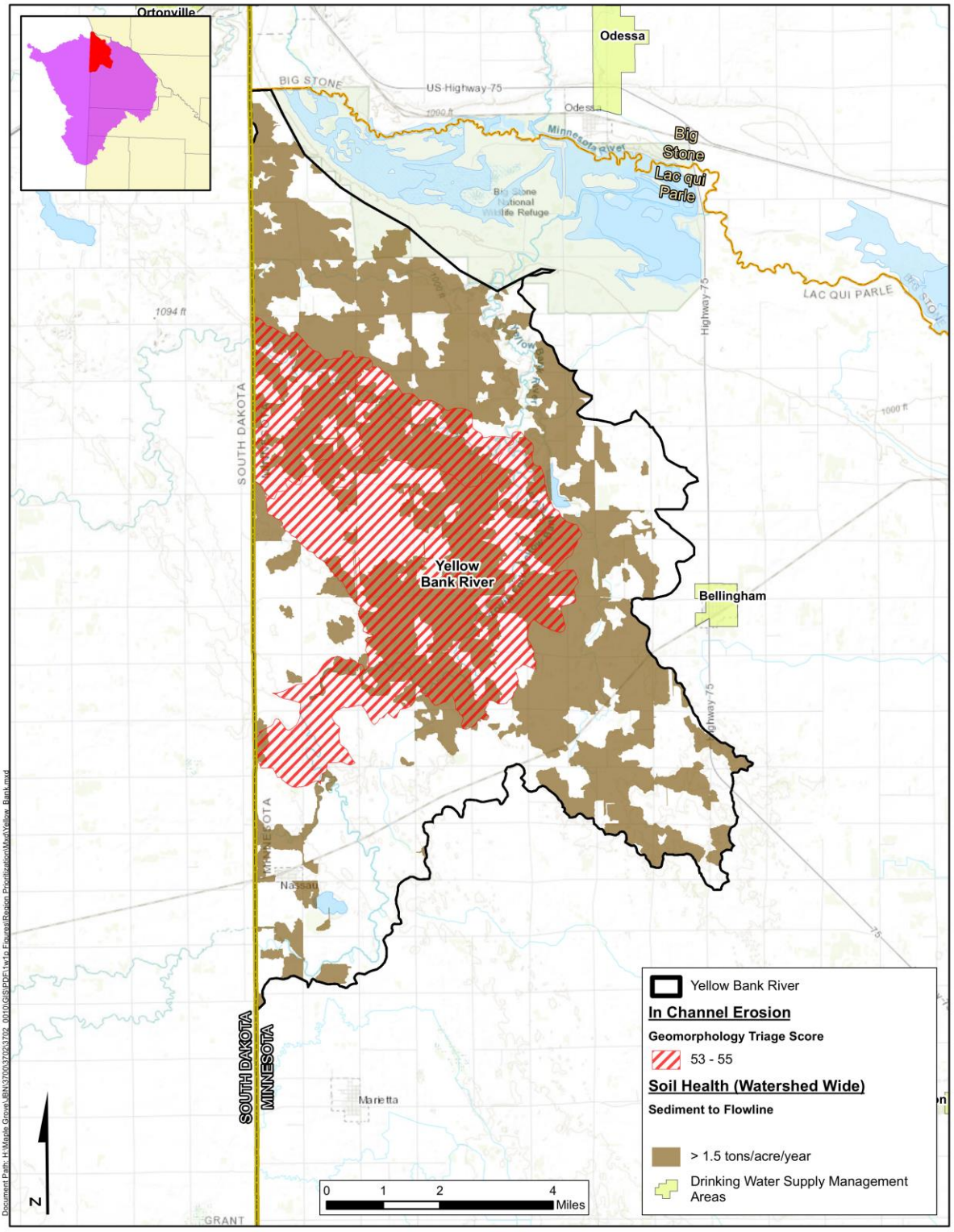


Figure E.7. Targeted map showing the locations of issues and actions being addressed within the Yellow Bank River Planning Region.

Measurable Goal Table – Yellow Bank River Planning Region: The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (Reporting Milestone)	Resource-Specific Target	What is the Indicator
In-channel erosion contributing to impacts on water quality and habitat	1 upstream storage project to address hydrology		Number of storage projects

Targeted Action Table – Minnesota River Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

						Issues Addressed													Timeline							
	ID	Action	Targeting Approach	10-year Outcomes	Progress towards Goal	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	YB-1	**Structural Practices** Sediment basins Grassed waterways Drainage Water Management Bioreactor Saturated buffers Filter strips/riparian buffers Grade stabilization Wetland restoration	PTMApp Data	Treat at least 3,100 acres	Tons/year sediment lbs/year phosphorus lbs/year nitrogen Acre-feet storage	●		○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				●	●	$15,640 (Level 2) $54,560 (Level 3)	$156,400 (Level 2) $545,600 (Level 3)
	YB-2	**Non-structural Practices** Cover crops Reduced tillage Nutrient management planning Prescribed grazing Crop rotation Perennial Cover	PTMApp Data	Treat at least 10,400 acres	Tons/year sediment lbs/year phosphorus lbs/year nitrogen Acre-feet storage	●	●	○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				●	●	$15,640 (Level 2) $38,260 (Level 3)	$156,400 (Level 2) $382,600 (Level 3)

Medium Priority:
Lac qui Parle River South Planning Region

Lac qui Parle River South receives water from the Cobb Creek, Lazarus Creek, and Headwaters Lac qui Parle River Planning Regions. The Lac qui Parle River South joins the Lac qui Parle River at the outlet of the planning region and occupies 45,654 acres of the planning area. **Figure E.8** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **Medium** priority relative to other planning regions. This means that this area will be "on deck" for focused implementation efforts, after issues in **High** priority planning regions have been addressed. While it will not immediately be the focus of coordinated implementation efforts through this plan, actions will be taken within the planning region to support progress towards watershed-wide goals.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Medium
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	High
Excess runoff that increases contaminants to surface waters	Low
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Low
Connectivity and hydrologic changes that degrade streams and drainage systems	Low
In-channel erosion contributing to impacts on water quality and habitat	Medium
Accelerated erosion leading to sedimentation and other water quality issues	High
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	Medium
Loss of aquatic habitat	Medium

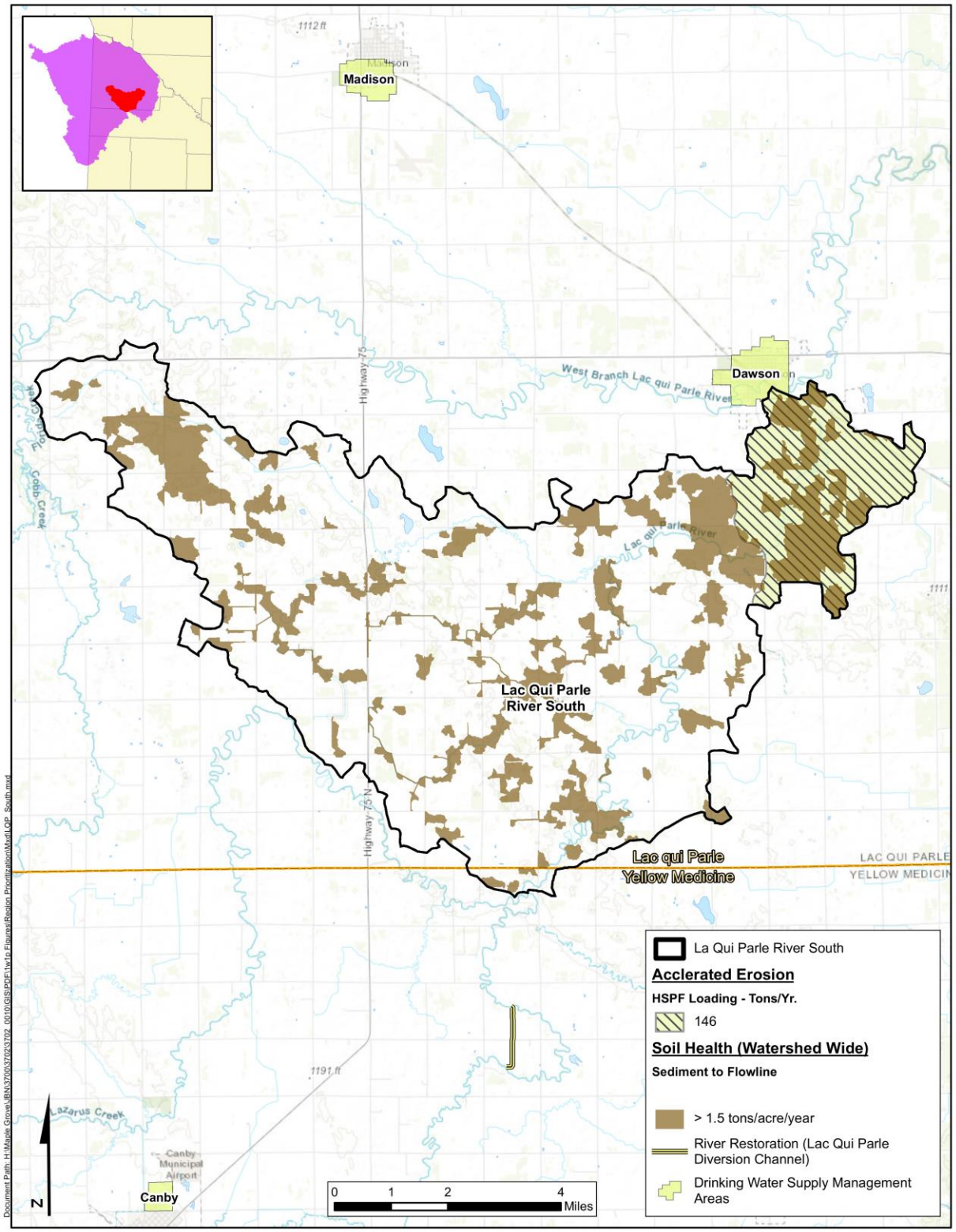


Figure E.8. Targeted map showing the locations of issues and actions being addressed within the Lac qui Parle River South Planning Region.

Measurable Goal Table – Lac qui Parle River South Planning Region: The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (Reporting Milestone)	Resource-Specific Target	What is the Indicator
Accelerated erosion leading to sedimentation and other water quality issues	Short-Term: ❍ Reduce Sediment by 10%, or about 1,186 tons/year, to reduce stressor on biological impairment Long-Term: ❍ Reduce Sediment by 75%, or about 8,895 tons/year to reduce stressor on biological impairment		PTMApp
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Short-Term: ❍ Increase continuous cover by 5%, while maintaining existing cover Long-Term: ❍ Increase continuous cover by 10%, while maintaining existing cover		Acres treated

Targeted Action Table – Lac qui Parle River South Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

						Issues Addressed													Timeline						
	ID	Action	Targeting Approach	10-year Outcomes	Progress Towards Goal	Groundwater Contamination Soil Health	LULC Changes	Excess Runoff WQ Impairments Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	LS-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 650 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●		○ ● ● ○	○	●		○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				●	●	$15,640 (Level 2) $2,910 (Level 3)	$156,400 (Level 2) $29,100 (Level 3)
	LS-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial Cover	PTMApp Data	Treat at least 400 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	●	○ ● ● ○	○	●		○	○	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA				●	●	$3,830 (Level 2)	38,300 (Level 2)

Low Priority:
Lac qui Parle River Planning Region

The Lac qui Parle River Planning Region is the furthest downstream planning region within the planning area and occupies 70,583 acres of the planning area. It receives water from all other planning regions except the Yellow Bank River and Minnesota River Planning Regions. The Lac qui Parle River ends at the outlet of the planning region where it joins the Minnesota River just downstream of Lac qui Parle Lake. **Figure E.9** shows the locations of issues and actions that have been targeted in the planning region. The table on the right of this page shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **Low** priority relative to other planning regions. This means that this area is unlikely to be the recipient of focused implementation efforts during the lifespan of this plan. While it will not immediately be the focus of coordinated implementation efforts through this plan, actions will be taken within the planning region to support progress towards watershed-wide goals.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Medium
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Low
Excess runoff that increases contaminants to surface waters	High
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Low
Connectivity and hydrologic changes that degrade streams and drainage systems	Low
In-channel erosion contributing to impacts on water quality and habitat	High
Accelerated erosion leading to sedimentation and other water quality issues	Low
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	Low
Loss of aquatic habitat	Low

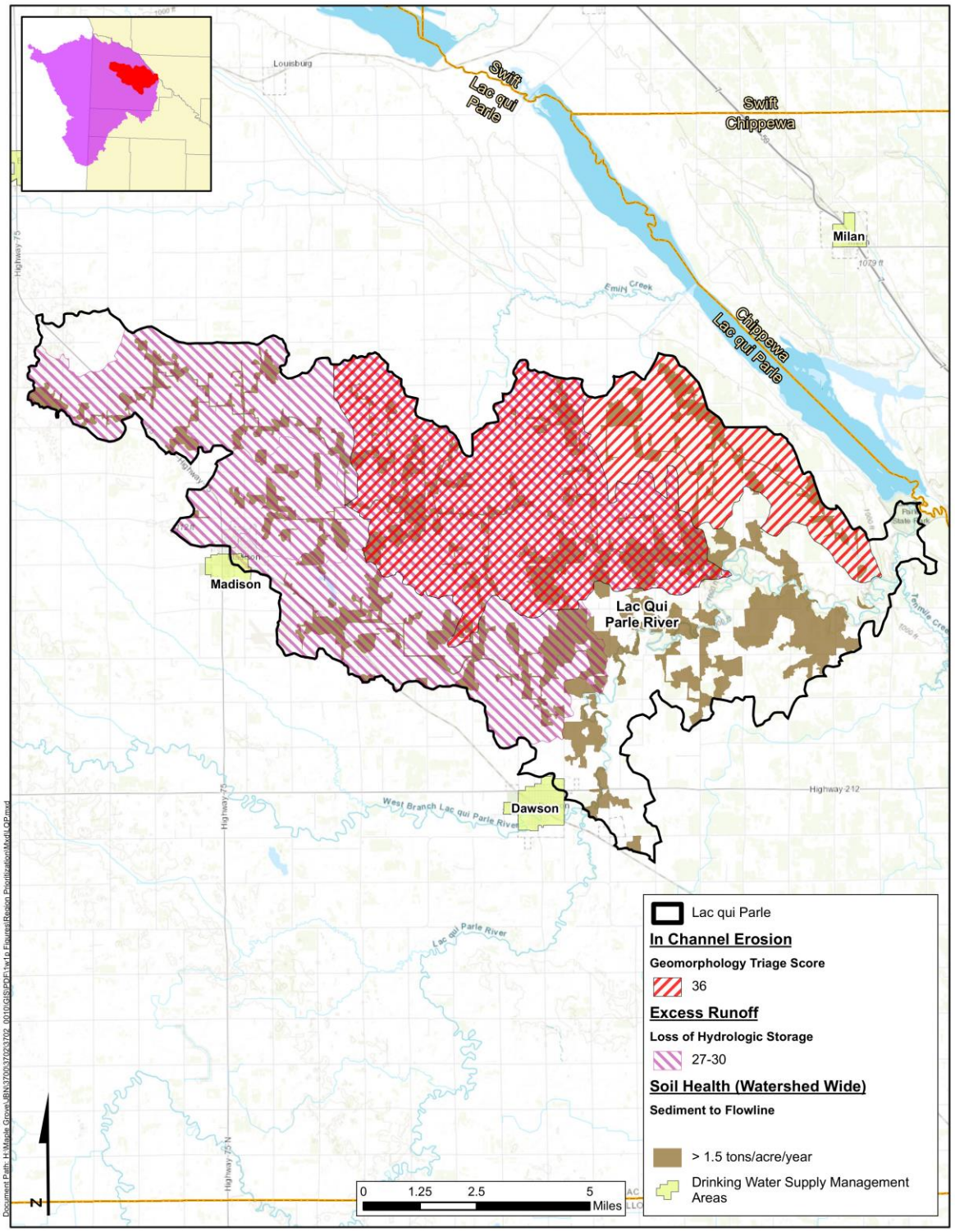


Figure E.9. Targeted map showing the locations of issues and actions being addressed within the Lac qui Parle River Planning Region.

Measurable Goal Table – Lac qui Parle River Planning Region: The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table over the next 10 years.

Issue	Planning Region Goal (reporting milestone)	Resource specific target	What is the indicator
Excess runoff that increases contaminants to surface waters	Short-Term: • Increase storage by 0.05 inch (482 acre-feet) Long-Term: • Increase storage by 0.39 inch (3,041 acre-feet)		PTMApp
In-channel erosion contributing to impacts on water quality and habitat	Short-term: ❍ One streambank stabilization Long-term: ❍ Restore all degraded channel beds		1 project

Targeted Action Table – Lac qui Parle River Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits. The timeline has been left blank as this is a low priority planning region. These actions may be reconsidered during the lifespan of this plan or in subsequent updates after the 10-year lifespan of this plan.

						Issues Addressed													Timeline						
	ID	Action	Targeting Approach	10-year Outcomes	Progress Towards Goal	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	LP-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 800 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●		○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA						$15,640 (Level 2) $95,460 (Level 3)	$156,400 (Level 2) $954,600 (Level 3)
	LP-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial Cover	PTMApp Data	Treat at least 11,000	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	●	○	●	●	○	○	●			○	○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA						$15,640 (Level 2) $42,950 (Level 3)	$156,400 (Level 2) $429,500 (Level 3)
Capital Projects	LP-3	County Highway 31 Stream Bank Stabilization	Local Knowledge	0.25 miles of stream protected	BWSR Estimator ❍ Tons/year sediment ❍ lbs/year phosphorus BWSR SQT Spreadsheet ❍ Stream functional lift		●			●	●	●					●	●	**LqP-YB WD**, DNR, LqP SWCD, BWSR, NRCS						NA (Level 3)	NA (Level 3)

Low Priority: Canby Creek Planning Region

The Canby Creek Planning Region is split between Minnesota and South Dakota and occupies 22,976 acres of the planning area. As water moves from South Dakota into Minnesota, the watershed crosses areas of steep relief prior to reaching Del Clark Lake and the City of Canby. **Figure E.10** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **Low** priority relative to other planning regions. This means that this area is unlikely to be the recipient of focused implementation efforts during the lifespan of this plan. While it will not immediately be the focus of coordinated implementation efforts through this plan, actions will be taken within the planning region to support progress towards watershed-wide goals.

The Canby Creek Planning Region is an example of recent successful conservation implementation. Local partners are in the process of completing several conservation practices adjacent to and upstream of Del Clark Lake. The success of these efforts is largely what drove this planning region to a low priority ranking for additional implementation, as many of the issues have already been addressed within the planning region.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	High
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	High
Excess runoff that increases contaminants to surface waters	Low
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Low
Connectivity and hydrologic changes that degrade streams and drainage systems	Low
In-channel erosion contributing to impacts on water quality and habitat	Low
Accelerated erosion leading to sedimentation and other water quality issues	High
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	Low
Loss of aquatic habitat	Low

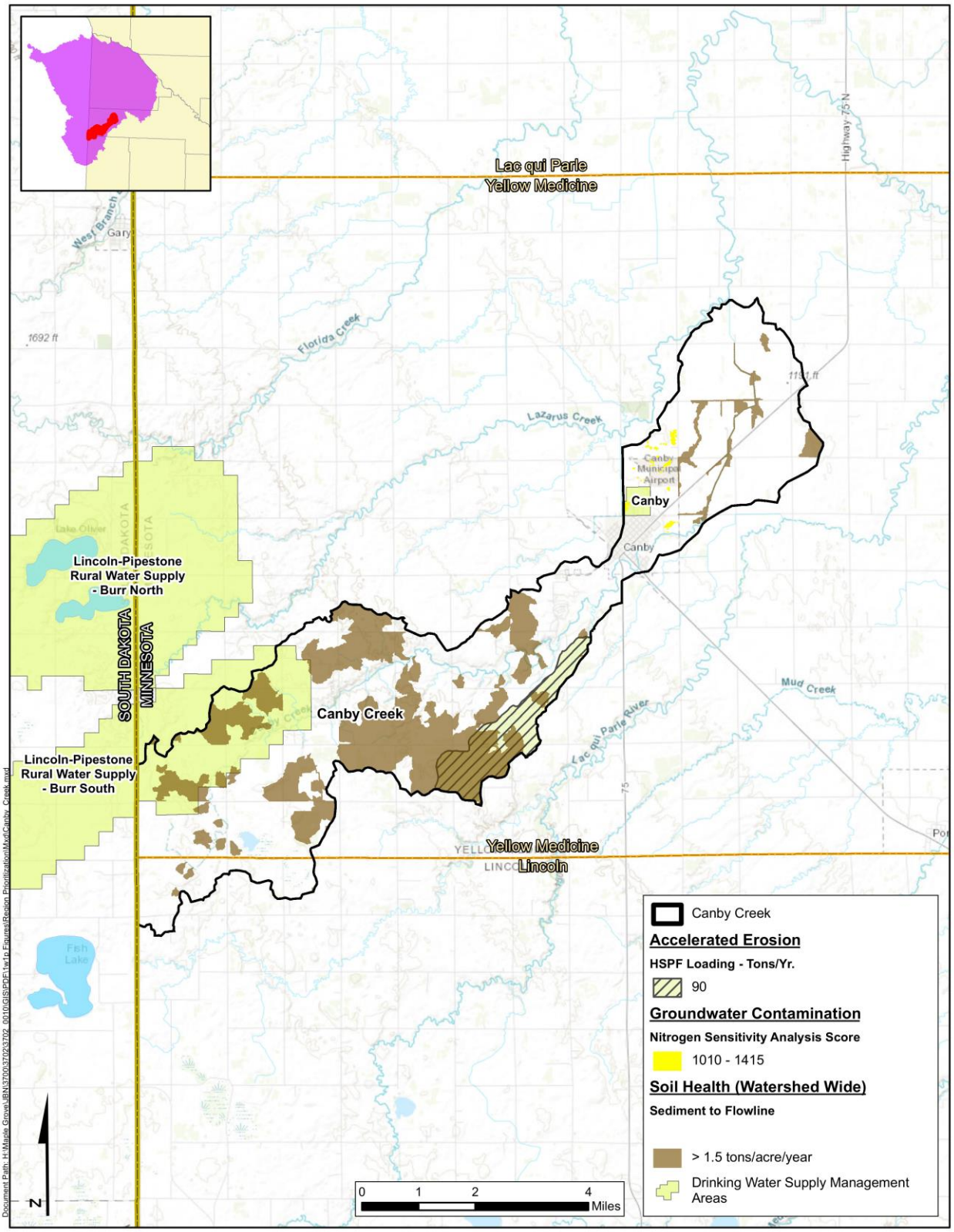


Figure E.10. Targeted map showing the locations of issues and actions being addressed within the Canby Creek Planning Region.

Measurable Goal Table – Canby Creek Planning Region: The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (Reporting Milestone)	Resource-Specific Target	What is the Indicator
Groundwater contamination of public water supplies	3 outreach events	Drinking Water Supply Management Area	
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Short-Term: ❍ Increase continuous cover by 5%, while maintaining existing cover Long-Term: ❍ Increase continuous cover by 10%, while maintaining existing cover		Acres treated
Accelerated erosion leading to sedimentation and other water quality issues	Short-Term: ❍ Reduce Sediment by 10%, or about 779 tons/year, to reduce stressor on biological impairment Long-Term: ❍ Reduce Sediment by 34%, or about 2,648 tons/year to reduce stressor on biological impairment		PTMApp

Targeted Action Table – Canby Creek Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits.

	ID	Action	Targeting Approach	10-year Outcomes	Progress Towards Goal	Issues Addressed: Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	Timeline: 2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	CC-1	**Structural Practices** ❍ Sediment basins ❍ Grassed waterways ❍ Drainage Water Management ❍ Bioreactor ❍ Saturated buffers ❍ Filter strips/riparian buffers ❍ Grade stabilization ❍ Wetland restoration	PTMApp Data	Treat at least 800 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●		○	●	●	○	○	●			○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA						$15,640 (Level 2) $8,580 (Level 3)	$156,400 (Level 2) $85,800 (Level 3)
	CC-2	**Non-structural Practices** ❍ Cover crops ❍ Reduced tillage ❍ Nutrient management planning ❍ Prescribed grazing ❍ Crop rotation ❍ Perennial Cover	PTMApp Data	Treat at least 300 acres	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	●	○	●	●	○	○	●			○	○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA						$3,570 (Level 2)	$35,700 (Level 2)
Capital Projects	CC-3	**Del Clark Lake Phase 2**	Local Knowledge	TBD	❍ Tons/year sediment ❍ lbs/year phosphorus ❍ lbs/year nitrogen ❍ Acre-feet storage	●	●	○	●	●	○	○	●			○	○	●	○	Area 2, Yellow Medicine SWCD, LqP-YB WD, NRCS						NA (Level 3)	NA (Level 3)

Low Priority: Tenmile Creek Planning Region

The Tenmile Creek planning Region is the only headwaters planning region within the planning area that only drains within Minnesota. Tenmile Creek joins the Lac qui Parle River at the outlet of the planning region, just prior to the Lac qui Parle River's confluence with the Minnesota River and occupies 77,786 acres of the planning area. **Figure E.11** shows the locations of issues and actions that have been targeted in the planning region. The table to the right shows the full list of priority issues and their ranking for being addressed within this planning region. The issues with a priority level of **High** in the table are addressed with measurable goals and actions for this planning region.

This planning region was assigned a **Low** priority relative to other planning regions. This means that this area is unlikely to be the recipient of focused implementation efforts during the lifespan of this plan. While it will not immediately be the focus of coordinated implementation efforts through this plan, actions will be taken within the planning region to support progress towards watershed-wide goals.

Issue Statement	Priority Level
Groundwater contamination of public water supplies	Medium
Soil Health	Medium
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	High
Excess runoff that increases contaminants to surface waters	High
Water quality impairments (DO, pH, *E. coli*, mercury, biological, nutrients)	Low
Connectivity and hydrologic changes that degrade streams and drainage systems	Medium
In-channel erosion contributing to impacts on water quality and habitat	Medium
Accelerated erosion leading to sedimentation and other water quality issues	Medium
Subsurface sewage treatment systems and unsewered or under-sewered areas	Medium
Contamination of private wells	Medium
Decreased groundwater recharge and supply	Medium
Flood damages to private and public lands	Low
Loss of aquatic habitat	Medium

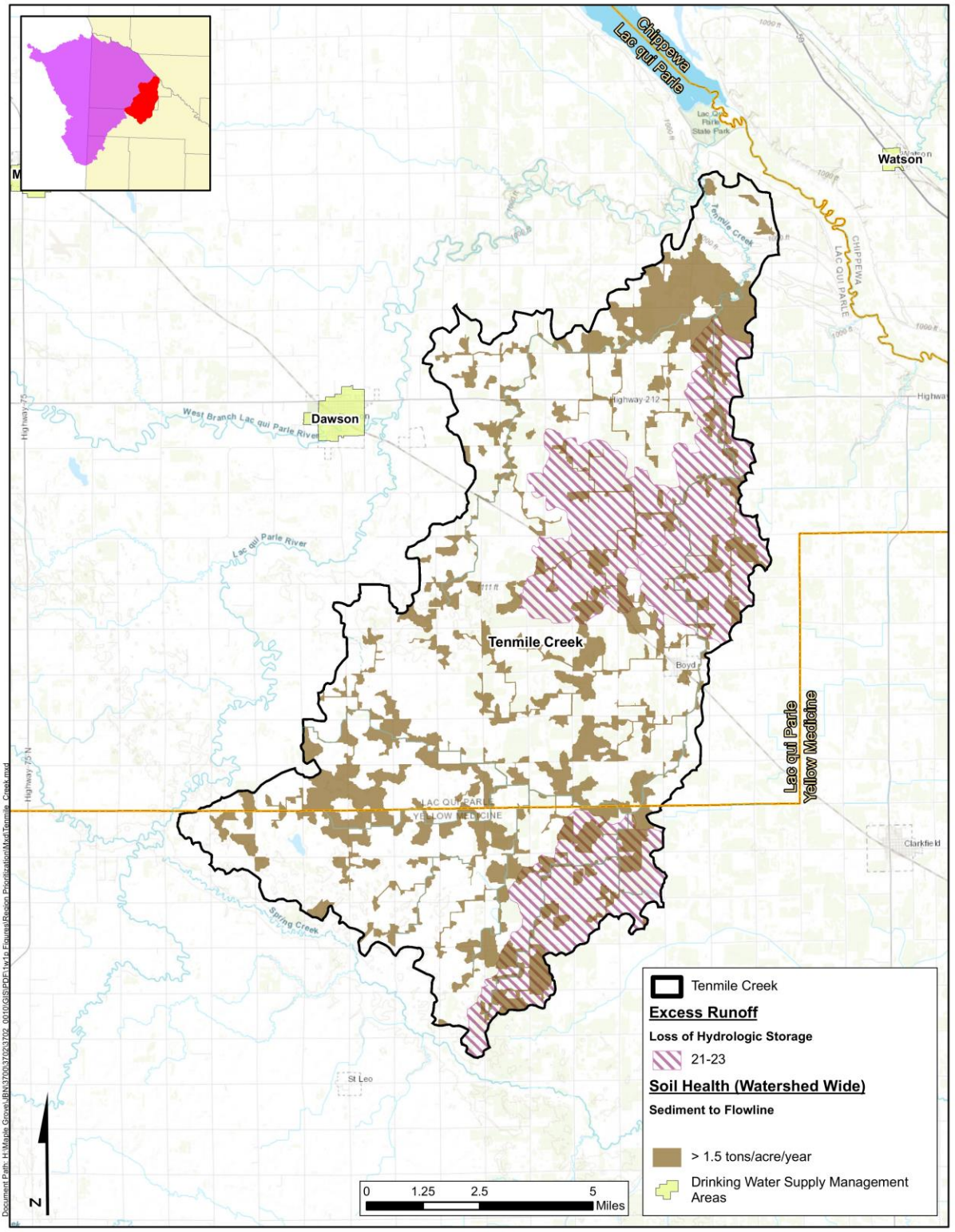


Figure E.11. Targeted map showing the locations of issues and actions being addressed within the Tenmile Creek Planning Region.

Measurable Goal Table – Tenmile Creek Planning Region: The table below summarizes the proposed goals that will be achieved through the implementation of conservation practices and a series of projects listed in the action table, over the next 10 years.

Issue	Planning Region Goal (reporting milestone)	Resource specific target	What is the indicator
Excess runoff that increases contaminants to surface waters	Short-Term: ❍ Increase storage by 0.05 inch (532 acre-feet) Long-Term: ❍ Increase storage by 0.39 inch (3,352acre-feet)		PTMApp
Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	Short-Term: ❍ Increase continuous cover by 5%, while maintaining existing cover Long-Term: ❍ Increase continuous cover by 10%, while maintaining existing cover		Acres treated

Targeted Action Table – Tenmile Creek Planning Region: The table below summarizes actions for implementing new capital projects and projects and practices. It also documents that amount of treatment targeted, measurable goals addressed by actions, implementation timeline, responsibilities of planning partners, and estimated budget. The background color of Issues Addressed corresponds to that issues priority level within this planning region. Shaded circles are primary benefits and closed circles are secondary benefits. The timeline has been left blank as this is a low priority planning region. These actions may be reconsidered during the lifespan of this plan or in subsequent updates after the 10-year lifespan of this plan.

						Issues Addressed												Timeline						
	ID	Action	Targeting Approach	10-year Outcomes	Progress towards Goal	Groundwater Contamination Soil Health	LULC Changes Excess Runoff	WQ Impairments	Connectivity In-Channel Erosion	Accelerated Erosion SSTS and under-sewered	Private Wells Groundwater Recharge	Flood Damages	Aquatic Habitat	Responsibility (Bold = Lead)	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
Projects and Practices	TM-1	**Structural Practices** Sediment basins Grassed waterways Drainage Water Management Bioreactor Saturated buffers Filter strips/riparian buffers Grade stabilization Wetland restoration	PTMApp Data	Treat at least 3,400 acres	Tons/year sediment lbs/year phosphorus lbs/year nitrogen Acre-feet storage	●	○ ●	●	○ ○	●	○	●	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA						$15,640 (Level 2) $55,250 (Level 3)	$156,400 (Level 2) $552,500 (Level 3)
	TM-2	**Non-structural Practices** Cover crops Reduced tillage Nutrient management planning Prescribed grazing Crop rotation Perennial Cover	PTMApp Data	Treat at least 9,800 acres	Tons/year sediment lbs/year phosphorus lbs/year nitrogen Acre-feet storage	●	● ○	●	● ○	○	○ ●	○	○	**SWCD,** LqP-YB WD, NRCS, BWSR, MDA						$15,640 (Level 2) $37,620 (Level 3)	$156,400 (Level 2) $376,200 (Level 3)

Capital Improvements (Watershed-Wide)

The Capital Improvement Projects Action Table summarizes the actions pertaining to the construction, repair, retrofit, or increased utility or function of physical facilities, infrastructure, or environmental features. Capital improvements require external funding. These actions will be implemented watershed-wide, as project footprints and benefits span planning region boundaries. They will be implemented through the Capital Improvement Projects Implementation Program, described further in **Section F**. These projects were also shown in planning region targeted action tables earlier in this section. They benefits of these projects and progress towards the goals of this plan will be determined on a case-by-case basis. For retention projects on channels, the partners will collaborate to maintain or improve longitudinal connectivity, while also maximizing storage benefits.

ID	Project	Description	Lead Entity	Planning Region	Years (Start and End)	Status	Estimated Cost	Storage (acre-feet)
HW-4	Lac qui Parle diversion channel	Restoration of a portion of the Lac qui Parle River	LqP-YB WD	Headwaters Lac qui Parle River	2027 to 2033	In Development	NA (Level 3)	TBD
CB-4	Florida Creek Restoration	Restoration of several miles of Florida Creek, including the replacement of three culverts	LqP-YB WD, LqP SWCD	Cobb Creek	2023 to 2026	Seeking Funding	$3,000,000 (Level 3)	TBD
LC-4	Stream Restoration	Restoration of up to one mile of stream	LqP-YB WD	Lazarus Creek	2027 to 2033	In Development	NA (Level 3)	TBD
LC-3	Culvert Replacements that improve habitat, water quality, or water quantity	Replacement of culverts impacting aquatic life and habitat	LqP-YB WD, LqP SWCD	Lazarus Creek	2027 to 2033	In Development	NA (Level 3)	TBD
LP-3	County Highway 31 Stream Bank Stabilization	Stabilization of a stream bank contributing to water quality issues	LqP-YB WD, LqPSWCD	Lac qui Parle River	2027 to 2033	In Development	NA (Level 3)	TBD
CC-3	Del Clark Lake Phase 2	Two grade control structures	Area 2, Yellow Medicine SWCD, LqP-YB WD	Canby Creek	2027 to 2033	In Development	NA (Level 3)	TBD
CP-1	Fortier 8	Dam restoration (small dam repair)	Area 2	Lazarus Creek	2023 to 2028	Seeking Funding	$52,870 (Level 3)	13.564
CP-2	Florida 15	Dam restoration (small dam repair)	Area 2	Canby Creek	2023 to 2028	Seeking Funding	NA (Level 3)	TBD
CP-3	Norman 7	Dam restoration (small dam repair)	Area 2	Lazarus Creek	2023 to 2028	Seeking Funding	$81,357 (Level 3)	26.095
CP-4	Norman 10	Grade Stabilization	Area 2	Headwaters LqP	2023 to 2028	Seeking Funding	NA (Level 3)	46.846
CP-5	Fortier 27	Grade Stabilization	Area 2	Canby Creek	2023 to 2028	Seeking Funding	NA (Level 3)	TBD
CP-6	Fortier 3/10	Road Retention (storage)	Area 2	Lazarus Creek	2023 to 2028	Seeking Funding	NA (Level 3)	109.1
CP-7	Fortier 36	Road Retention (storage)	Area 2	Headwaters LqP	2023 to 2028	Seeking Funding	NA (Level 3)	329.24
CP-8	Hendricks 8	Road Retention (storage)	Area 2	Headwaters LqP	2023 to 2028	Seeking Funding	NA (Level 3)	TBD
CP-9	Fortier 19	Dam/GSS Construction (Ross Hoffman)	Area2/YMSWCD	Canby Creek	2023 to 2028	In Development	NA (Level 3)	TBD
CP-10	Norman 17	Dam/GSS Construction (Roger Doom Family)	Area2/YMSWCD	Canby Creek	2023 to 2028	In Development		
CP-12	Cerro Gordo 16	Wetland Restoration	LqP-YB WD	LqP River	2023 to 2028	In Development	NA (Level 3)	TBD
CP-13	Florida 29/30	Retention Structure	LqP-YB WD	Florida Creek	2023 to 2028	In Development	NA (Level 3)	TBD
CP-14	WB Retention	Retention Structure	LqP-YB WD	West Brank LqP	2023 to 2028	In Development	NA (Level 3)	TBD

Education and Outreach (Watershed-Wide)

The Outreach Action Table summarizes actions related to landowner engagement, removing conservation barriers, and informing the public about natural resource issues. These actions will be implemented watershed-wide to promote consistency and sharing of services. These events will occur watershed-wide, with focus in priority areas and targeted actions outlined in this plan. The ability to educate watershed-wide is important to achieve the goals of this plan. These actions will be funded by the Outreach Implementation Program, described in **Section F**. Shaded circles are primary benefits and closed circles are secondary benefits.

This plan allows for continued education and outreach for conservation connected to agricultural drainage. There are opportunities for conservation projects in the watershed that would make progress towards the goals of this plan alongside adequate drainage for working lands. However, this plan is not designed to address the intricacies of drainage law.

				Issues Addressed														Timeline						
ID	Action	Prioritized Resources	Metric	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Implementation Lead (in bold) and Partners	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost	Total Budget
EO-1	Continue and expand general education and outreach activities (e.g., well testing clinic, agricultural field days, groundwater conservation/contamination outreach) by jurisdictional area to help achieve the goals the plan	Watershed-wide	Ongoing/20 efforts per year	o	o	o	o	o	o	o	o	o	o	o	o	o	**SWCDs**, LqP-YB WD, Counties,	●	●	●	●	●	$22,174	$221,739
EO-2	Coordinate aquatic invasive species permitting programs	Watershed-wide	Ongoing					o								o	Counties, SWCD, LqP-YB WD	●	●	●	●	●	$500	$5,000
EO-3	Annual Canoe Trip	Watershed-wide	Ongoing	o	o	o	o	o	o	o				o	o		**LqP-YB WD**	●	●	●	●	●	$1,000	$10,000
																	Total 10-Year Cost							$236,739

Research and Monitoring (Watershed-Wide)

The Research and Monitoring Action Table summarizes actions related to closing known data gaps, feasibility studies to better support implementation, and general monitoring efforts. These actions will be implemented watershed-wide to promote consistency and sharing of services. They will be funded by the Data Collection and Monitoring Implementation Program, described in **Section F.**

				Issues Addressed													Timeline							
ID	Action	Prioritized Resources	Metric	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Implementation Lead (in bold) and Partners	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Annual Cost for Years Implemented	Total 10-Year Cost Level 2 (Current+WBIF)
RM-1	Maintain at least 20 monitoring sites for chemistry and biology as part of WRAPS monitoring cycle	Watershed-wide	Ongoing				o	●	o	o	o				o	o	**LqP-YB WD**, **MPCA**, DNR, USGS		●	●			$6,800 (Level 1 only)	$60,800 (Level 1 only)
RM-2	Continue monitoring of groundwater quality and quantity	Watershed-wide	Number of wells	●									o	●			**DNR, MDH,** Public Water Suppliers, MDA	●	●	●	●	●	Level 3	Level 3
RM-3	Map 10-year floodplain to inform conservation action / protection programs	Watershed-wide	Ongoing					o						●	o	o	**LqP-YB WD**, Counties, FEMA, DNR	●	●	●	●	●	Level 3	Level 3
RM-4	Develop feasibility studies to provide case specific solutions for resource issues (e.g., ditch systems needing repair, storage projects) that target practices that will make progress towards the goals of this CWMP	Watershed-wide	Ongoing	o	o	o	o	o	o	o			o	o	o		**LqP-YB WD**, Counties, SWCDs, Ditch Authorities	●	●	●	●	●	Level 3	Level 3
																	Total 10-Year Cost							$60,800

Regulatory (Watershed-Wide)

The Regulatory Action Table summarizes actions pertaining to the administration of statutory obligations and local ordinances. These actions are implemented watershed-wide to promote consistency and sharing of services. The actions in this table will be funded and guided by the Regulatory Implementation Program. A summary of the implementation program and how each local entity administers statutory obligations and local ordinances is provided in **Section F.** Local government units may seek opportunities to align specific regulatory standards across county boundaries.

				Measurable Goals														Timeline				
ID	Action	Prioritized Resources	Metric	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Implementation Lead (in bold) and Partners	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032
RG-1	Administer shoreland ordinances and permitting programs	Watershed-wide	Ongoing		o	o	o	o	o	o					o	o	Counties, DNR	●	●	●	●	●
RG-2	Administer floodplain ordinances and permitting programs	Watershed-wide	Ongoing		o	o	o	o	o	o					o	o	Counties, LqP-YB WD, DNR	●	●	●	●	●
RG-3	Administer subsurface sewage treatment system (SSTS) local ordinances, sanitation codes, and zoning requirements	Watershed-wide	Ongoing	o								o					Counties, MPCA	●	●	●	●	●
RG-4	Administer solid waste management ordinances, zoning requirements, and solid waste comprehensive plans	Watershed-wide	Ongoing	o				o									Counties, LqP-YB WD	●	●	●	●	●
RG-5	Administer emergency hazard management ordinances and plans	Watershed-wide	Ongoing					o		o					o	o	Counties	●	●	●	●	●
RG-6	Administer feedlots in accordance with local ordinances and MN Rules Chapter 7020	Watershed-wide	Ongoing					o		o							Counties, MPCA	●	●	●	●	●
RG-7	Administer stream and public water buffers as required by the state buffer law requirements	Watershed-wide	Ongoing	o		o	o	o	o	o	o					o	SWCD, Counties, LqP-YB WD	●	●	●	●	●
RG-8	Administer MN Statute Chapter 103E for the management and maintenance of public drainage systems	Watershed-wide	Ongoing	o		o	o	o	o	o	o					o	Counties, LqP-YB WD	●	●	●	●	●
RG-9	Administer local land and resource management ordinances related to aggregate management	Watershed-wide	Ongoing			o		o									Counties	●	●	●	●	●
RG-10	Administer the Minnesota Wetland Conservation Act	Watershed-wide	Ongoing	o		o	o	o	o	o	o				o		SWCD	●	●	●	●	●
RG-11	Administer wellhead protection plans and consider groundwater and drinking water resources in land use planning decisions	Watershed-wide	Ongoing	o									o	o			SWCDs, Counties, Public Water Suppliers, MDH, DNR	●	●	●	●	●
RG-12	Manage stormwater and construction erosion control in accordance with the National Pollutant Discharge Elimination System (NPDES)	Watershed-wide	Ongoing			o	o	o			o					o	Counties, LqP-YB WD, MPCA	●	●	●	●	●
RG-13	Administer aquatic invasive species permitting programs	Watershed-wide	Ongoing					o								o	Counties, SWCD, LqP-YB WD	●	●	●	●	●

Administration and Technical Assistance

The Administration and Technical Assistance Table summarizes actions that are associated with local staff involvement in supporting the implementation of this watershed plan. A summary of the program is provided in **Section F.**

				Measurable Goals													Timeline					
ID	Action	Prioritized Resources	Metric	Groundwater Contamination	Soil Health	LULC Changes	Excess Runoff	WQ Impairments	Connectivity	In-Channel Erosion	Accelerated Erosion	SSTS and under-sewered	Private Wells	Groundwater Recharge	Flood Damages	Aquatic Habitat	Implementation Lead (in bold) and Partners	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	Total 10-Year Cost Level 2 (Current+WBIF)
AT-1	Local staff time to support plan implementation	Watershed-wide	Ongoing	•	•	•	•	•	•	•	•	•	•	•	•	•	**SWCDs,** LqP-**YB WD,** Technical Service Area (TSA)	•	•	•	•	•	$3,331,238
AT-2	Technical assistance for implementing actions	Watershed-wide	Ongoing	•	•	•	•	•	•	•	•	•	•	•	•	•	**SWCDs**	•	•	•	•	•	$262,500

Projects and Practices (Watershed-Wide)

Watershed-wide measurable goals were outlined in Section D. Most of these goals are captured in actions in regional specific tables in Section E. However, the watershed-wide goal of well sealing (short term: 10 per year across the watershed, and long term: seal all unused wells) was not listed. This goal will be addressed with level 1 funding.

Operation and Maintenance

The Operation and Maintenance actions are associated with actions to maintain, repair, or improve drainage systems, as well as actions intended to maintain capital projects. A summary of the program is provided in Section F.

Estimated Cost of Implementing the Plan

Table E.3 shows the estimated costs for implementing actions in the plan for Funding Level 2 (Current Funding + WBIF). Costs are also included for the operations and maintenance of natural and artificial waterways at or near their current levels, for regulatory action, and for plan administration and administrative costs related to implementation. This plan assumes local, state, and/or federal fiscal support effective 2023.

Multiple actions within this plan were identified as Funding Level 3 actions (i.e., in need of additional resources). During implementation, the planning partners may choose to focus on actions that were identified as Funding Level 3 actions during the development of annual workplans using Funding Level 2 allocations. If a budget estimate was provided for an action that requires Level 3 funding, Level 3 was placed next to the budget in parentheticals. **Table E.3** shows the estimated costs for implementing actions in the plan for Funding Level 2 (Current Funding + WBIF). It is worth noting that 69% of the Funding Level 2 identified in **Table E.3** comes from the Current funding contribution.

Table E.3. Estimated cost of implementing the Lac qui Parle-Yellow Bank CWMP under Funding Level 2 (Current Funding + WBIF)

	Funding Level 2 **Current + WBIF**	
Implementation Programs	**Est. Annual Cost**	**10-year Cost**
Projects and Practices	$465,600	$4,656,000
Capital Improvement Projects	NA	NA
Data Collection and Monitoring	$6,080	$60,800
Outreach	$23,674	$236,739
Regulatory	$84,234	$842,335
Operations and Maintenance	$15,840	$158,400
Administration and Technical	$359,374	$3,593,738
Total	$954,801	$9,548,012

F. Plan Implementation Programs

F. Plan Implementation Programs

Implementation programs are the funding mechanism to implement actions in the Action Tables. This plan establishes common implementation programs within the plan area and describes them conceptually in this section. There are seven main programs: Projects and Practices, Capital Improvements, Education and Outreach, Research and Monitoring, Regulatory, Administration and Technical Assistance, and Operation and Maintenance (**Figure F.1**).

Figure F.1. Implementation programs for the Lac qui Parle Watershed Comprehensive Watershed Management Plan.

Projects and Practices Program

Projects and Practices Programs are often referred to as incentive programs. For the purposes of this plan, two broad categories are described below that make up the funding that can be apportioned to the projects and practices program: **Cost-Share Programs** and **Land Protection and Retirement Programs**.

Cost-Share Programs

Cost-Share programs are used to provide a financial assistance for the adoption of conservation projects and practices. The financial incentive is intended to offset all or part of the cost for implementing the conservation project or practice in return for the environmental benefits that occur. For the purposes of this plan, Cost-Share Programs will be used primarily to support the implementation of the structural and non-structural practices described in **Section E.**

At times, on-site inspections and maintenance may be needed or required to allow structural and non-structural practices to continue to function as intended. BWSR's recommended inspection plans, according to the Grants Administration Manual (GAM), should verify that all components of the practice, including upland protection or contributing watershed treatment, remain in place and are in good repair, identify repairs necessary in accordance with the operation and maintenance plan, and identify further assessment or action needed if necessary repairs are beyond the scope of the operation and maintenance plan. Site inspections are generally required to be completed at a minimum of one year after completion, then at 33 percent and 66 percent intervals, and at the next to last year of the effective life of the project. However, the frequency of actual inspections should be specific to the site, project installed, and findings on previous inspections. In addition, inspections should be performed on a case-by-case basis, such as after storms producing unusually heavy runoff or possibly if property ownership changes.

Cost share programs will be funded with local and WBIF funding. However, additional sources of funding may also be used to make progress towards meeting the measurable goals set for this plan. Funding sources like the Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) or low-interest loans will also be explored. In addition, the planning partners may use innovative programs like the Minnesota Agricultural Water Quality Certification Program (https://www.mda.state.mn.us/environment-sustainability/minnesota-agricultural-water-quality-certification-program).

Land Protection and Retirement

Land Protection and Retirement is associated with programs that either temporarily or permanently set aside land for a specific use and cover, such as perennial cover for terrestrial habitat. Land Protection and Retirement is typically administered through easements, land purchases, or other contractual arrangements that define land cover and land use over time. There are numerous land protection and retirement programs that may be used by the planning partners to make progress towards measurable goals.

Stream in Lincoln County by James Eggen

Examples of these programs include:

- Reinvest in Minnesota (RIM) Reserve Program
- Minnesota Conservation Reserve Enhancement Program (CREP)
- Farm Service Agency (FSA) Conservation Reserve Program (CRP)
- Wetland Bank Restorations

Capital Improvement Program

For the purposes of this plan, projects will be implemented through the Capital Improvement Program if they are greater than $100,000 to implement or have a design lifespan greater than 25 years. Typically, this entails that capital projects are larger and more complex than actions implemented under the Projects and Practices Program. Projects implemented under the Capital Improvement Program may also require engineering design, permitting, and larger construction. Projects implemented within this program will often also result in ongoing operation and maintenance requirements.

For this plan, specific targeted capital projects were identified as part of the planning process and are described in **Section E.** Additional projects may be considered during plan implementation if they provide the ability to make progress towards the measurable goals of this plan.

Aerial photograph of a capital projects implemented by the project partners to protect and improve Del Clark Lake. On the left, there are two grade stabilization structure. On the right, one road retention project.

Large scale multi-purpose drainage management projects were discussed during the development of this plan. However, no priority drainage systems were identified during plan development. During the implementation of this plan, it is possible that a priority drainage system will be identified and pursued for a large scale multi-purpose drainage management project. To be considered as an action implemented through this plan, the multi-purpose drainage management project would need to make progress towards the measurable goals of this plan (see **Section D**) beyond what would otherwise be provided by public drainage proceedings. Moreover, the practices will need to reduce erosion, reduce sedimentation, reduce peak flows, and improve water quality, while protecting drainage system efficiency and reducing drainage system maintenance in a priority drainage system. Some of the practices implemented may also fit into the projects and practices program.

Education and Outreach Program

The Education and Outreach Program is intended to increase engagement and understanding about resource issues and management within the planning area. The program is coordinated amongst the plan partners. There are three key groups targeted through this education and outreach program:

1. Landowners who may implement conservation projects
2. The general public
3. Students

Specific events that are targeted to landowners include:

- Soil demonstration plots
- Field days
- Well testing clinics
- Community education meetings and public meetings for projects

This program also builds on current efforts to engaging area students. A few example programs active within the planning area include:

- Annual Lac qui Parle-Yellow Bank Watershed District canoe trip
- Envirothon
- FFA, 4-H

In addition, this program will continue to create materials for public education and outreach. This may include general media campaigns, newsletters and surveys, volunteer activities, and public meetings and trainings to raise awareness and gain a better understanding of the consequences of individual decisions on water management. Social media and other virtual platforms will also be used to engage in education and outreach activities. These approaches will be used to efficiently disseminate information to the targeted audiences.

2018 Lac qui Parle – Yellow Bank Watershed District's annual canoe trip before departure photo by Dave Craigmile

Public Participation and Engagement

Public participation and engagement through the various programs listed above will help inform and educated community members. Informed community members opinions and questions are highly favored and are considered during decision making.

Research and Monitoring Program

The Research and Monitoring Program funds actions that are intended to close information gaps or provide foundational information that helps improve the planning partners' understanding of resources within the planning area.

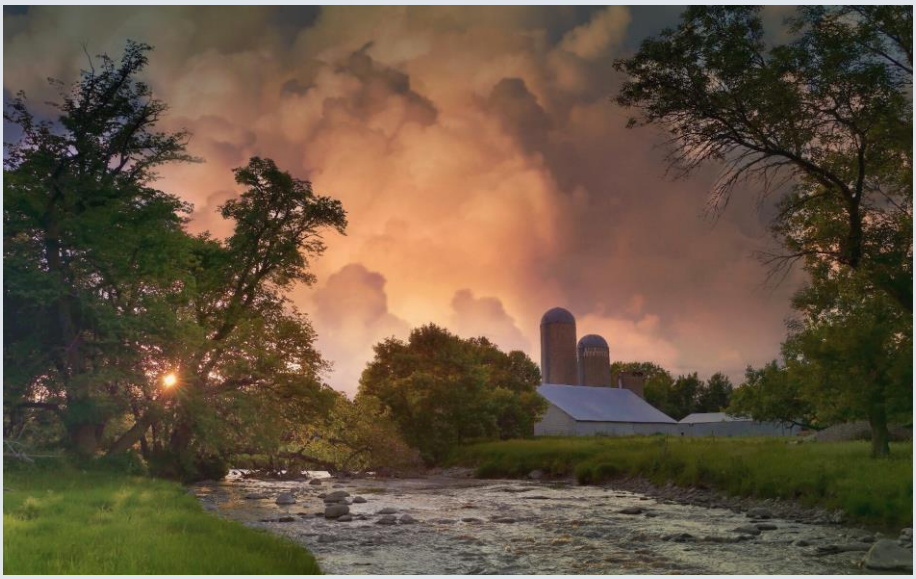
Current surface water monitoring programs are led by both local and state entities. The MPCA's Watershed Pollutant Load Monitoring Network (WPLMN) provides continuous monitoring of water quality conditions with five WPLMN sites in the LqP-YB Watershed:

- Lac qui Parle at Lac qui Parle, MN (USGS ID 05300000)

- Yellow Bank River at Odessa, MN (USGS ID 05293000)
- Minnesota River at Lac qui Parle, MN (USGS ID 05301000)
- West Branch Lac qui Parle West Branch at Dawson, MN (USGS ID 05299800)
- Lac qui Parle River near Providence, MN, CSAH23 (USGS ID 05299650)

Exact locations of these sites can be found in the MPCA's WRAPS documents and are updated during each WRAPS process.

The DNR Cooperative Stream Gaging (CSG) database is a shared repository of monitoring data between the DNR, MPCA, United States Geological Survey (USGS), and National Weather Service (NWS). An additional monitoring site from the CSG database is located West Branch Lac qui Parle West Branch at Madison, MN (DNR ID 24059001).



Lac qui Parle River in Yellow Medicine County by Tamie Steffen Hornstein

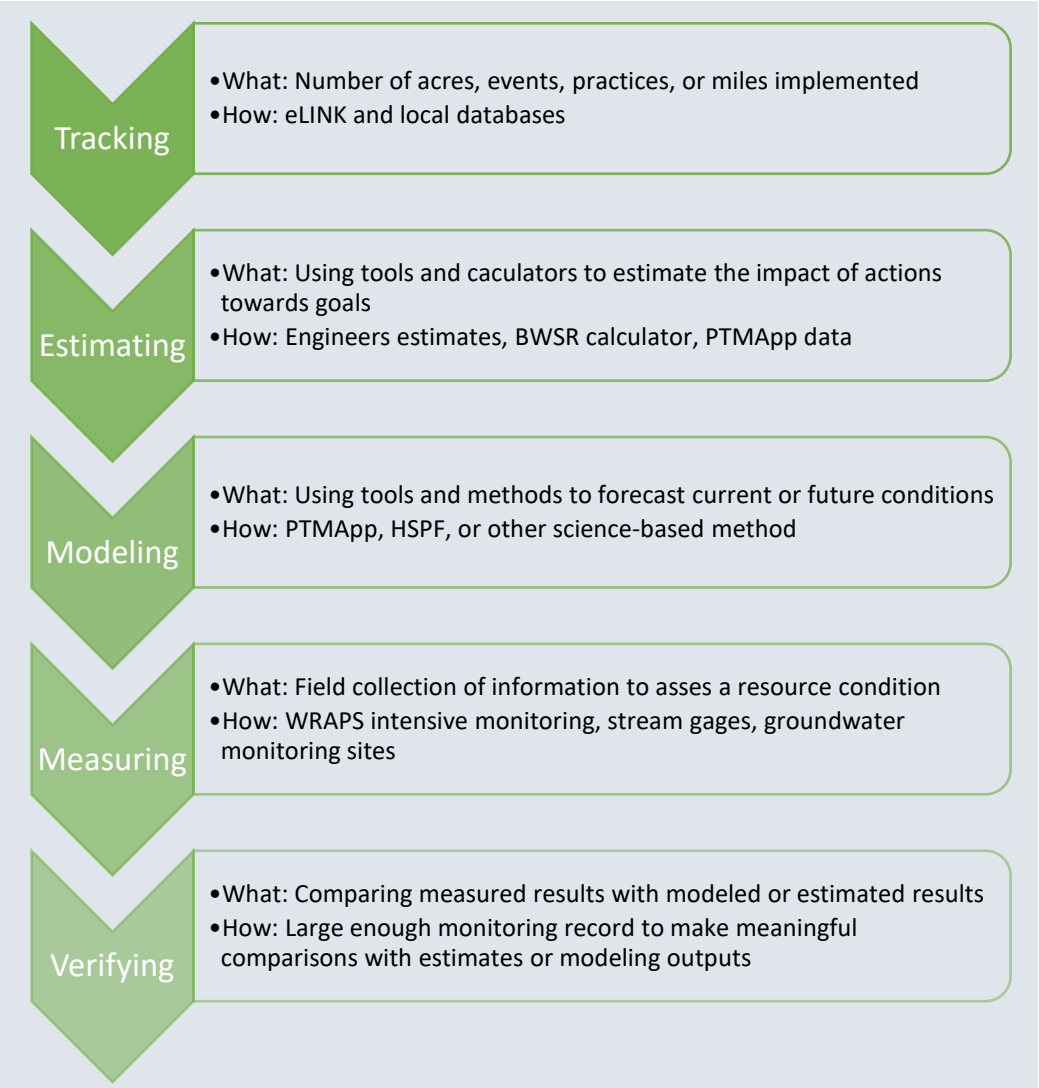


Figure F.2. Process for tracking progress towards measurable goals through this plan.

Over time, results from these networks and other ongoing tracking and monitoring programs can be used to document measurable water quality and quantity changes resulting from plan implementation (**Figure F.2**).

Ongoing monitoring efforts also track groundwater supply quantity and quality trends. Current programs include public water supplier monitoring, MPCA's Ambient Groundwater Monitoring Program, the DNR high-capacity permitting program, and the DNR Observation Well Network. In addition, the Minnesota Department of Agriculture leads a township-level testing program to monitor nitrate-nitrogen concentrations in private wells (https://www.mda.state.mn.us/township-testing-program). While these programs provide valuable information about groundwater, more in-depth monitoring and

assessments would be needed to provide a thorough understanding of groundwater within the planning area.

During implementation, the Data Collection and Monitoring Implementation Program will build on the data and information processes already established by plan participants. The Data Collection and Monitoring Implementation Program will be collaborative (especially where efforts cross administrative boundaries) with planning partners sharing services wherever possible.

Regulatory Program

Many plan issues can be addressed in part through the administration of statutory responsibilities and local ordinances. The Lac qui Parle-Yellow Bank Watershed District has adopted rules under Minnesota Statute 103D.341 and permitting authority per 103D.345. Current rules were revised on December 3, 2013. The District provides public access to their rules on their website (http://www.LqP-YBwatershed.org/resources.html). Counties and SWCDs also administer several regulatory programs. A full comparison of how local ordinances are used to administer statutory responsibilities is provided in **Appendix E.** The various existing regulatory programs within the planning area are briefly described below.

Aggregate Management

Individual counties manage the development and extraction of aggregate resources through local zoning and ordinances. County government will remain responsible for this process. In Lac qui Parle County, this is managed by the Highway Department.

Aquatic Invasive Species

Aquatic invasive species can cause ecological and economic damage to water resources. The DNR has regulatory authority over aquatic plants and animals. Permits are required by the public for transporting and treating invasive species. The SWCDs within the planning area are responsible for local aquatic invasive species prevention.

Buffers

The Riparian Protection and Water Quality Practices statute (Minnesota Statue 103F.48, commonly referred to as the Buffer Law) requires a 50-foot average continuous buffer of perennial vegetation with a 30-foot minimum width along all public waters and a 16.5-foot minimum width continuous buffer of perennial vegetation along all public drainage systems. A combination of county, SWCD, state, and watershed district resources are used to administer and support this statute.

- Regulations: Minnesota Statutes 103E and 103F.48, Subd. 4

Feedlots

Feedlot rules, regulations, and programs were established under MN Rules 7020 to govern the collection, transportation, storage, processing, and land application of animal manure and other livestock operation wastes. The program is administered through the MPCA, but local counties may accept delegation of this authority. The counties oversee feedlots within the planning area, except for Lac qui Parle County, where it is overseen by the Lac qui Parle-Yellow Bank Watershed District.

- Regulations: Minnesota Rules, Chapter 7020

Floodplain Management

Floodplain zoning regulations are intended to guide development in the floodplain this is consistent with the magnitude of the flood threat to minimize loss of life and property, disruption of commerce and

governmental services, extraordinary public expenditure for public protection and relief, and interruption of transportation and communication. The DNR and FEMA are in the process of updating floodplain maps on a county basis. Current flood maps can be found on the DNR website at https://www.dnr.state.mn.us/waters/watermgmt_section/floodplain/access-flood-maps.html. In the planning area, counties oversee flood plain management with oversight from the Lac qui Parle-Yellow Bank Watershed District in Lac qui Parle County.

- Regulations: Minnesota Statutes 103F, 104, 394

Hazard Management

Hazard mitigation may be defined as any action taken to eliminate or reduce the future risk to human life and property from natural- and human-caused hazards. Extreme weather events and infrastructure resilience also play a part in hazard management. These requirements direct the state to administer cost-sharing. Hazard mitigation local emergency management departments are deployed in each of the contributing counties within the plan area.

- Regulations: Minnesota Statute, Chapter 12

Public Drainage Systems

Drainage authority is granted to counties and watershed districts through MN Statute Chapter 103E to establish, construct, and in perpetuity maintain public drainage systems. County boards serve as the drainage authorities for public drainage systems in Yellow Medicine County. The Lac qui Parle-Yellow Bank Watershed District is the drainage authority for 11 watershed systems (nine in Lac qui Parle County and two in Lincoln County).

- Regulations: Minnesota Statute 103E

Solid Waste Management

Minnesota's Waste Management Act has been in place since 1980 and establishes criteria for the management of all types of solid waste, including mixed municipal solid waste, construction and demolition waste, and industrial waste. To receive annual grant funding to assist in implementing waste management programs, each county must have an MPCA-approved Solid Waste Management Plan. All counties in the plan area have approved plans. Counties can also adopt Solid Waste Ordinances to use as a supplement in enforcing MPCA Rules. Within the planning area, Yellow Medicine County is contracted with Lyon County for Solid Waste Management, Lac qui Parle County provides Solid Waste Management with Oversight from Lac qui Parle-Yellow Bank Watershed District, and Lincoln County oversees its own Solid Waste Management.

- Regulations: Minnesota Statute 115A, 400

Individual Subsurface Sewage Treatment Systems

The Subsurface Sewage Treatment System (SSTS) Program is administered by the MPCA to protect public health and environment. SSTS Ordinances are adopted and enforced at the county level to meet state requirements. Lac qui Parle County, with oversight from the Watershed District, issues permits and low income grants for improvements. Yellow Medicine County manages SSTS through Section XIV of their Land Use Ordinance.

Wetland Conservation Act

The Minnesota Legislature passed the Wetland Conservation Act (WCA) of 1991 to achieve no net loss of, increase the quantity, quality, and biological diversity of, and avoid direct or indirect impacts to

Minnesota's wetlands. The SWCDs administer WCA for Yellow Medicine and Lincoln County. The authority is delegated to the Lac qui Parle-Yellow Bank Watershed District for Lac qui Parle County.

- Regulations: Minnesota Rules, Chapter 8420

Wellhead Protection

The Minnesota Department of Health (MDH) administers the state wellhead protection rule that sets standards for wellhead protection planning. Municipalities and Lincoln Pipestone Rural Water within the planning area have completed or will be completing wellhead protection plans (WPP). The most recent listing of completed wellhead protection plans can be obtained from MDH.

- Regulations: Minnesota Rules, Chapters 4720.5100 – 4720.5590

Administration and Technical Assistance Program

This program is designed to capture local county contributions, capacity grants, SWCD technical support and conservation delivery (i.e., staffing resources), site inspections, and local levies. In other words, resources that are made available to staff at local units of government related to carrying out activities associated with this plan.

Operations and Maintenance Program

Capital projects implemented under the Capital Improvements Program will likely need ongoing operation and maintenance. Resources needed to operate and maintain capital projects will be captured in the Operations and Maintenance Program. In addition, the planning partners will identify resources assessed to maintain, repair, or improve public drainage systems within the Operations and Maintenance Program. This can include, at the discretion of the plan partners, multi-purpose drainage improvements.

Comprehensive or Land Use Plans

Counties and cities within the watershed are responsible for land use planning which they administer through local zoning ordinances and authorities. Local authorities within the watershed are provided in **Appendix E**. Comprehensive or land use plans have been adopted by LGUs within the watershed. These plans may have overlapping responsibilities with the actions and programs established in this plan, therefore meeting the goals of this plan may involve other entities. Implementation of this plan will include coordination with organizations responsible for implementing the plans shown in Table F.1**.** Comprehensive or land use plans in the watershed are shown in **Table F.1**.

Table F.1. Comprehensive or land use management plans in the LqP-YB Watershed.

Local Governmental Unit	Comprehensive or Land Use Management Plan
Lac qui Parle County	Lac qui Parle County Local Water Management Plan (2014-2023)
	Lac qui Parle County Comprehensive Plan (2002)
Lincoln County	Lincoln County Land and Water Resource Management Plan (2017-2026)
	Lincoln County Comprehensive Plan (2018)
Yellow Medicine County	Yellow Medicine County Local Water Management Plan (Amended 2016)
	Yellow Medicine County Comprehensive Plan (2006)
Lac qui Parle-Yellow Medicine Watershed District	Lac qui Parle-Yellow Medicine Watershed District Watershed Management Plan (2009-2019, granted extension)
City of Canby	City of Canby Comprehensive Plan (2006)
City of Madison	City of Madison Comprehensive Plan (2003)

G. Plan Administration and Coordination

G. Plan Administration and Coordination

This section details how the plan will be executed and administered, how the watershed partners will collaborate, and how the funding will move between them. The LqP-YB CWMP will be implemented through a Joint Powers Collaborative (JPC) between the following entities:

- Lac qui Parle, Lincoln, and Yellow Medicine Counties
- Lac qui Parle, Lincoln, and Yellow Medicine SWCDs
- The Lac qui Parle-Yellow Bank Watershed District (LqP-YB WD)
- The Area II Minnesota River Basin Projects

The entities implementing the plan will be collectively referred to as the Lac qui Parle-Yellow Bank Partnership (Partnership). The implementation JPC is similar to the planning MOA (**Appendix A**), with refinements clarifying roles for implementing the plan. The JPC language is provided in **Appendix F**.

Decision-Making and Staffing

Implementation of the LqP-YB CWMP will require increased capacity, funding, and coordination from current levels. Successful implementation will depend on maintaining and building upon partnerships in the watershed with landowners, planning partners, state agencies, and other organizations. The two committees described below will be integral to implementation, as well as the LqP-YB WD who will serve many of the administrative functions for implementation.

Two committees will serve this plan during implementation:

- **Policy Committee**: Comprised of elected and appointed board members (one county commissioner and one SWCD board supervisor appointed from each of the participating counties in the watershed, one manager from the LqP-YB WD, and one member from Area II Minnesota River Basin Projects); and
- **Advisory Committee**: Comprised of Steering Team and Advisory Committee members from the planning process (local SWCDs, counties, and watershed district staff, landowners, city and township officials, as well as other local stakeholders including state agencies such as BWSR, DNR, MDA, MDH, MPCA).

Figure G.1 outlines the roles and functions of the above committees during implementation. It is likely roles of each committee will continue to shift and change focus during implementation. Fiscal and administrative duties will be assigned to a member LGU through a Policy Committee decision as outlined in the formal agreement. Responsibilities for annual work planning and serving as the fiscal agent will be revisited by the Advisory Committee on an annual basis.

Figure G.1. Anticipated roles for the LqP-YB CWMP implementation

Committee Name	Primary Implementation Roles/Functions
Policy Committee	• Act as liaison to their respective boards, as well as act on behalf of their Board • Approval annual work plans, annual fiscal reports, and reports submitted to BWSR • Annual review and confirmation of priority issue recommendations • Assist Advisory Committee on addressing emerging issues • Initiate and approve plan amendments • Approve annual assessment and workplans • Approve and review grant applications, if applicable • Track and inform local boards on plan progress • Approve implementation funding requests to BWSR
Advisory Committee	• Develop an annual work plan • Provide additional support to the Policy Committee • Review the status of available implementation funds from plan participants • Review grant opportunities • Review fiscal reports • Review annual reports submitted to BWSR • Prepare plan amendments • Evaluate and recommend response to emerging issues • Implement the targeted implementation schedule • Develop and submit implementation funding request to BWSR
Fiscal Agent	• Prompt payment of bills and accounting for grant funds • Present audit of grant funds and usage annually • Maintain financial records and accounting • Complete eLink reporting annually • Administration of the grant with BWSR to develop watershed-based plan • Prepare and submit grant applications

Collaboration

Coordination of Shared Services

Informal and formal collaboration between the partners identified in this plan will guide the overall success of implementation. The benefits of successful collaboration between planning partners include consistent implementation of actions watershed-wide, increased likelihood of funding, and resource efficiencies gained. The Partnership will pursue opportunities for collaboration with fellow planning partners to maximize administrative and program efficiencies, pursue collaborative grants from several sources (described below), and provide technical assistance.

Collaboration with Other Units of Government

The LqP-YB CWMP Partnership will continue coordination with governmental units. This cooperation and coordination occur both at the local level and at the state/federal level. At the state/federal level, coordination between the Partnership and agencies such as BWSR, US Army Corps of Engineers, DNR, MDH, MDA, and the MPCA occur through legislative and permit requirements. Local coordination between the LqP-YB CWMP Partnership and comparable units of government such as municipalities, city councils, township boards, county boards, and the LqP-YB WD Board are a practical necessity to facilitate watershed-wide activities. Examples of collaborative programs in the watershed include Environmental Quality Incentive Program (NRCS), CRP (FSA), Minnesota Agriculture Water Quality Certification (MDA), Farm Bill Biologist , Pheasants Forever, Wellhead Protection for city DWSMAS (Minnesota Rural Water Association (MRWA) and MDH), and WRAPS (MPCA).

Intergovernmental coordination and cooperation are essential for the Partnership to perform its required functions. The Minnesota River Congress has begun collaborations in recent years to explore partnerships to better achieve water quality solutions. Maximizing collaborative efforts with enhanced coordination between other local groups will help best facilitate implementation of this plan.

Collaboration with Others

Local support and partnerships will drive the success of implementing this plan. Because much of the plan's focus is on voluntary implementation as well as public participation and engagement, collaborations with landowners and stakeholders in the watershed is of utmost importance. There are many actions in the plan that describe working with individual landowners on providing cost share and technical assistance for implementing conservation practices.

The Partnership also expects to continue to build on existing collaboration with others, including non-governmental organizations, while implementing this plan. Many of these existing collaborations are aimed at increasing habitat and recreational opportunities within the plan area while providing education and outreach opportunities. Partners for these collaborations include, but are not limited to, lake associations, The Nature Conservation, Ducks Unlimited, MN Deer Hunters Association, Pheasants Forever, Sportsman's Club, National Wild Turkey Federation, local co-ops, the University of Minnesota Extension, private businesses, civic groups, individuals, landowners, and foundations.

Funding

This section describes the plan's funding and its use. Most of the plan funds (48%) will be used for implementing projects on the landscape through the Projects and Practices Program and the Capital Improvements Program (**Figure G.2**). These two programs also include the technical assistance and administration required to implement them.

The current funding level (Funding Level 1) is based on the estimated annual revenue and expenditures for plan participants combined and allocated to the plan area based on the percentage of each county's land area in the Lac qui Parle-Yellow Bank Watershed. Level 1 funding includes local, state, and federal funding, as explained in the following sections. Level 2 funding includes Level 1 funding plus new watershed-based funding (state funding) that will be secured upon successful completion of this plan. Level 3 funding summarizes projects that help make progress to plan goals, but that are not administered by planning partners (counties and SWCDs). Level 3 funding consists mostly of the CRP funds. All three funding levels fund projects for the watershed-wide goals laid out in this plan. All watershed-wide goals are addressed by actions described in planning region specific tables in **Section E** that describe the actions and funding levels needed to achieve these short-term goals.

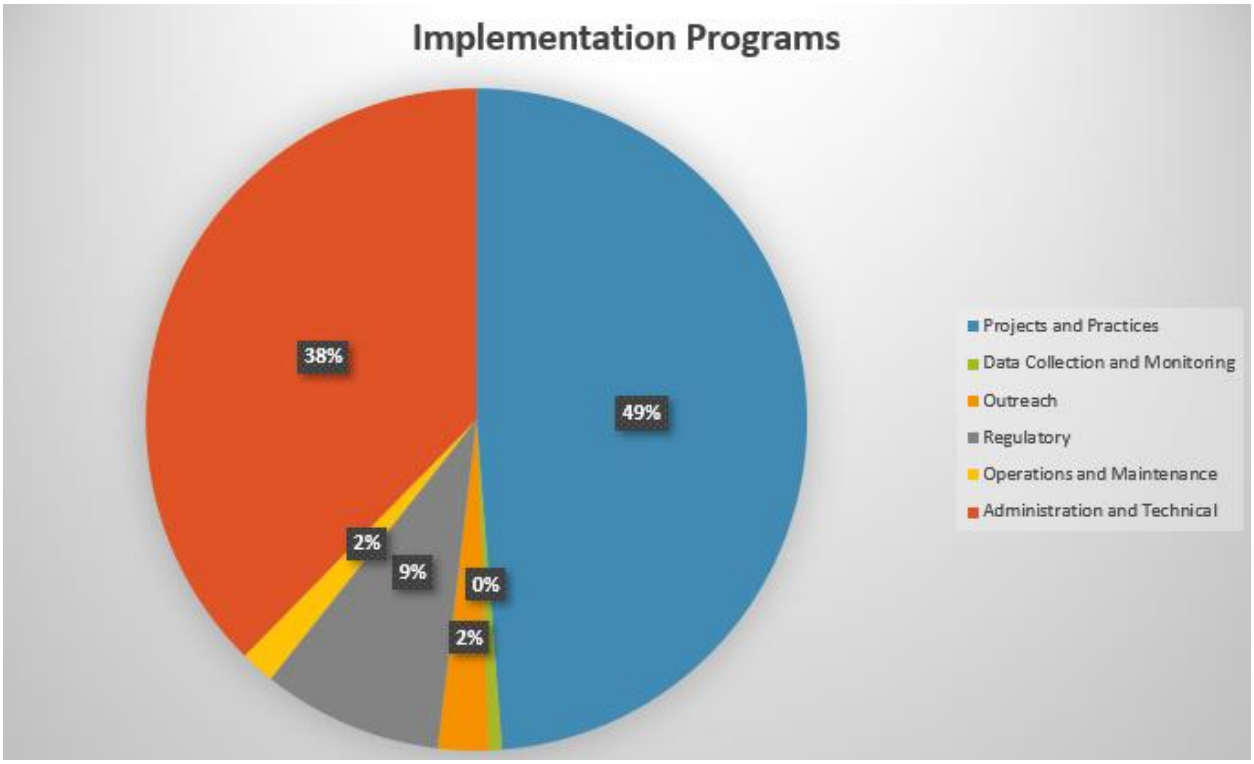


Figure G.2. Percentage of funding for each implementation program.

Throughout implementation of the LqP-YB CWMP, the Partnership expects to operate at Level 2 funding. The totals for each level are summarized in **Table G.1**. The totals for current programs have been adjusted for the portion of local funding that will be contributed to implementation within this watershed. This allocation was done based upon percent of each LGU within the watershed as shown in **Appendix G**.

Table G.1. Estimated implementation funding for the LqP-YB CWMP

Funding Level	Description	Estimated Annual Average	Estimated Plan Total (10 years)
Level 1	Continue Current Programs ($223,837 local funding, $422,985 State Funding)	$646,822	**$6,468,217**
Level 2	Current Programs + Watershed-Based Implementation Funding	$954,801	**$9,548,012**
Level 3	Partner funding	>$760,000	>$7,600,000

Local Funding

Local revenue is defined as money derived from either the local property tax base or in-kind services of any personnel funded from the local tax base. Examples include county allocations, local levy, and local match dollars (see Local Funding Authorities in **Appendix G**).

Local funds will be used for locally focused programs where opportunities for state and federal funding are lacking due to the misalignment of a program's purpose with state or federal objectives (**Table G.2**). These funds will also be used for matching grant opportunities. The amount of local funding needed to implement Level 1 actions is estimated to be $646,822 annually.

Table G.2 Implementation programs and related funding sources for the LqP-YB Watershed. Note: List is not all-inclusive.

Program / Grant		Primary Assistance Type	Projects & Practices	Capital Improvement Program	Education & Outreach	Research and Monitoring Program	Regulatory Program
Federal Programs / Grants							
NRCS	Conservation Innovation Grant (CIG)	Financial	●				
	Conservation Stewardship Program (CSP)	Financial	●				
	Environmental Quality Incentives Program (EQIP)	Financial	●				
	Agricultural Conservation Easement Program (ACEP)	Easement	●				
FSA	Conservation Reserve Program (CRP)	Easement	●	●			
	Farmable Wetlands Program (FWP)	Easement	●				
	Grasslands Reserve Program (GRP)	Easement	●				
	Wetland Reserve Program (WRP)	Easement	●	●			
FSA/ USDA/ NRWA	Source Water Protection Program (SWPP)	Technical			●		
USFWS	Partners for Fish and Wildlife Program	Financial/ Technical	●				
FEMA	Hazard Mitigation Grant Program (HMGP)	Financial	●	●			
	Pre-Disaster Mitigation (PDM)	Financial	●	●			

Program / Grant		Primary Assistance Type	Projects & Practices	Capital Improvement Program	Education & Outreach	Research and Monitoring Program	Regulatory Program
	Flood Mitigation Assistance (FMA)	Financial	●	●			
	Risk Mapping, Assessment, and Planning	Technical	●	●			
EPA	Water Pollution Control Program Grants (Section 106)	Financial			●		
	State Revolving Fund (SRF)	Financial (Loan)	●				
	Drinking Water State Revolving Fund (DWSRF)	Financial	●				
	Section 319 Grant Program	Financial	●		●	●	
State Programs / Grants							
OHF	Lessard Sams Outdoor Heritage Fund	Financial	●	●	●	●	
DNR	Aquatic Invasive Species Control Grant Program	Financial/ Technical	●				
	Conservation Partners Legacy Grant Program	Financial	●	●			
	Pheasant Habitat Improvement Program (PHIP)	Financial	●				
	Flood Hazard Mitigation Grant Assistance	Financial	●	●	●	●	
	Forest Stewardship Program	Technical	●				
	Aquatic Management Area Program	Acquisition	●				
	Wetland Tax Exemption Program	Financial	●				
BWSR	Clean Water Fund Grants	Financial	●	●			
	Erosion Control and Management Program	Financial	●				
	SWCD Capacity Funding	Financial	●		●	●	
	Natural Resources Block Grant (NRBG)	Financial	●				
	Reinvest in Minnesota (RIM)	Financial	●	●			
MPCA	Surface Water Assessment Grants (SWAG)	Financial			●	●	
	Clean Water Partnership	Financial (Loan)	●				
	WRAPS Clean Water Fund	Financial			●	●	
MDH	Source Water Protection Grant Program	Financial	●		●	●	
	Public and Private Well Sealing Grant Program	Financial	●			●	
MDA	Agriculture Best Management Practices (BMP) Loan Program	Financial	●				
	Minnesota Agricultural Water Quality Certification Program	Financial	●		●		

Program / Grant		Primary Assistance Type	Projects & Practices	Capital Improvement Program	Education & Outreach	Research and Monitoring Program	Regulatory Program
	Nutrient Management Initiative	Financial			●		
Other Funding Sources							
Ducks Unlimited		Financial/ Technical	●	●	●	●	
Trout Unlimited		Financial/ Technical	●	●	●	●	
Muskies, Inc.		Financial/ Technical	●	●	●	●	
The Nature Conservancy		Financial	●	●	●	●	
Minnesota Land Trust		Financial	●	●	●	●	
Pheasants Forever		Financial/ Technical	●	●	●	●	
Ecosystem Services Market		Financial	●				

Work Planning

Local Work Plan

Annual work planning will align with the priority issues, availability of funds, and roles and responsibilities for implementation. An annual work plan will be developed by the Advisory Committee based on the targeted implementation schedule and any adjustments made through self-assessments. The annual work plan will then be presented to the Policy Committee, who will be responsible for approval. The intent of these annual work plans will be to maintain collaborative progress toward completing the targeted implementation schedule.

Collaborative Funding Opportunities

The Advisory Committee will collaboratively develop, review, and submit a watershed-based implementation funding request from this plan to BWSR. This request will be submitted to and approved by the Policy Committee, prior to submittal to BWSR. The request will be developed based on the targeted implementation schedule and any adjustments made through self-assessments. Replication of the WBIF funding request process for other state and non-state funding opportunities is also possible.

Assessment, Evaluation, and Reporting

Accomplishment Assessment

The Advisory Committee will provide the Policy Committee with an annual update on the progress of the plan's implementation. For example, any new projects will be tracked against their goal metrics such as number of bacteria reduction projects, and tons of sediment reduced. A tracking system will be used to measure progress and will serve as a platform for plan constituents. Tracking these metrics will also make them available for supporting future work plan development, progress evaluation, and reporting.

Partnership Assessment

Biennially, the Advisory Committee will review the LqP-YB CWMP goals and progress toward implementation, including execution of committee purposes and roles, collaboration with other units of government, efficiencies in completing deliverables, and success in securing funding for implementation. During this review process, feedback will be solicited from the Advisory Committee, SWCD and county boards, partnering agencies, and other groups such as state agencies and non-governmental organizations. This feedback will be presented to the Policy Committee to set the coming biennium's priorities for achieving the 1W1P goals and to focus the direction of future grant submittals. This feedback will be documented and incorporated into the five-year evaluation.

Five-year Evaluation

This plan has a ten-year life cycle beginning in 2023. To meet statutory requirements, this plan will be revised and/or updated every 10 years. Over the course of the plan's life cycle, progress towards reaching goals and targets for completing implementation may vary. In addition, new issues are likely to emerge and/or new monitoring data, models, or research may become available. As such, in 2027-28 and at every 5-year midpoint of a plan life cycle, an evaluation will be undertaken to determine if the current course of actions is sufficient to reach the goals of the plan, or if modification in the course of actions is necessary. Additionally, an assessment of local contributions will occur during the 2027-2028 evaluation.

Reporting

LGUs have several annual reporting requirements. Several of these reporting requirements will remain a responsibility of the LGUs**.** However, reporting related to grants and programs developed collaboratively and administered under this plan will be reported by the Advisory Committee. To supplement annual reports, the Advisory Committee may also develop a State of the Watershed Report. This report will document progress toward reaching goals and completing the targeted implementation schedule and will describe new emerging issues and priorities. The information needed to annually update the State of the Watershed Report will be developed through the annual evaluation process.

The fiscal agent is responsible for submitting all required reports and completing annual reporting requirements for this plan as required by state law and policy. The Advisory Committees will assist in developing the required reports as defined in the JPC Bylaws.

Plan Amendments

This plan extends through 2033. Revision(s) of the plan may be needed through an amendment prior to the plan update if significant changes emerge in the:

- priorities,
- goals,
- policies,
- administrative procedures,
- emerging practices and technology, or
- plan implementation programs.

Revisions may also be needed if issues emerge that are not addressed in the plan.

Plan amendments can be proposed by any agency, person, city, county, or watershed district to the Policy Committee, however only the Policy Committee can initiate the amendment process. All recommended plan amendments must be submitted to the Policy Committee along with a statement of need, rationale for the amendment, and an estimate of the cost to complete the amendment. However, the existing authorities of each LGU within the watershed is still maintained. As such, CIPs need only be approved by a local board to be amended to the plan if implementation of the CIP is funded by the local board, with notification to the Policy Committee. CIPs implemented with funding from the plan must follow the means and methods for funding new capital improvements as developed by members of the Policy Committee or the Advisory Committee's individual and representative Boards.

Plan participants recognize the large work effort required to manage water-related issues. The plan provides the framework to implement this work by identifying priority issues, measurable goals, and action items. No amendment will be required for the following situations:

- The estimated cost of a non-capital improvement project action item is different than the cost shown within this plan;
- Any activity implemented through the "normal" statutory authorities of an LGU, unless the activity is deemed contrary to the intent and purpose of this plan;
- The addition or deletion of action items, programs, initiatives, or projects, if these are generally consistent with the goals this plan, are not CIPs as defined by this plan (nor is contemplated by an implementation program), and will be proposed, discussed, and adopted as part of the annual budgeting process, which involves public input.

The Policy Committee may initiate an amendment of the plan or revised plan. If a plan amendment is needed, the implementation partnership will keep BWSR, through the board conservationist, apprised of any proposed amendment, who will in turn work to initiate the amendment procedure to ensure notification of plan authorities, including state agency partners and special interested public entities upon a decision for amending the plan.

Formal Agreements

The Lac qui Parle-Yellow Bank Partnership is a coalition of Lac qui Parle Lincoln, and Yellow Medicine Counties, Lac qui Parle, Lincoln, and Yellow Medicine SWCDs, the Lac qui Parle-Yellow Bank Watershed District), and the Area II Minnesota River Basin Projects. The Policy Committee previously entered into a Memorandum of Agreement (MOA) for planning of the LqP-YB CWMP (**Appendix A**). The entities have drafted a JPC for purposes of implementing this plan (Appendix F). The Policy Committee oversees overall plan implementation with the advice and consent of the individual County, SWCD boards, Watershed Districts, and Area II Minnesota River Basin Projects under the umbrella of the implementation JPC.

All comments received during a 60-day public review and public hearing can be found in **Appendix H**.

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Appendices

Appendix A

MEMORANDUM OF AGREEMENT
Lac qui Parle-Yellow Bank Partnership

This agreement (Agreement) is made and entered into by and between:

The Counties of Lac qui Parle, Lincoln, and Yellow Medicine by and through their respective County Board of Commissioners, and
The Lac qui Parle, Lincoln, and Yellow Medicine Soil and Water Conservation Districts, by and through their respective Soil and Water Conservation District Board of Supervisors, and
The Lac qui Parle-Yellow Bank Watershed District, by and through their respective Board of Managers, and
The Area II Minnesota River Basin Projects, by and through their Board of Directors*;*
Collectively referred to as the "Parties."

WHEREAS, the Counties of this Agreement are political subdivisions of the State of Minnesota, with authority to carry out environmental programs and land use controls, pursuant to Minnesota Statutes Chapter 375 and as otherwise provided by law; and

WHEREAS, the Soil and Water Conservation Districts (SWCDs) of this Agreement are political subdivisions of the State of Minnesota, with statutory authority to carry out erosion control and other soil and water conservation programs, pursuant to Minnesota Statutes Chapter 103C and as otherwise provided by law; and

WHEREAS, the Lac qui Parle-Yellow Bank Watershed District is a political subdivision of the State of Minnesota, with statutory authority to carry out conservation of the natural resources of the state by land use controls, flood control, and other conservation projects for the protection of the public health and welfare and the provident use of the natural resources, pursuant to Minnesota Statutes Chapters 103B, 103D and as otherwise provided by law; and

WHEREAS, Area II Minnesota River Basin Projects is a political subdivision of the State of Minnesota, with statutory authority to carry out conservation of natural resources with floodwater retention and retardation, pursuant to Minnesota Statutes Chapter 103F.171-103F.187 and as otherwise provided by law; and

WHEREAS, the parties to this Agreement have a common interest and statutory authority to prepare, adopt, and assure implementation of a comprehensive watershed management plan in Lac qui Parle and Yellow Bank Watersheds to conserve soil and water resources through the implementation of practices, programs, and regulatory controls that effectively control or prevent erosion, sedimentation, siltation and related pollution in order to preserve natural resources, ensure continued soil productivity, protect water quality, reduce damages caused by floods, preserve wildlife, protect the tax base, and protect public lands and waters; and

WHEREAS, with matters that relate to coordination of water management authorities pursuant to Minnesota Statutes Chapters 103B, 103C, and 103D with public drainage systems pursuant to Minnesota Statutes Chapter 103E, this Agreement does not change the rights or obligations of the public drainage system authorities.

WHEREAS, the Parties have formed this Agreement for the specific goal of developing a plan pursuant to Minnesota Statutes § 103B.801, Comprehensive Watershed Management Planning, also known as *One Watershed, One Plan*.

NOW, THEREFORE, the Parties hereto agree as follows:

1. **Purpose:** The Parties to this Agreement recognize the importance of partnerships to plan and implement protection and restoration efforts for the Lac qui Parle-Yellow Bank. The purpose of this Agreement is to collectively develop and adopt, as local government units, a coordinated watershed management plan for implementation per the provisions of the Plan. Parties signing this agreement will be collectively referred to as Lac qui Parle-Yellow Bank Partnership.

2. **Term:** This Agreement is effective upon signature of all Parties in consideration of the Board of Water and Soil Resources (BWSR) Operating Procedures for One Watershed, One Plan; and will remain in effect until adoption of the plan by all parties, unless canceled according to the provisions of this Agreement or earlier terminated by law.

3. **Adding Additional Parties:** A qualifying party desiring to become a member of this Agreement shall indicate its intent by adoption of a board resolution prior to February 26, 2021. The party agrees to abide by the terms and conditions of the Agreement; including but not limited to the bylaws, policies and procedures adopted by the Policy Committee.

4. **Withdrawal of Parties:** A party desiring to leave the membership of this Agreement shall indicate its intent in writing to the Policy Committee in the form of an official board resolution. Notice must be made at least 30 days in advance of leaving the Agreement.

5. **General Provisions**:

    a. **Compliance with Laws/Standards:** The Parties agree to abide by all federal, state, and local laws; statutes, ordinances, rules and regulations now in effect or hereafter adopted pertaining to this Agreement or to the facilities, programs, and staff for which the Agreement is responsible.

    b. **Indemnification:** Each party to this Agreement shall be liable for the acts of its officers, employees or agents and the results thereof to the extent authorized or limited by law and shall not be responsible for the acts of any other party, its officers, employees or agents. The provisions of the Municipal Tort Claims Act, Minnesota Statute Chapter 466 and other applicable laws govern liability of the Parties. To the full extent permitted by law, actions by the Parties, their respective officers, employees, and agents pursuant to this Agreement are intended to be and shall be construed as a "cooperative activity." It is the intent of the Parties that they shall be deemed a "single governmental unit" for the purpose of liability, as set forth in Minnesota Statutes § 471.59, subd. 1a(a). For purposes of Minnesota Statutes § 471.59, subd. 1a(a) it is the intent of each party that this Agreement does not create any liability or exposure of one party for the acts or omissions of any other party.

c. **Records Retention and Data Practices:** The Parties agree that records created pursuant to the terms of this Agreement will be retained in a manner that meets their respective entity's records retention schedules that have been reviewed and approved by the State in accordance with Minnesota Statutes § 138.17. The Parties further agree that records prepared or maintained in furtherance of the agreement shall be subject to the Minnesota Government Data Practices Act. At the time this agreement expires, all records will be turned over to the Lac qui Parle SWCD for continued retention.

d. **Timeliness:** The Parties agree to perform obligations under this Agreement in a timely manner and keep each other informed about any delays that may occur.

e. **Extension:** The Parties may extend the termination date of this Agreement upon agreement by all Parties.

6. **Administration:**

a. **Establishment of Committees for Development of the Plan.** The Parties agree to designate one representative, who must be an elected or appointed member of the governing board, to a Policy Committee for development of the watershed-based plan and may appoint of one or more technical representatives to a Steering Team for development of the plan in consideration of the BWSR Operating Procedures for One Watershed, One Plan. An Advisory Committee made up of local stakeholders will be convened to provide additional support and recommendations.

i. The Policy Committee will meet as needed to decide on the content of the plan, serve as a liaison to their respective boards, and act on behalf of their Board. Each representative shall have one vote.

ii. Each governing board may choose one alternate to serve on the Policy Committee as needed in the absence of the designated member.

iii. The Policy Committee will establish bylaws by February 26, 2021 to describe the functions and operations of the committee(s).

iv. The Steering Team will meet as needed to assist and provide technical support and make recommendations to the Policy Committee on the development and content of the plan.

v. The Steering Team will consult with the Advisory Committee as needed to provide public comments and recommendations. This will occur no less than once per year until the plan is approved.

b. **Submittal of the Plan.** The Policy Committee will recommend the plan to the Parties of this agreement. The Policy Committee will be responsible for initiating a formal review process for the watershed-based plan conforming to Minnesota Statutes Chapters 103B and 103D, including public hearings. Upon completion of local review and comment, and approval of the plan for

submittal by each party, the Policy Committee will submit the watershed-based plan jointly to BWSR for review and approval.

c. **Adoption of the Plan.** The Parties agree to adopt and begin implementation of the plan within 120 days of receiving notice of state approval, and provide notice of plan adoption pursuant to Minnesota Statutes Chapters 103B and 103D.

7. **Fiscal Agent:** The Lac qui Parle-Yellow Bank Watershed District will act as the fiscal agent for the purposes of this Agreement. In the event that the Lac qui Parle-Yellow Bank Watershed District is unable to fulfill its obligation as fiscal agent, Area II Minnesota River Basin Projects will serve in this capacity. Both parties agree to the following services:

    a. Accept all responsibilities associated with the implementation of the BWSR grant agreement for developing a watershed-based plan.

    b. Perform financial transactions as part of grant agreement and contract implementation.

    c. Annually provide a full and complete audit report.

    d. Provide the Policy Committee with the records necessary to describe the financial condition of the BWSR grant agreement.

    e. Retain fiscal records consistent with the agent's records retention schedule until termination of the agreement (at that time, records will be turned over to the Lac qui Parle SWCD).

    f. The Scope of Services provided to the Lac qui Parle-Yellow Bank One Watershed, One Plan Partnership outlined in Attachment C.

8. **Grant Administration**: Lac qui Parle SWCD will act as the Planning Coordinator for the purposes of this Agreement. Yellow Medicine SWCD agrees to serve as the alternate if Lac qui Parle SWCD is unable to fulfill the scope of services as detailed below and in Attachment B. Both parties agree to provide the following services:

    a. Accept all day-to-day responsibilities associated with developing a watershed-based plan, including being the primary BWSR contact for the *One Watershed, One Plan* Grant Agreement and being responsible for BWSR reporting requirements associated with the grant agreement.

    b. Provide the Policy Committee with the records necessary to describe the planning condition of the BWSR grant agreement.

    c. The Scope of Services provided to the Lac qui Parle-Yellow Bank One Watershed, One Plan Partnership outlined in Attachment B.

9. **Authorized Representatives:** The following persons will be the primary contacts for all matters concerning this Agreement:

Lac qui Parle County
Chessa Frahm or successor
County Water Planner
122 8th Ave South, Suite 1
Madison, MN 56256
Telephone: (320) 598-7321

Lac qui Parle SWCD
Chessa Frahm or successor
District Manager
122 8th Ave South, Suite 1
Madison, MN 56256
Telephone: (320) 598-7321

Lincoln County
Dale Sterzinger or successor
County Water Planner
200 S. Co Hwy 5, Suite 2
Ivanhoe, MN 56142
Telephone: (507)694-1630

Lincoln SWCD
Dale Sterzinger or successor
District Manager
200 S. Co Hwy 5, Suite 2
Ivanhoe, MN 56142
Telephone: (507)694-1630

Yellow Medicine County
Jolene Johnson or successor
County Water Planner
1000 10th Ave, Suite 2
Clarkfield, MN 56223
Telephone: (320) 669-7524

Yellow Medicine SWCD
Tyler Knutson or successor
District Director
1000 10th Ave, Suite 3
Clarkfield, MN 56223
Telephone: (320) 669-4442

Lac qui Parle-Yellow Bank WD
Trudy Hastad or successor
600 6th Street, Suite 7
Madison, MN 56256
Telephone: (320)598-3117

Area II Minnesota River Basin Projects
Kerry Netzke or successor
1424 E. College Drive, Suite 300
Marshall, MN 56258
Telephone: (507)537-6369

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Lac qui Parle County**

APPROVED:

BY: DeRon Brehmer 1-19-2021
Board Chair Date

BY:
County Water Planner Date

APPROVED AS TO FORM

BY: 1/19/21
County Attorney Date

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Lac qui Parle SWCD**

APPROVED:

BY: _____ 12/10/2020
Board Chair Date

BY: _____ 12/10/2020
District Manager Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Lincoln County**

APPROVED:

BY: _____ 12-1-2020
Board Chair Date

BY: _____ 1-5-2021
County Water Planner Date

APPROVED AS TO FORM

BY: _____ 1-5-2021
County Attorney Date

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Lincoln SWCD**

APPROVED:

by Board Action

BY: Dale Steinger 12-16-2020
Board Chair Date

BY: Dale Steinger 12-16-2020
District Manager Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Yellow Medicine County**

APPROVED:

BY: _____
Board Chair Date

BY: Angie Steinbach 1/26/21
County Administrator Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Yellow Medicine SWCD**

APPROVED:

BY: x _____ 12/16/2020
Board ~~Chair~~ Secretary Date

BY: _____ 12/16/2020
~~District Manager~~ Director Date

APPROVED AS TO FORM

BY: N/A
County Attorney Date

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Lac qui Parle-Yellow Bank Watershed District**

APPROVED:

BY: _____ 01/25/2021
Board Chair Date

BY: _____ 01/06/2021
District Administrator Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the Parties have duly executed this agreement by their duly authorized officers.

PARTNER: **Area II Minnesota River Basin Projects**

APPROVED:

BY: _____ 12/3/2020
Board Chair Date

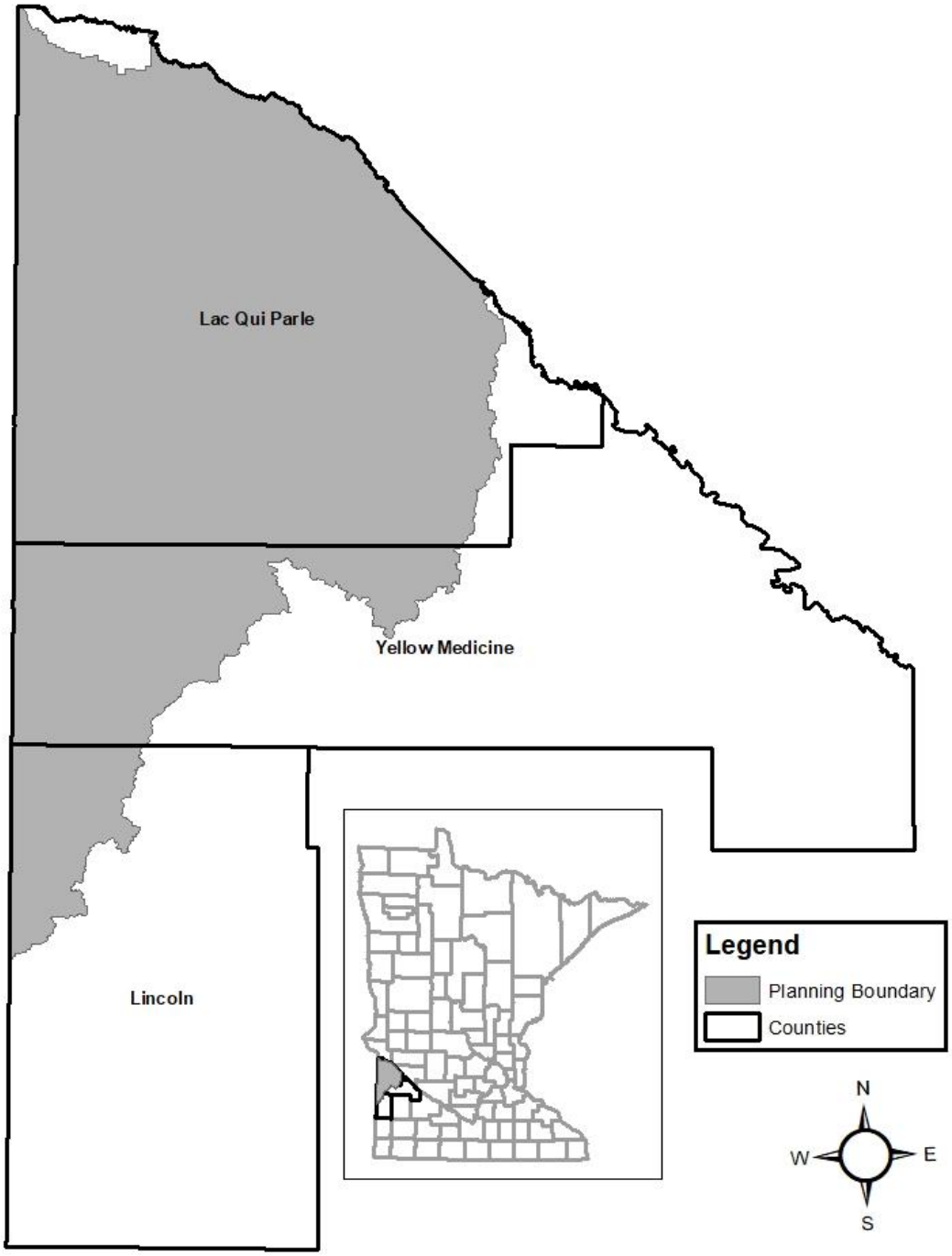
BY: _____ 12/3/2020
Administrator Date

APPROVED AS TO FORM

BY: N/A
County Attorney Date

Attachment A

Lac qui Parle-Yellow Bank 1W1P Planning Area



Attachment B

Scope of Services Provided by the

Lac qui Parle Soil and Water Conservation District (LqP SWCD)

The LqP SWCD will have the following duties:

1. Coordination of Policy Committee meetings, including:
    a. Provide advance notice of meetings;
    b. Prepare and distribute the Agenda and related materials;
    c. Prepare and distribute Policy Committee Minutes;
    d. Maintain all records and documentation of the Policy Committee;
    e. Provide public notices to the counties and watershed district for publication; and
    f. Gather public comments from public hearing and prepare for submittal.

2. Coordination of Steering Team meetings, including the technical and Advisory subcommittees, including:
    a. Provide advance notice of meetings;
    b. Prepare and Distribute the Agenda and related materials;
    c. Prepare and Distribute Minutes; and
    d. Maintain all records and documentation of the committees.

Attachment C

Scope of Services Provided by the

Lac qui Parle Yellow Bank Watershed District (LqP-YB WD)

The LqP-YB WD will have the following duties:

a. Account for grant funds and prompt payment of bills incurred;
b. Complete annual eLINK reporting;
c. Present an annual audit of grant funds and their usage; and
d. Maintain all financial records and accounting.
e. Contracting for Services with the chosen consultant for plan preparation and writing of the watershed-based plan, including:
    a. Oversee expenditures incurred by the consultant;
    b. Provide prompt payment for services rendered; and
f. Administration of the grant with BWSR for the purposes of developing a watershed-based plan, including:
    a. Submit this Agreement, work plan, and other documents as required;
    Execute the grant agreement;
g. Contracting for Services with the chosen consultant for plan preparation and writing of the watershed-based plan, including:
    a. Execute the Contract for Services agreement;
    b. Serve as primary contact person with the consultant.

Appendix B

BOARD OF WATER AND SOIL RESOURCES

May 11, 2021

Lac qui Parle – Yellow Bank Rivers One Watershed, One Plan Planning Partners
c/o Chessa Frahm, Lac qui Parle Soil and Water Conservation District
122 8th Ave South, Suite 1
Madison, MN 56256

RE: Invitation to Submit Priority Concerns for the Lac qui Parle – Yellow Bank Rivers One Watershed, One Plan (1W1P)

Dear Mrs. Frahm,

Thank you for the opportunity to provide priority issues and plan expectations for the development of the Lac qui Parle – Yellow Bank Rivers (LqP-YB) Comprehensive Watershed Management Plan (One Watershed, One Plan) under Minnesota Statutes section 103B.801. We appreciate the partner's willingness to participate in development of a watershed-based plan.

The Board of Water and Soil Resources (BWSR) has the following overarching expectations for the plan:

Process

- The planning process must follow the requirements outlined in the One Watershed, One Plan – Operating Procedures 2.0 document, adopted by the BWSR Board on March 28, 2018 and available on the BWSR website: https://bwsr.state.mn.us/sites/default/files/2019-08/1W1P_Operating_Procedures.pdf. More specifically, the planning process must:
    - Involve a broad range of stakeholders to ensure an integrated approach to watershed management.
    - Reassess the agreement established for planning purposes when finalizing the implementation schedule and programs in the plan, in consultation with the Minnesota Counties Intergovernmental Trust and/or legal counsel of the participating organizations, to ensure implementation can occur efficiently and with minimized risk. This step is critical if the plan proposes to share services and/or submit joint grant applications.
    - Follow the revised and agreed upon planning boundary as described in the resolution and submitted application as part of the 2020 Clean Water Fund One Watershed, One Plan Planning Grant Request for Proposals. The revised planning boundary, which includes the Yellow Bank River subwatershed received concurrence from planning boundary #16 and #18 Counties, SWCDs, and Watershed Districts.

Plan Content

- The plan must meet the requirements outlined in the One Watershed, One Plan – Plan Content Requirements 2.1 document, adopted by the BWSR Board on August 29, 2019 and available on the BWSR website: https://bwsr.state.mn.us/sites/default/files/2019-12/1w1p_plan_content_requirements_2.1_0.pdf. More specifically, the plan must have:
    - A thorough analysis of issues, using available science and data, in the selection of priority resource concerns.
    - Sufficient measurable goals to indicate an intended pace of progress for addressing the priority issues.
    - A targeted and comprehensive implementation schedule, sufficient for meeting the identified goals.
    - A thorough description of the programs and activities required to administer, coordinate, and implement the actions in the schedule: including work planning (i.e. shared services, collaborative grant-making, decision making as a watershed group and not separate entities) and evaluation.

BWSR has the following specific priority issues:

Surface Water

- Specific surface water resource issues that BWSR believes are relevant and important to consider in the Lac qui Parle River and Yellow Bank River watersheds, and should be examined, include:
    - Surface Water Quality– Degraded surface water quality and issues with water quantity are a problem in the watershed. Many rivers, streams, and lakes are impaired due to nutrients, sediment, and/or bacteria. Surface waters in the Lac qui Parle River and Yellow Bank River Watersheds have also experienced damaging high flow and/or flood events. There are several causes for these issues including, but not limited to: altered hydrology, increased peak flows, runoff, and streambank/riparian erosion and sedimentation. BWSR believes it is important that the watershed plan examine the causes of these surface water concerns and identify specific areas where implementation of specific BMPs could help decrease these issues. BWSR believes that accelerated soil erosion, leading to turbidity and other water quality issues, is a significant issue in the watershed. We also would like to see the concept of soil health as a key component in addressing accelerated soil erosion on cropland and pastureland in the watershed. Improved soil health can provide a number of benefits, from increased water infiltration/reduced runoff, to nitrate scavenging, and reduced soil erosion.
    - Surface Water Quantity/Flooding/Altered Hydrology – Surface waters of the Lac qui Parle River and Yellow Bank River Watersheds have experienced an increase in damaging floods. There are several causes for the increased flooding. BWSR believes the watershed plan should examine these causes and identify specific areas within the watersheds where implementation of BMPs could help contribute to the reduction of peak flows, frequency of flooding events, and streambank/riparian erosion and sedimentation. Significant artificial drainage and watercourse alterations have occurred in the watershed, primarily for more productive agricultural land and infrastructure; this

should be examined for impacts to increased peak flows and flooding, as well as opportunities for wetland restorations in targeted areas as one component.

Groundwater

- **Groundwater Coordination and Prioritization:** Work with BWSR staff and agency partners (MDH, DNR, MDA, and MPCA) to outline any groundwater – related priority issues for the planning area. Take into account identified Groundwater Management Areas, Drinking Water Supply Management Areas, wellhead protection areas, areas with direct connection to the water table, and other areas of groundwater concern. Address specific concerns about groundwater contamination and overuse identified and documented. Groundwater and surface water interactions in Drinking Water Supply Management Areas (DWSMAs) should be considered, as this can be a pathway for pollutants to reach groundwater. Special consideration should be made for the DWSMAs that intersect with Florida Creek, Lazarus Creek and Canby Creek.
- **Groundwater References:** The Lac qui Parle River and Yellow Bank River Watershed areas of Minnesota has a number of references and data available. Be sure to make use of existing groundwater data and publications. These include maps, data layers, and publications available from the Minnesota Geological Survey, MN DNR, MN Dept. of Health, US Geological Survey, and other sources.

Drainage Management (103E):

- **Involve Drainage Authorities:** The Chapter 103E drainage authorities within the watershed should be included as stakeholders in the plan development process. This inclusion should ensure that the Chapter 103E processes and proceedings as well as the extent and the limitations of drainage authority responsibility are adequately included in the final plan. Use Section 103E.015 *CONSIDERATIONS BEFORE DRAINAGE WORK IS DONE* and other provisions of drainage law to capture both the extent and the limitations of drainage authority responsibility and authority for participating in the planning and implementation of conservation practices involving public drainage systems and their associated drainage areas.
- **Multipurpose Drainage Management (MDM):** Include multipurpose drainage management in the approach for targeting best management practices (BMPs) within the drainage area of Chapter 103E drainage systems.
- **Remember PTM Concepts:** Always remember Prioritized, Targeted, and Measurable.
    - Prioritization of the watershed should include identification of Chapter 103E drainage systems and their drainage areas.
    - Measurable outcomes for erosion and sediment reduction, nutrient reduction, improved instream biology, and detention storage to assist those outcomes, should include correlation to Chapter 103E drainage systems.
- **Coordinate Implementation:** Lay out a coordinated approach for how implementation of multipurpose drainage management practices identified in the plan can be coordinated with, and/or integrated early into Chapter 103E processes and proceedings. When projecting funding needs for BMP implementation along, or within the drainage area of, public drainage systems, incorporate use of the following Sections of Chapter 103E: 103E.011, Subdivision 5. *Use of external sources of funding.*, 103E.015, Subdivision 1a. *Investigating potential use of*

external sources of funding and technical assistance. These provisions enable public-private funding partnerships involving 103E drainage systems.

Wastewater and Subsurface Septic Treatment System (SSTS) Management

- Proper wastewater and SSTS management and disposal are important to surface and groundwater quality and drinking water supplies. It is recommended that the plan evaluate the current and future effectiveness of management efforts within the watershed and conduct a comparative review of local ordinances.

Conservation Easements

- The State's Re-Invest in Minnesota (RIM) Reserve Easement Program considers several site specific and landscape scale factors when funding applications. Though it is dependent on specific program terms, the State does consider local prioritization of areas for easement enrollment. The plan should consider areas with a higher risk of contributing to surface and subsurface water degradation such as highly erosive lands and wellhead protection areas for waters sensitive to pollution degradation that would be relieved through permanent vegetation cover.

Wildlife/Habitat

- The planning partners are encouraged to identify opportunities to benefit wildlife populations and habitat. Wildlife of concern should include, but not be limited to, Blanding turtles, fisheries, fowl, and pollinators. The partnership is encouraged to work with a wide variety of partners and utilize a wide variety of plans, studies, and information to increase habitat acres and/or quality. Examples include: The Minnesota Prairie Conservation Plan, the BWSR Pollinator Initiative, and Minnesota's Wildlife Action Plan 2015-2025.

Wetlands

- **Wetland Management:** Protection and restoration of wetlands provides benefits for water quality, flood damage reduction, habitat and wildlife. The plan should support the continued implementation of the Wetland Conservation Act and look for opportunities to improve coordination across jurisdictional boundaries. The plan should also identify high priority areas for wetland restoration and strategically target restoration projects to those areas. The Restorable Wetland Prioritization Tool is one resource that can be used to help identify areas for wetland restoration. The state is also embarking on a wetland prioritization plan that will guide wetland mitigation in the Lac qui Parle River and Yellow Bank River Watershed areas in the future. Wetland restoration and preservation priorities that you identify in your plan may be eligible for inclusion in this statewide plan in the future.

General Comments

- The State's Nonpoint Priority Funding Plan (NPFP) outlines a criteria-based process to prioritize Clean Water Fund investments. If planning partners are intending to pursue Clean Water Fund as a future source of funding, partners are strongly encouraged to consider the high-level state priorities, keys to implementation, and criteria for evaluating proposed activities in the NPFP.

- BWSR suggests a comparative review of local ordinances and regulations across the watershed with the purpose of identifying commonalities, significant differences as well as opportunities for coordination. Gaps or inconsistencies in the partnership's local ordinances, policies, or regulations could affect the success of your plan's implementation. Examples that should be explored during plan development include, but are not limited to: redetermination of ditches, SSTS compliance inspection requirements (property transfer, variance, etc.), level III feedlot inventories and shore land regulations.
- The Lac qui Parle River and Minnesota River Headwaters Watershed Restoration and Protection Strategy (WRAPS) is scheduled for completion in 2021; this information should be reviewed and incorporated into your planning efforts. The draft WRAPS outlines reduction goals for excess sediment, phosphorus, nitrogen, habitat, altered hydrology and bacteria, as well as identifying areas where protection considerations need to be made for lakes, streams, and groundwater/drinking water.
- As part of the plan, devise methods that the planning group can follow to ensure adherence to the planned activities and reassess the plan as implementation occurs in the future. Data collection and monitoring activities necessary to support the targeted implementation schedule and reasonably assess and evaluate plan progress are required and should be coordinated with other data collection and monitoring efforts.
- BWSR strongly encourages your planning partnership to consider the potential for more extreme weather events and their implications for the water and land resources of the planning area in the analysis and prioritization of issues. The weather record for the planning area shows increased frequency and severity of extreme weather events, which has a direct effect on local water management. Adjustments involving conservation and fieldwork planning and implementation should be explored; for instance, the use of an updated precipitation frequency chart such as the NOAA Atlas 14 when designing conservation projects. An additional source of information for use in the planning process is the BWSR Landscape Resiliency Toolbox. Finally, a new white paper from the Minnesota Interagency Climate Adaptation Team titled "Building Resiliency to Extreme Precipitation in Minnesota" also provides resiliency strategies related to this topic.

We commend the partners for their participation in the planning effort. We look forward to working with you through the rest of the plan development process. If you have any questions, please feel free to contact me by phone (507) 829-8204

Sincerely,

Jason Beckler
Board Conservationist

cc: Ryan Bjerke, MDNR (via email)
Ryan Lemickson, MDA (via email)
Amanda Strommer, MDH (via email)
Katherine Pekarek-Scott, PCA (via email)

Ed Lenz, BWSR (via email)
Chessa Frahm, Lac qui Parle-Yellow Bank River One Watershed, One Plan Planning Group (via email)
Mark Hiles, BWSR (via email)
Jay Gilbertson, East Dakota Water Development District

DEPARTMENT OF NATURAL RESOURCES

5/20/2021

Chessa Frahm, Lac qui Parle SWCD District Manager
122 8th Avenue South, Suite 1
Madison, MN 56256

Dear Chessa,

Thank you for inviting the Minnesota Department of Natural Resources (DNR) to provide input in the development of your Comprehensive Watershed Management Plan. I am writing on behalf of DNR Commissioner Sarah Strommen to share our priorities and convey we are committed to support the Plan.

DNR Divisions collaborated to identify priorities we believe are needed to make the plan more impactful. This is a real opportunity to influence change in the watershed. The stresses put on our ditch and stream banks, farmland, bridges and culverts can only be reduced with an honest look at the watershed and a plan including targeted actions.

The DNR can supply scientific data and information related to the attached priorities. We also offer tools and services that can help stakeholders get to know the watershed and explore water resource values.

Our lead staff person for this One Watershed One Plan (1W1P) project is Ryan Bjerke, Area Hydrologist, (320) 839-3823, ryan.bjerke@state.mn.us. Ryan reports from the DNR office in Ortonville and can be contacted if you have questions, or want more information about the attached priorities or types of technical support we can provide.

Also feel free to contact me directly if needed. As the DNR's Regional Director, I am committed to ensuring that DNR staff in the region are organized to support 1W1P planning efforts and the resulting plans. We greatly value the opportunity to contribute to the process and hope the information we provide is helpful.

Sincerely,

Scott W. Roemhildt
South Region Director
Minnesota Department of Natural Resources

cc: Ryan Bjerke, Robert Collett, Jim Sehl, Barbara Weisman, Jason Beckler, Katherine Pekarek-Scott, Ryan Lemickson, Amanda Strommer, Jay Gilbertson

DNR Priorities for the Lac qui Parle-Yellow Bank Watershed

The priorities below were identified in consultation with an interdisciplinary team of DNR natural resource management specialists from multiple DNR Divisions whose work areas include this watershed. The priorities are grouped around three high-level issues: Hydrological Conditions & Clean Water, Habitat & Unique Natural Resources, and Outdoor Recreation.

High-Level Issue	Priority Resource Concerns & Opportunities
Hydrological Conditions & Clean Water	• **The Water Quantity & Quality Connection:** In the Lac qui Parle-Yellow Bank (LqP-YB) Planning Area there are opportunities, such as working land initiatives and targeted conservation practices, to improve water quality and reduce excessive flows. Often the underlying driver of declining water quality—99% of which is attributable to non-point source pollution in the watershed—is changing hydrological conditions or "altered hydrology." Investigated as a stressor when a biological impairment is identified, the MPCA asserted in draft WRAPS reports for the Lac qui Parle and Yellow Bank watersheds that "…the sources of altered hydrology are common across the watershed. Therefore, altered hydrology is likely negatively impacting water quality watershed-wide…" Runoff events of increasing magnitude, frequency, and duration in agricultural watersheds are impacting water quality, leading to poor or unsafe conditions for aquatic recreation and aquatic life. Significant land use changes have occurred—principally the conversion of a mixed-use agricultural landscape to one dominated by a corn and soybean crop rotation and the accompanying intensification of artificial drainage. These changes, in conjunction with an increasing precipitation trend over the last 30 years, have amplified the runoff response. The changing land use and altered hydrology has led to the delivery of more runoff per unit of precipitation to riverine and wetland systems. These changes also lead to increased stress on biological communities and are causing stream channels to adjust to new conditions. The DNR uses a suite of metrics and analyses to tell the story of the significant impact changing water quantity trends have on watershed health conditions. DNR staff are prepared to present this information to the public and agency partners at appropriate points in the 1W1P process. Meanwhile, see the Lac qui Parle River Watershed Characterization Report and the Minnesota River Headwaters Watershed Characterization Report (Yellow Bank River watershed). • **Vegetation & Water Interaction:** As the area's native prairies were converted to pasture, hay, and cropland, the latter category initially encompassed a fairly diverse mixture of small grains, alfalfa and corn. All except the corn had seasonal water consumption rates that aligned with seasonal precipitation cycles, most notably in spring and early summer when rain is abundant. Since most water use by corn and soy occurs after full canopy cover (late June), large-scale conversion to these crops results in rain falling on exposed soils early in the growing season when these crops are in the early stage of development. The lack of rainfall uptake during the spring has increased runoff from the watershed. With this history in mind, we want to highlight four major factors in the watershed that have conspired to speed up runoff and increase the magnitude and frequency of flooding for almost all storm events: approximately 52 percent of growing season precipitation in the watershed falls between April 1st and June 30th; peak water

High-Level Issue	Priority Resource Concerns & Opportunities
	demand from row crops occurs in July/August, which is substantially different than small grains and native vegetation; the significant loss of perennial vegetation leads to less infiltration; and a reduction in soil organic matter results in less water-holding capacity. To address this combination of factors we recommend the 1W1P partners focus on integrating continuous living cover—i.e., cover crops—and conservation or no-till practices into row crop rotations. Promoting working lands initiatives that integrate pasture, hayland, and alfalfa in conjunction with best practices for livestock operations would also be a value-added mechanism to realign seasonal vegetative water use and precipitation. Protecting and restoring perennial vegetation—especially native, deep-rooted species that also benefit wildlife and pollinators—is another high priority recommendation for both conservation lands and higher slope areas within cropland; these are particularly prevalent on the Prairie Coteau and along river valleys, where installing more grassed waterways would mitigate erosion caused by concentrated overland flow. Maps in the Prairie Plan and the Wildlife Action Plan outline areas to protect and enhance. • **"Re-plumbing" the Watershed:** The use of surface ditches and drainage tile systems, both public and private, to drain water from agricultural lands has been an ongoing practice. The rate of agricultural drainage has accelerated in recent decades with technological advancements in manufacturing and installation of drainage tile. As modern cropping practices have advanced, this "re-plumbing" of the watershed's hydrological system has changed the hydrology of wetlands and downstream receiving waters. Public drainage system improvement projects can negatively affect water quantity and quality by increasing flow capacity at the outlet of the system. This leads to additional drain tile installation, which increases total runoff and further accelerates downstream impacts. Measureable action by drainage authorities in the watershed is needed to mitigate projected increases across the entire flow spectrum for public drainage projects. This should include a suite of best practices for storing water and attenuating flow—natural wetland restoration, artificial wetland creation, grassed waterways, water and sediment control basins, multiple stage channels with floodplain connection, removal of surface tile intakes or replacement with "blind" tile intakes, etc.—that fall under a comprehensive multipurpose drainage management plan. A major benefit could be reduced system maintenance costs. Other benefits could include reductions in runoff volume, peak flows, erosion, sedimentation, and nutrient transport, as well as increases in infiltration, evapotranspiration, and wildlife habitat. We encourage drainage authorities to investigate and apply for grants to implement the aforementioned multipurpose drainage management plans and best practices. • **Channel & Floodplain Connectivity:** The increasing frequency and duration of high flows in the watershed—especially flows that exceed the 1.5 to 2 year bank full or channel forming flow—is affecting the size and shape of stream and river channels. This occurs primarily through the downcutting and widening of the channel to accommodate higher flows. Artificial modifications, mostly in the form of channelization (straightening, deepening, widening), can disconnect the stream or river from its floodplain, confining high-velocity flows that exacerbate in-channel

High-Level Issue	Priority Resource Concerns & Opportunities
	erosion and sedimentation. Intensified channel erosion in lower reaches of larger rivers in the watershed has negatively affected adjacent private and public infrastructure such as buildings, roads, bridges, and culverts, as well as riparian land. Storing more water on the landscape is a key strategy to maintain the connection between a stream or river and its floodplain, which provides temporary storage of flood flows, and helps trap sediments and nutrients. Adhering to existing shoreland ordinances for development in the shore impact zone and shoreline and bluff setbacks—and adopting more rigorous standards when necessary—is also important to mitigate detrimental impacts. Watershed District, SWCD, and DNR personnel are actively collaborating on several proposed stream restoration projects in the watershed. One project is associated with the Lac qui Parle Floodway on the mainstem Lac qui Parle River northeast of Canby. Another project is along Florida Creek directly upstream of U.S. Highway 212. Although the proposals are in preliminary planning stages, both would restore flow to several miles of historical channel. The principal benefits include trapping water quality pollutants, enhancing floodplain connectivity, temporarily storing flood flows, and restoring natural channel characteristics and processes. Additional benefits include reducing threats to transportation infrastructure and public safety, increasing aquatic habitat, and improving the ability of fish and other aquatic organisms to move upstream and downstream. We recommend designating these truly multiple-benefit projects as priorities in your plan.
Habitat & Unique Natural Resources	• **Protecting & Restoring Habitat:** The LqP-YB Planning Area contains a multitude of high-quality habitats, primarily in the upper half of the watershed on and near the Prairie Coteau. This provides optimal experiences for outdoor recreation. In addition, this impressive matrix of native prairie, restored grassland, and forested riparian corridors with floodplain wetlands is home to many different Native Plant Communities; rare plant and animal species listed as Endangered, Threatened, or Special Concern; Species in Greatest Conservation Need (SGCN) identified in Minnesota's Wildlife Action Plan; and rare or sensitive natural features, including those vulnerable to a single catastrophic event, as detailed in the Natural Heritage Information System. (Datasets and shapefiles may be downloaded from Minnesota Geospatial Commons.) Minnesota's Wildlife Action Plan aims to ensure the long-term health and viability of the state's wildlife, with emphasis on species that are rare, declining, or vulnerable to decline. The plan focuses on conserving SGCN and other wildlife within a mapped Wildlife Action Network (WAN). Large core areas—including Prairie Plan Core and Corridor Areas within the watershed, such as Yellow Medicine Coteau, Antelope Hills, and Lac qui Parle—help facilitate species movement that supports the biological diversity already present in the network. Targeting conservation within the WAN will increase the effectiveness and efficiency of actions to reduce the primary causes of wildlife population declines. In order to maintain the many high-quality natural resources in the watershed, the DNR recommends **protection strategies** that focus on (1) remnant native habitats within or adjacent to the WAN that are not already in some form of protection and protected conservation lands (state, federal, non-governmental, or private lands in conservation easement); (2) riparian zones along streams, wetlands, and shallow

High-Level Issue	Priority Resource Concerns & Opportunities

	lakes; and (3) implementation of applicable legal protections for rare species and natural communities, calcareous fens, and designated trout stream and tributaries. Additionally, **restoration goals** to repair and improve degraded and marginal natural resources should specifically target restoration and enhancement to create larger habitat networks and incorporate best management practices such as soil health systems into the agricultural landscape. Early coordination and collaboration with the DNR and other partners is strongly encouraged to better pursue opportunities for multiple benefits and leverage expertise and funding resources.
	
	• **Reconnecting & Preserving Aquatic Habitat:** In the face of changing hydrological conditions and numerous water quality and biological impairments in the watershed, it is imperative to maintain and reconnect access to ecologically-important aquatic habitat for fish and other aquatic organisms. Improperly designed road crossings—e.g., undersized and perched culverts—act as velocity and elevation barriers that partially or wholly disconnect vital aquatic ecosystems. Dams and other water retention structures in spawning areas in the headwaters of perennial and intermittent riverine systems also create barriers to fish and aquatic organism movement. DNR staff are ready to work directly with road authorities at all levels to evaluate structures at road-stream crossings for potential removal or replacement, incorporating the principles outlined in MNDOT's Minnesota Guide for Stream Connectivity and Aquatic Organism Passage Through Culverts.
	
	• **Exceptional Natural Resources:** Interspersed throughout the watershed, but particularly prevalent on and near the Prairie Coteau, are numerous natural resources of distinction. Not only are they valued for their outstanding biological and ecological characteristics, but some are also well-known **eco-tourism destinations** that likely generate substantial local economic benefits. We recommend giving special consideration to the care and protection of these outstanding resources, especially the following:
	  ○ Salt Lake: the state's only alkaline lake and one of the most popular bird watching destinations in Minnesota—with 141 bird species identified to date, including 37 SGCN and 3 state listed species
	  ○ Marsh Lake: home to the largest white pelican colony in North America
	  ○ 3 Audubon-designated Important Bird Areas: Salt Lake, Prairie Coteau, and Lac qui Parle-Big Stone
	  ○ 7 designated calcareous fens—including the highest-quality complex in the state, located in Sioux Nation Wildlife Management Area
	  ○ 1 designated trout stream—Canby Creek upstream of Del Clark Reservoir—and 15 designated protected tributaries
	  ○ 20 native plant communities
	  ○ 40 rare plant and animal species listed as threatened, endangered, or special concern

High-Level Issue	Priority Resource Concerns & Opportunities
Outdoor Recreation	• **Public Lands:** LqP-YB Planning Area public lands are highly utilized for a wide variety of outdoor recreation activities, but are especially prized for the hunting and fishing opportunities they afford the general public. This suite of protected conservation lands encompasses U.S. Fish & Wildlife Service Waterfowl Production Areas (WPAs); DNR-administered properties such as Wildlife Management Areas (WMAs), Aquatic Management Areas (AMAs), Scientific and Natural Areas (SNAs), and state parks; and The Nature Conservancy (TNC) Preserves. Prime examples include: Lac qui Parle WMA, Sioux Nation WMA, Mound Springs WMA, Bohemian WMA, Salt Lake WMA, Yellow Bank Hills SNA, Mound Spring Prairie SNA, and TNC Plover Prairie. DNR personnel welcome constructive dialogue and relationship building opportunities with 1W1P partners about management and uses of existing public lands—and ensuring future opportunities in a transparent and equitable process that fully accounts for the myriad benefits they provide. • **Lac qui Parle State Park:** Situated near the confluence of the Lac qui Parle River and Minnesota River and directly adjacent to the lower end of the 33,500 acre Lac qui Parle WMA complex and Lac qui Parle Reservoir, Lac qui Parle State Park is the premier destination in the watershed for campers and other outdoor recreationists. Past high-water events have inundated parts of the lower campground, creating service disruptions and imposing significant repair costs. DNR park staff and hydrologists are interested in investigating options to reduce the frequency, magnitude, and duration of flooding events in the lower campground and mitigate costly future damage. To that end, the previously-mentioned stream restoration projects and best practices to store more water on the landscape—through vegetation, in the soil profile and aquifers, in wetlands and lakes, and on well-connected floodplains—would diminish high flows and total runoff volume, lessening the flooding risk to the lower campground.

DEPARTMENT OF AGRICULTURE

May 19, 2021

Chessa Frahm
Lac qui Parle SWCD
122 8th Ave South, Suite 1
Madison, MN 56256

Dear Mrs. Frahm,

Thank you for the opportunity to provide priority issues and relevant information for the development of the Lac qui Parle – Yellow Bank One Watershed One Plan (1W1P). The Minnesota Department of Agriculture (MDA) looks forward to working with local government units, stakeholders, and other partners in the planning process to help provide technical information to landowners and agricultural organizations in the watershed.

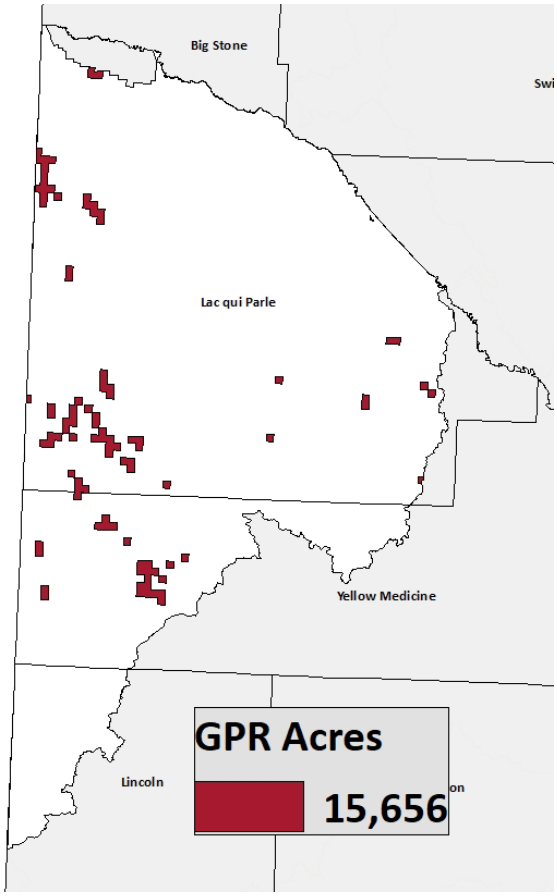
One of the MDA's roles, related to the 1W1P process, is technical assistance. The MDA maintains a variety of water quality programs including research, on-farm demonstrations, and groundwater and surface water monitoring. Our goal is to provide you with data from the programs to help understand the resource concerns and further engage the agricultural community in local problem solving.

The MDA's research and on-farm demonstration projects help ensure that current scientific information is made available to help address water quality concerns and to support farmer-led discussion. Engaging farmers and crop advisers in a trusted relationship is essential for making on–farm decisions.

MDA Priority Concerns

Nitrate and pesticides in groundwater are the priority resource concerns for the MDA statewide. The MDA is interested in working with local and state partners to engage the agricultural community, support on-farm demonstrations, promote the Minnesota Ag Water Quality Certification Program, and use relevant research and tools to share information about conservation practices that can benefit agriculture and the 1W1P process.

Nitrogen Fertilizer Management Plan (NFMP)
www.mda.state.mn.us/nfmp
The NFMP is the state's blueprint for preventing or minimizing impacts of nitrogen fertilizer on groundwater. The original plan was developed in 1990 and was updated in 2015. The goal is to involve local farmers and agronomists in problem-solving to help reduce nitrate in groundwater, with a focus on Drinking Water Supply Management Areas (DWSMAs) with elevated levels of nitrate. There are currently no DWSMAs in the watershed with elevated nitrates according to information and guidance outlined in the NFMP.



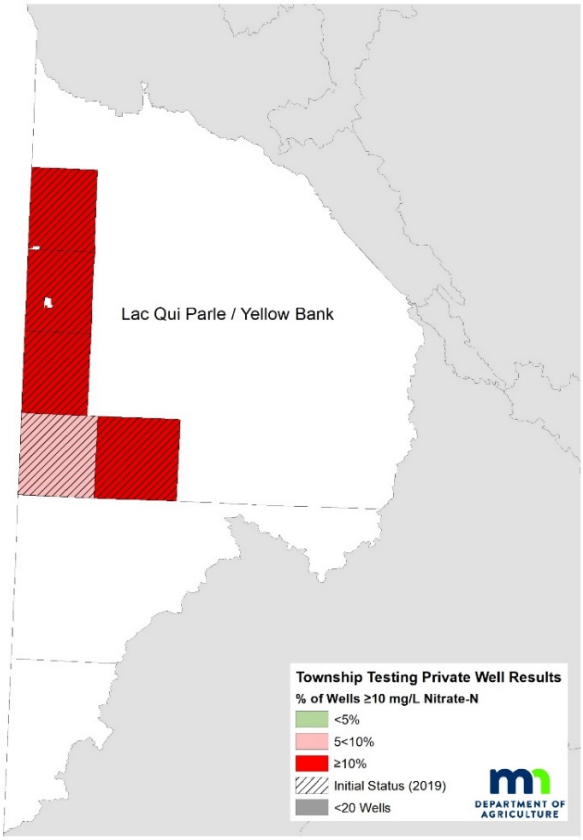
Groundwater Protection Rule (GPR)
As part of the NFMP, the GPR minimizes potential sources of nitrate pollution to groundwater and protects drinking water by restricting the application of nitrogen fertilizer in the fall and on frozen soils in areas vulnerable to contamination.

There are 15,656 acres in the watershed that would be impacted by the GPR. More information can be found at:

- Groundwater Protection Rule: www.mda.state.mn.us/nfr
- Vulnerable Groundwater Areas Map: www.mds. state.mn.us/vulnerableareamap
- Mitigation Level Determination: www.mda.state.mn.us/mitigation-level-determination

Township Testing Program (TTP)
www.mda.state.mn.us/townshiptesting
The MDA has identified townships throughout the state that are vulnerable to groundwater contamination and have significant row crop production. One county, Lac qui Parle, participated in the TTP. Each selected township was offered testing in two steps, the initial sampling, and the follow-up sampling. In the initial sampling, all township homeowners using private wells received a nitrate test kit. If the initial sample detected nitrate, the homeowner was offered follow-up tests for nitrate and pesticides as well a site visit.

Trained MDA staff visited willing homeowners to resample the well and then conducted a site assessment. The site assessment identified possible non-fertilizer

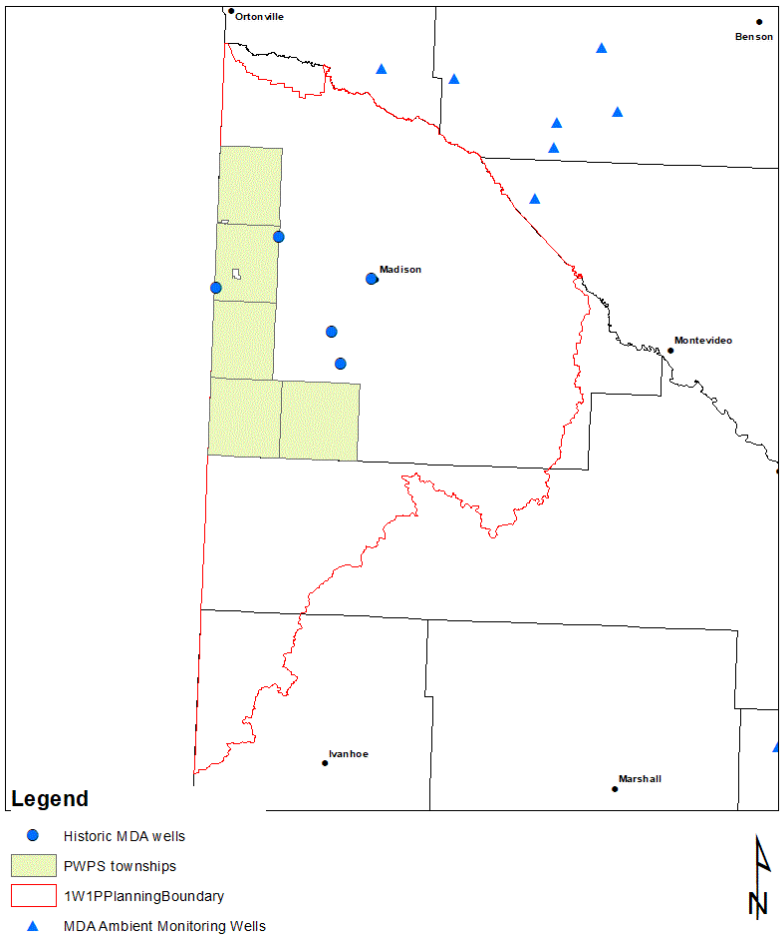


sources of nitrate and assessed the condition of the well. A well with construction problems may be more susceptible to contamination.

Two datasets, 'Initial' and 'Final', are used to evaluate nitrate in the private wells in this program. The initial dataset represents private wells drinking water regardless of the potential source of nitrate. The final dataset was informed through an assessment process to evaluate each well. In the assessment, wells that had nitrate results over 5 mg/L were removed from the final dataset if a potential non-fertilizer source or well problem was identified, there was insufficient information on the construction or condition of the well, or for other reasons which are outlined in the full report. The final dataset represents wells with nitrate attributed to the use of fertilizer. Lac qui Parle has been through both the initial testing and the follow-up testing. Final results are still pending.

Private Well Pesticide Sampling (PWPS)

The MDA began evaluating pesticide presence and magnitude in private residential drinking water wells as part of the Private Well Pesticide Sampling (PWPS) Project in 2014. This is a companion program to the MDA Township Testing Program (TTP). Townships in different counties have been, and will continue to be, sampled every year until the project concludes in 2021. The townships included in the PWPS depend on the voluntary participation of well owners and may not reflect all the townships sampled in the TTP.



As part of the PWPS Project, wells in five townships in Lac Qui Parle County were sampled. The sampling occurred in 2020. The chemistry data is available for the wells; however, due to privacy rules, the well locations can't be shared.

Nine pesticides or pesticide degradates were detected in wells in these townships. No wells had a concentration that exceeded established human health reference values for pesticide compounds.

More information is available: www.mda.state.mn.us/pwps

Ambient Pesticide Water Quality Monitoring

The MDA has been conducting pesticide monitoring in groundwater since 1985, and in surface waters since 1991. The purpose of the MDA's pesticide monitoring program is to determine the presence and concentration of pesticides in Minnesota waters, and present long-term trend analysis. Trend analysis requires a long-term investment in monitoring within the MDA's established networks.

Annually, the MDA completes approximately 250 sample collection events from groundwater and 700 sample collection events from rivers, streams, and lakes across the state. In general, the MDA collects water samples from agriculture and urban areas of Minnesota and analyzes water for up to approximately 180 different pesticide compounds that are widely used and/or pose the greatest risk to water resources.

Groundwater monitoring is conducted by the MDA and Minnesota Pollution Control Agency staff. Surface water monitoring is conducted by the MDA and local organizations. All monitoring is completed following annual work plans and standard operating procedures (SOP's) developed by the MDA.

The MDA releases an annual water quality monitoring report that includes all pesticide water quality data and long term trends is available at www.mda.state.mn.us/monitoring. MDA's surface and groundwater water quality data is also available at the National Water Quality Monitoring Council: https://www.waterqualitydata.us/

Groundwater Monitoring Wells

Within the Lac Qui Parle Watershed, the MDA does not currently sample any sites and has no plan to begin sampling soon. The MDA sampled five domestic wells in the watershed for arsenic and nitrate in 1991. Arsenic was not detected above the laboratory method reporting limit of 25 ng/L and nitrate concentrations ranged from 0.5 to 6.4 mg/L.

Surface Water Monitoring

- The MDA has completed 72 pesticide water quality sample collection events from two locations on the Lac qui Parle River from 2010 through 2020. In addition, the MDA has completed five pesticide water quality sample collection events from three lakes.

- The MDA has been actively monitoring the Lac qui Parle River at County Highway 31 one mile southwest of Lac qui Parle, MN (S003-087) since 2014. The MDA will collect pesticide water quality samples at this location until at least 2025.

- The Lac qui Parle River was designated as impaired for the insecticide chlorpyrifos on the 2018 USEPA Impaired Waters List. Chlorpyrifos was detected seven times from 2014 through 2019. There are currently 12 rivers and 1 lake designated as impaired by chlorpyrifos in Minnesota. The MDA has developed a Chlorpyrifos Response Plan to prevent future detections in waterbodies.

Nitrogen and Pesticide Use Surveys

The MDA surveys farmers through the National Agricultural Statistics Service (NASS). A summary of the survey data is attached. The most recent nitrogen use survey was for the 2015 crop year, Survey Results of Nitrogen Fertilizer BMPS on Minnesota 2015 Corn Acres. The most recent pesticide use survey was from the 2013 crop year.

For reference, the University of Minnesota fertilizer recommendations are found here: https://extension.umn.edu/nutrient-management/crop-specific-needs

Additional Resources and Opportunities for BMP funding and Cost-Share

Since there is a significant portion of the watershed in agricultural production, we would like to bring to your attention some resources that we encourage you to consider during the 1W1P planning process.

Ag BMP Handbook

This handbook provides a comprehensive summary of BMPs that are practical for Minnesota: www.mda.state.mn.us/agbmphandbook . Please let us know if you would like a hard copy for your reference.

Minnesota Agricultural Water Quality Certification Program (MAWQCP)

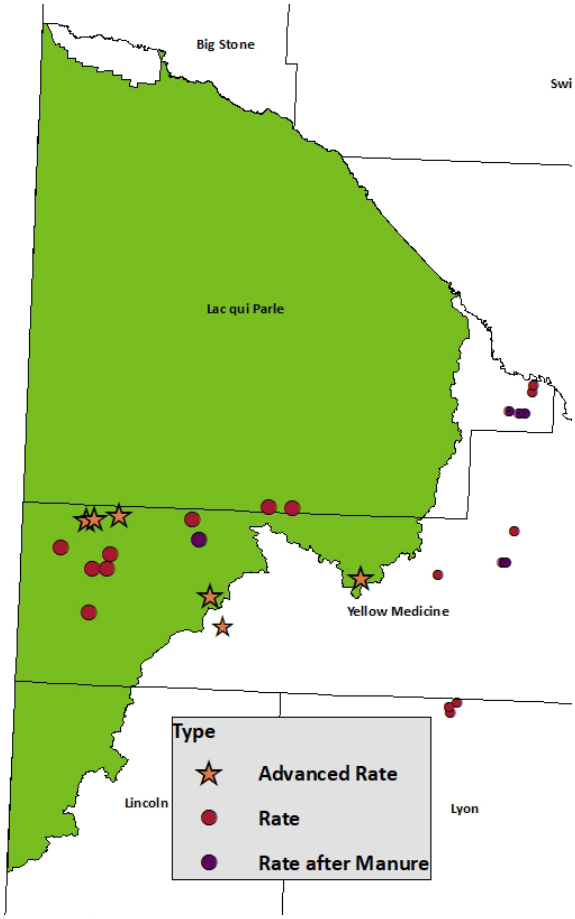
www.mda.state.mn.us/awqcp.

The MAWQCP is a voluntary opportunity for farmers and agricultural landowners to take the lead in implementing conservation practices that protect water quality. Participants that implement and maintain approved farm management practices will be certified and in turn obtain regulatory certainty for a period of ten years. This is a planning program that should be included in the 1W1P because it is an opportunity for agricultural producers to evaluate nutrient and field management practices within the watershed to help reduce losses.

There are currently 6 farmers and 4,973 acres certified in the watershed. As a result of certification, the new conservation practices and amounts listed below have been installed in the watershed.

- 13 alternative tile intakes
- 2.2 acres of filter strip
- 1,077 acres of nutrient management practices to reduce water quality risks
- 16.5 acres of field borders
- 400 feet of grassed waterway
- 30 acres of conservation cover
- 1 structure for water control (Drainage Water Management)

Nutrient Management Initiative (NMI)
www.mda.state.mn.us/nmi
The NMI assists crop advisers and farmers in evaluating nutrient management practices on their own fields by utilizing on-farm trials. This is a great opportunity to promote and compare new strategies that are available that could improve fertilizer use efficiency, as well as to help open the door to include local cooperators in the water quality discussion. In addition, advanced nitrogen rate trials working with University of Minnesota researchers help guide current nitrogen rate recommendations.



Since 2015, fourteen on-farm trials have been completed in the watershed where crop advisers worked directly with farmers and focused on new strategies that evaluated nitrogen rates. New trial ideas in other watersheds included on-farm cover crop, fertilizer placement, tillage, as well as precision agriculture and technology-based evaluations.

Agricultural Edge-of-Field Monitoring
The MDA has no edge-of-field monitoring locations in the watershed. However, there is currently one location outside the watershed that may provide valuable information for the planning process relating to drainage water management practices.

Red River Valley Drainage Water Management Project (RRVDWM)
www.mda.state.mn.us/redrivervalleydwm
The goal of the RRVDWM project is to minimize the environmental impacts of subsurface drainage while maintaining or improving agricultural productivity. Some objectives include demonstrating controlled drainage and saturated buffers as flood mitigation practices as well as their water quality and quantity benefits. The project is intended to set an example to increase the adoption of drainage water management practices in the Red River Valley. Monitoring information began in 2016 and will continue through 2021 or longer.

Agricultural Land Preservation Program
The MDA assists local government in protection of farmland through its Agricultural Land Preservation Program. This includes online tools and programmatic support. More information is available at https://www.mda.state.mn.us/environment-sustainability/farmland-protection

Agricultural Growth, Research, and Innovation (AGRI) Program
The AGRI program has funding that may be helpful in water quality protection. Specifically:

- The AGRI Livestock Investment Grant encourages long-term industry development for Minnesota livestock farmers and ranchers by helping them improve, update, and modernize their livestock operation infrastructure and equipment. More information is available at www.mda.state.mn.us/livestockinvestment.

- The AGRI Sustainable Agriculture Demonstration Grant supports innovative on-farm research and demonstrations. It funds projects that explore sustainable agriculture practices and systems that could make farming more profitable, resource efficient, and personally satisfying. Findings are published in the MDA's annual Greenbook. More information is available at www.mda.state.mn.us/sustagdemogrant.

Minnesota Discovery Farms
https://discoveryfarmsmn.org/
Discovery Farms Minnesota is a farmer-led effort to gather field scale water quality information from different types of farming systems in landscapes across Minnesota. The program is designed to collect credible and accurate measurements of sediment, nitrogen, and phosphorus movement over the soil surface and through subsurface drainage tiles. This work leads to a better understanding of the relationship between agricultural management and water quality. There are currently no Discovery Farms located in the watershed, but other sites can be used to provide valuable data that could pertain to the watershed (2012-present).

The AgBMP Loan Program
www.mda.state.mn.us/agbmploans
The AgBMP Loan Program is a water quality program that provides low interest loans to farmers, rural landowners, and agriculture supply businesses. The purpose is to encourage agricultural best management practices that prevent or reduce runoff from feedlots, farm fields, and other pollution problems identified by the county in local water plans.

Thank you again for the opportunity to provide background and relevant information as we look forward to being involved in the 1W1P process.

Sincerely,

Ryan Lemickson
MDA
23070 North Lakeshore Drive
Glenwood, MN 56334
612-209-9181
Ryan.Lemickson@state.mn.us

DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

April 27, 2021

Chessa Frahm
Lac qui Parle SWCD
122 8th Avenue South, Suite 1
Madison, MN 56256
Chessa.frahm@mn.nacdnet.net

Subject: Initial Comment Letter – *Lac qui Parle-Yellow Bank Rivers Watershed Planning Project*

Thank you for the opportunity to submit comments regarding water management issues for consideration in the One Watershed One Plan (1W1P) planning process for the Lac qui Parle-Yellow Bank Rivers Watershed Planning Area. Our agency looks forward to working closely with the local government units, stakeholders, and other agency partners on this watershed planning initiative.

The Minnesota Department of Health's (MDH) mission is to protect, maintain, and improve the health of all Minnesotans. An important aspect to protecting citizens health is the protection of drinking water sources. MDH is the agency responsible for implementing programs under the federal Safe Drinking Water Act (SDWA).

Source Water Protection (SWP) is the framework MDH uses to protect drinking water sources. The broad goal of SWP in Minnesota is to protect and prevent contamination of public and private sources of groundwater and surface water sources of drinking water using best management practices and local planning. Core MDH programs relevant to watershed planning are the State Well Code (MR 4725), Wellhead Protection (MR 4720) and surface water / intake protection planning resulting in a strong focus in groundwater management and protecting drinking water sources.

One of the three high level state priorities in Minnesota's Nonpoint Priority Funding Plan is to "Restore and protect water resources for public use and public health, including drinking water" which aligns with our agency's mission and recommendations to your planning process.

MDH Priority Concerns:

Prioritize Drinking Water Supply Management Areas (DWSMA) in the Lac qui Parle-Yellow Bank Rivers Watershed 1W1P.

DWSMA boundaries establish a protection area through an extensive evaluation that determines the contribution area of a public water supply well, aquifer vulnerability and provide an opportunity to prioritize specific geographic areas for drinking water protection purposes. DWSMA boundaries that extend beyond city jurisdictional limits or are established in Wellhead Protection (WHP) Action Plans for nonmunicipal public water supplies, like mobile home parks, can be a special focus for local partners prioritizing drinking water protection activities.

Aquifer vulnerability determines the level of management required to protect a drinking water supply and provides an opportunity to target implementation practices in accordance with the level of risk different land uses pose. The attached Public Water Supply Summary Spreadsheet highlights the primary drinking water protection activities for many DWSMAs in the watershed.

Prioritize Sealing Abandoned Wells

Unused, unsealed wells can provide a conduit for contaminants from the land surface to reach the sources of drinking water. This activity is particularly important for abandoned wells that penetrate a confining layer above a source aquifer.

Sealing wells is a central practice in protecting groundwater quality, however when resource dollars are limited it is important to evaluate private well density to identify the populations most at risk from a contaminated aquifer.

Prioritize Protection of Private Wells

Many residents of Lac qui Parle-Yellow Bank Rivers Watershed rely on a private well for the water they drink. However, no public entity is responsible for water testing or management of a private well after drilling is completed. Local governments are best equipped to assist private landowners through land use management and ordinance development, which can have the greatest impact on protecting private wells. Other suggested activities to protect private wells include: hosting well testing or screening clinics, providing water testing kits, working with landowners to better manage nutrient loss, promoting household hazardous waste collection, managing storm water runoff, managing septic systems, and providing best practices information to private well owners.

Approximately 7.6% of the 211 arsenic samples taken from wells in the Lac qui Parle-Yellow Bank Rivers Watershed have levels of arsenic higher than the Safe Drinking Water Act (SDWA) standard of 10 micrograms per liter (µg/L). Arsenic occurs naturally in rocks and soil and can dissolve into groundwater. Consuming water with low levels of arsenic over a long time

(chronic exposure) is associated with diabetes and increased risk of cancers of the bladder, lungs, liver and other organs. The SDWA standard for arsenic in drinking water is 10 µg/L; however, drinking water with arsenic at levels lower than the SDWA standard over many years can still increase the risk of cancer. The EPA has set a goal of 0 µg/L for arsenic in drinking water because there is no safe level of arsenic in drinking water.

Prioritize Protecting Noncommunity Public Water Supplies

Noncommunity public water supplies provide drinking water to people at their places of work or play (schools, offices, campgrounds, etc.). Land use and management activities (maintaining/upgrading SSTS, well sealing, etc.) should consider effects on these public water systems. Find information regarding noncommunity public water supplies in the watershed in reports titled Source Water Assessments (SWA) at:
https://www.health.state.mn.us/communities/environment/water/swp/swa.html

Source Water Assessments provide a concise description of the water source - such as a well, lake, or river - used by a public water system and discuss how susceptible that source may be to contamination.

Prioritize and promote groundwater conservation & recharge.

The Lac qui Parle-Yellow Bank Rivers Watershed has areas with deep wells with limited groundwater resources and aquifer availability. Promote conservation practices that improve groundwater recharge and wise water use.

Targeting Groundwater & Drinking Water Activities in the 1W1P Planning Process

Limitation of Existing Tools –

Watershed models used for prioritizing and targeting implementation scenarios in the 1W1P, whether PTMapp, HSPF-Scenario Application Manager (SAM) or others, leverage GIS information and/or digital terrain analysis to determine where concentrated flow reaches surface water features. While this is an effective approach for targeting surface water contaminants, it does not transfer to groundwater concerns because it only accounts for the movement of water on the land's surface. Unfortunately, targeting tools are not currently available to model the impact on groundwater resources. The Minnesota Department of Health suggests using methodologies applied by the agency to prioritize and target implementation activities in the Source Water Protection program.

Using the Groundwater Restoration and Protection Strategies (GRAPS) Report –

The MDH, along with its state agency partners, are developing a Groundwater Restoration and Protection Strategies (GRAPS) report for the Lac qui Parle-Yellow Bank Rivers Watershed. GRAPS will provide information and strategies on groundwater and drinking water supplies to help inform the local decision making process of the 1W1P. Information in a GRAPS Report can be used to identify risks to drinking water from different land uses. Knowing the risks to drinking water in a specific area allows targeting of specific activities.

- Prioritize Actions Identified in the Groundwater Restoration and Protection Strategies (GRAPS) report.

Using Wellhead Protection Plans –

- Identify Drinking Water Supply Management Areas (DWSMA) located in the watershed.
- Examine the vulnerability of the aquifer to contamination risk to determine the level of management required to protect groundwater quality. For example, a highly vulnerable setting requires many different types of land uses to be managed, whereas a low vulnerability setting focuses on a few land uses due to the long recharge time and protective geologic layer.
- Use the Management Strategies Table in a Wellhead Protection Plan to identify and prioritize action items for each DWSMA

Using Guidance Documents to Manage Specific Potential Contaminant Sources –

The MDH has developed several guidance documents to manage impacts to drinking water from specific potential contaminant sources. Topics include mining, stormwater, septic systems, feedlots, nitrates, and chemical and fuel storage tanks. This information is available at

https://www.health.state.mn.us/communities/environment/water/swp/resources.html

Attached you will find a listing of MDH data and information to help you in the planning process. Thank you for the opportunity to be involved in your watershed planning process. If you have any questions, please feel free to contact me at (507) 476-4241 or Amanda.strommer@state.mn.us.

Sincerely,

Amanda Strommer, Principal Planner
Minnesota Department of Health, Source Water Protection Unit
1400 E. Lyon Street, Marshall, MN 56282

Attachments

CC via email:

Mark Wettlaufer, MDH Source Water Protection Unit
Yarta Clemens-Billaigbakpu, MDH Source Water Protection Unit
Carrie Raber, MDH Source Water Protection Unit
Jason Beckler, BWSR Board Conservationist
Mark Hiles, BWSR Clean Water Specialist
Ryan Bjerke, DNR
Katherine Pekarek-Scott, MPCA
Ryan Lemickson, MDA
Jay Gilbertson, East Dakota Water Development District

MDH Data and information:

- Drinking Water Statistics – Where do people get their drinking water in the Lac qui Parle-Yellow Bank Rivers Watershed? One hundred percent obtain their drinking water from groundwater sources. This information can help you understand where people are obtaining their drinking water and develop implementation strategies to protect the sources of drinking water in the watershed.
- A spreadsheet of the public water supply systems in the watershed, status in wellhead protection planning, and any drinking water protection concerns or issues that have been identified in protection areas. This information can help you understand the drinking water protection issues in the watershed, prioritize areas for implementation activities, and identify potential multiple benefits for implementation activities.
  - Shape files of the Drinking Water Supply Management Areas (DWSMA) in the watershed are located at https://www.health.state.mn.us/communities/environment/water/swp/maps/index.htm This information can help you prioritize and target implementation activities that protect drinking water sources for public water supplies.

MDH Figures:

- A figure detailing the "Pollution Sensitivity of Near-Surface Materials" in the Lac qui Parle-Yellow Bank Rivers Watershed. This information can help you understand the ease with which recharge and contaminants from the ground surface may be transmitted into the upper most aquifer on a watershed scale. Individual wellhead protection areas provide this same information on a localized scale. This is turn can be used to prioritize areas and implementation activities.
- A figure detailing "Pollution Sensitivity of Wells" in the Lac qui Parle-Yellow Bank Rivers Watershed. This information can help you understand which wells in the watershed are most geologically sensitive based on the vulnerability of the aquifer in which the well is completed. This information allows for targeting of implementation activities to the sources of water people are drinking.
- A figure detailing "Nitrate Results" in the Lac qui Parle-Yellow Bank Rivers Watershed. This information can help you understand which wells in the watershed contain elevated nitrate levels.
- A figure detailing "Arsenic Results" in the Lac qui Parle-Yellow Bank Rivers Watershed. This information can help you understand which wells in the watershed contain elevated arsenic levels.
- A figure detailing "DWSMA Vulnerability" in the Lac qui Parle-Yellow Bank Rivers Watershed. This information can help you understand DWSMA vulnerability to contamination from the ground surface. This figure allows for targeting of implementation activities for public water suppliers.

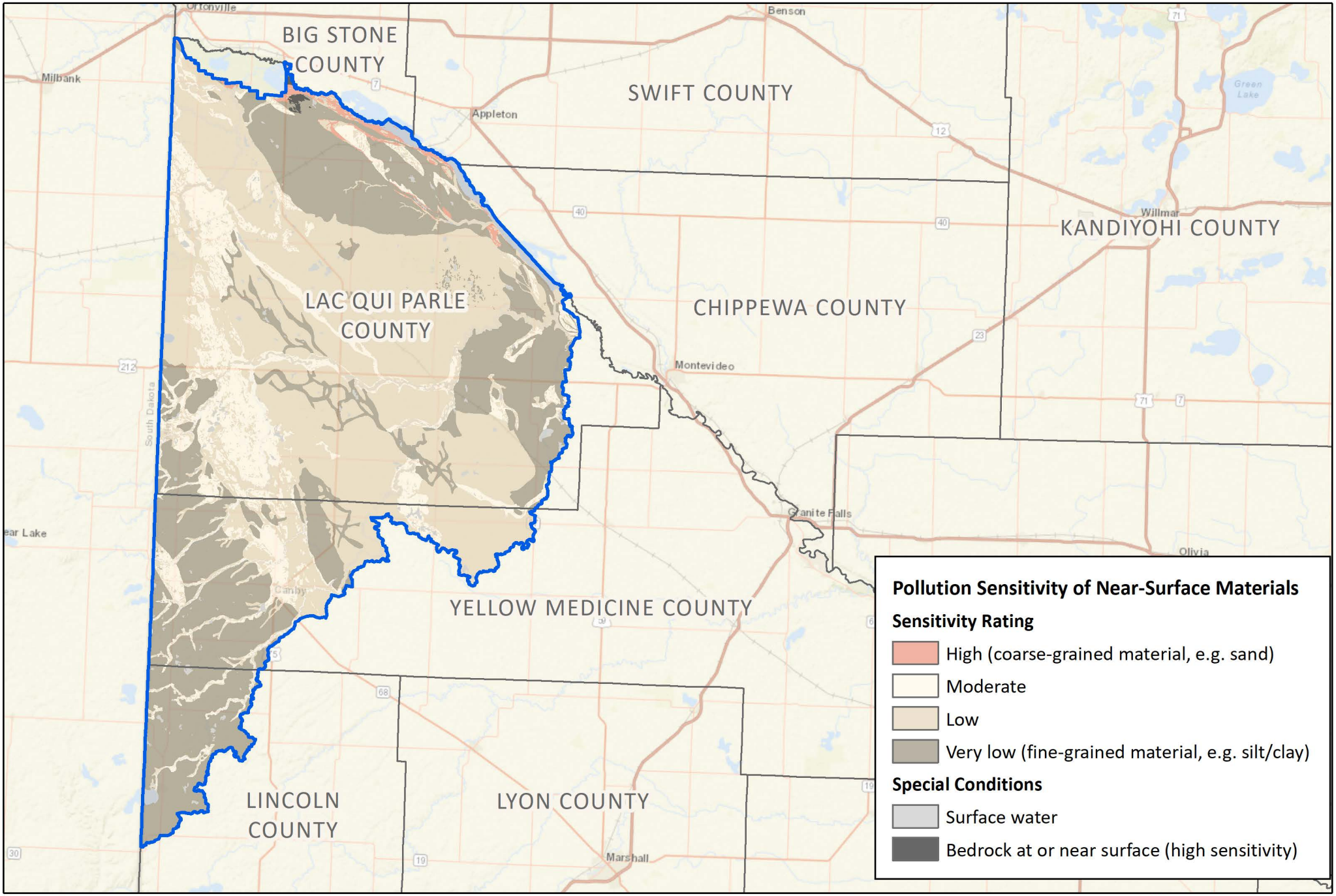
Lac qui Parle - Yellow Bank Watershed Public Water Supplies - Drinking Water Protection Concerns for Quality & Quantity

Aquifer Risk	Name	County	Watershed	Subwatershed	WHP Plan	DWSMA Vulnerability
High/moderate potential contaminant risk - Focus on potential land use contaminant sources that may impact water quality						
	Canby	Yellow Medicine	Lac Qui Parle	Canby Creek	Yes	High
	Madison	Lac Qui Parle	Lac Qui Parle	County Ditch No 27 and Madison Municipal Airport	Yes	Moderate
	LPRW-Burr North	Yellow Medicine	Lac Qui Parle	Florida Creek, Upper Lazarus Creek, Judicial Ditch 1, and South Slough	Yes	Moderate/Low
Low potential contaminant risk - Focus on sealing of unused wells and old public water supply wells (funding available from MDH)						
	LPRW-Burr South	Yellow Medicine	Lac Qui Parle	Canby Creek and Upper Lazarus Creek	Yes	Low
	Dawson	Lac Qui Parle	Lac Qui Parle	West Branch Lac Qui Parle River	Yes	Low
	Bellingham	Lac Qui Parle	Minnesota Headwaters/ Yellow Bank	County Ditch No 3A	Yes	Low

15 Non-Community Public Water Suppliers
Nassau and Marietta served by Grant Roberts Rural Water
Boyd and Hendricks served by LPRW

Acronyms:
DWSMA=Drinking Water Supply Management Area
WHP=Wellhead Protection Plan
LPRW=Lincoln Pipestone Rural Water

Lac qui Parle-Yellow Bank Watershed - Pollution Sensitivity of Near-Surface Materials



Data: DNR
Basemap: ESRI World Street Map

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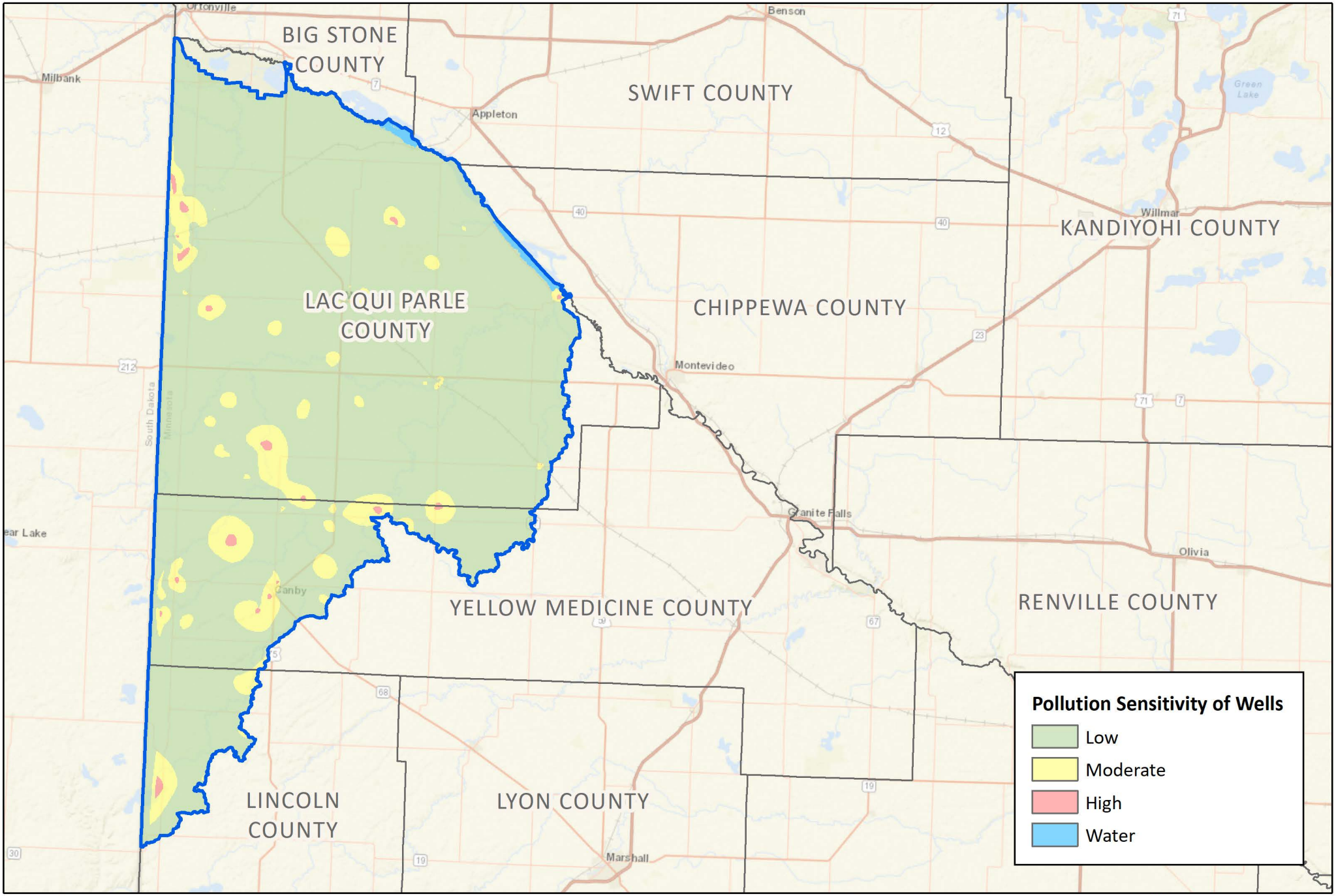
Lac qui Parle-Yellow Bank Watershed - Pollution Sensitivity of Wells



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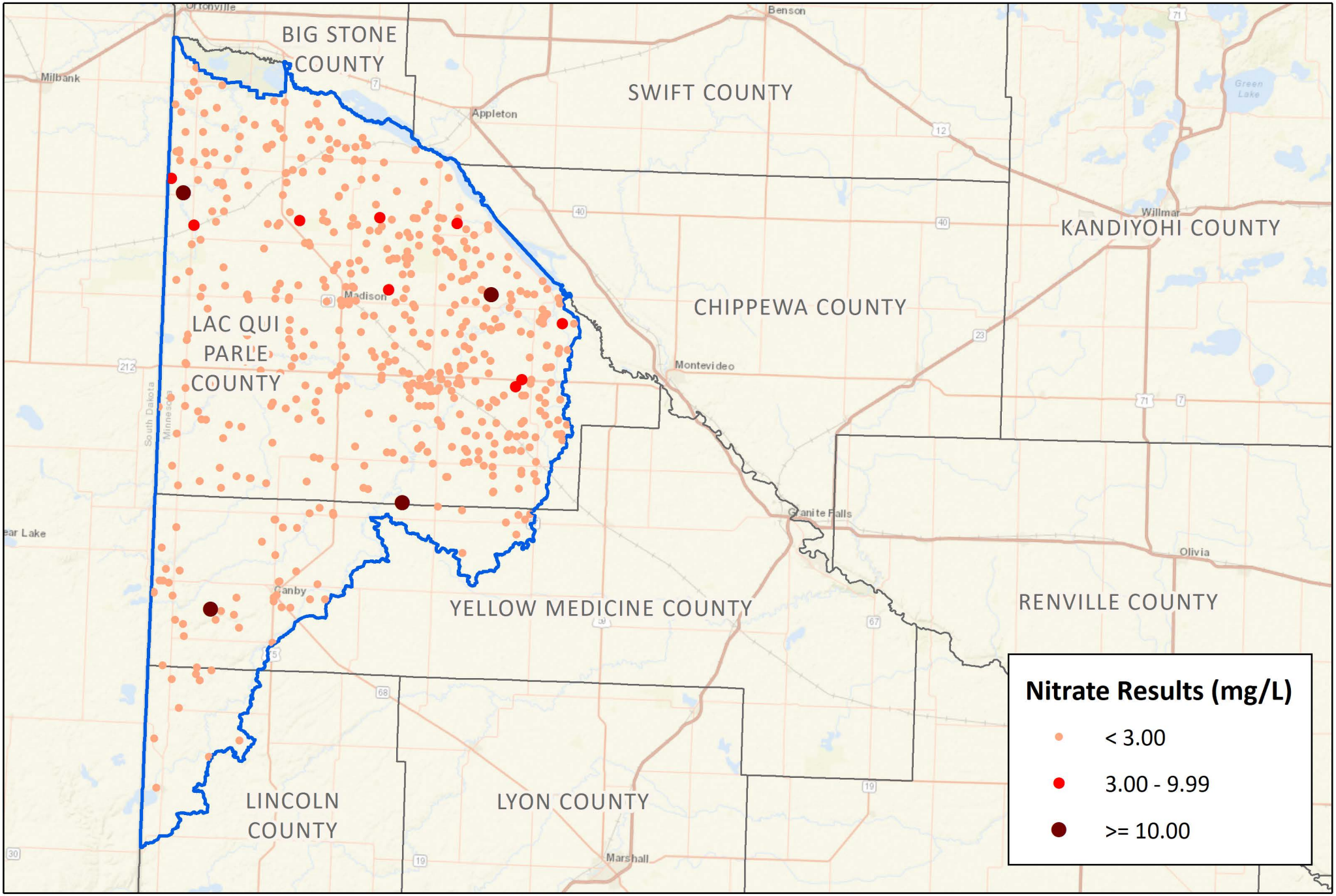
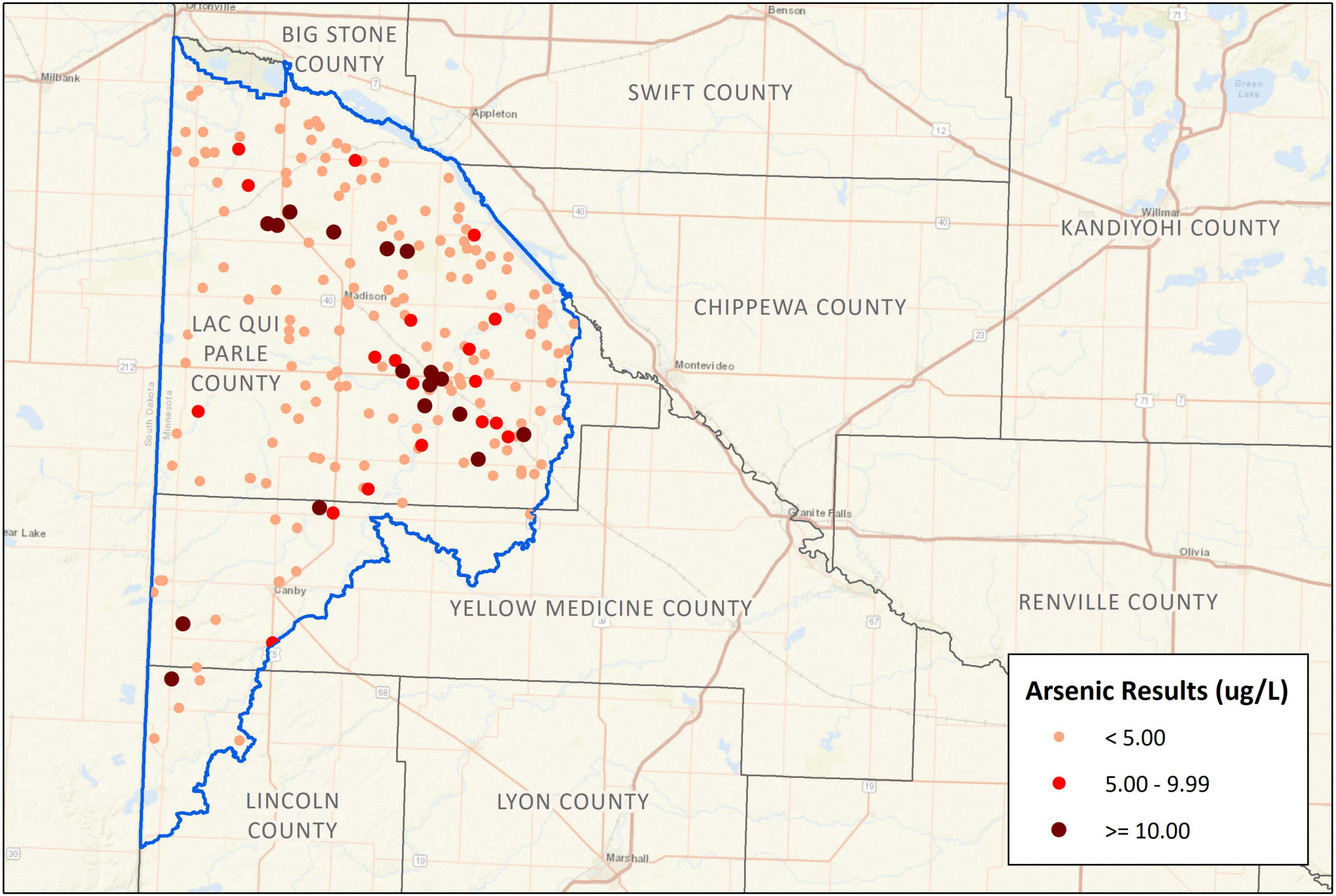
Lac qui Parle-Yellow Bank Watershed - Nitrate Results



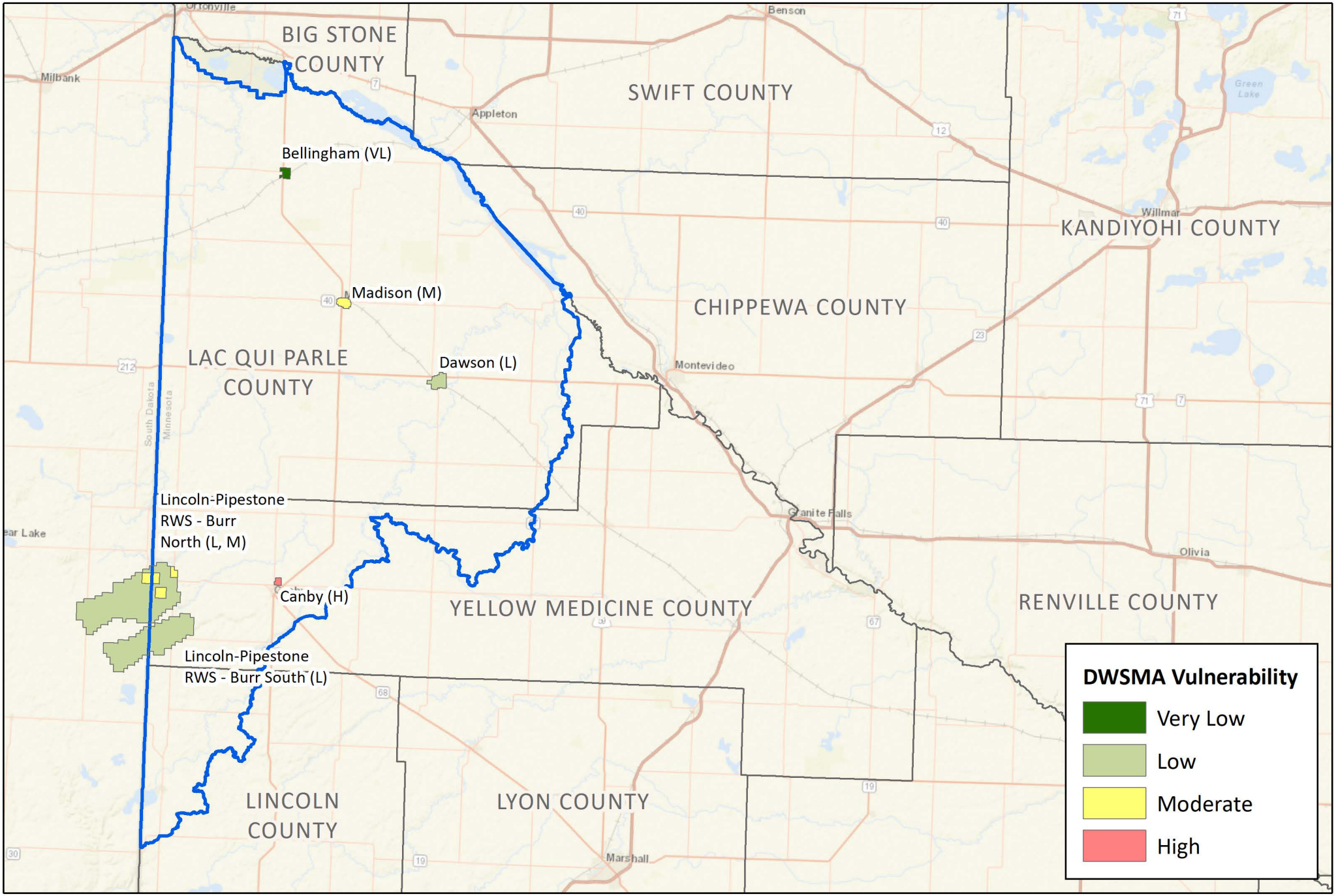
Data: County Well Index (CWI), MN Drinking Water Information System (MNDWIS), MDH
Basemap: ESRI World Street Map

Lac qui Parle-Yellow Bank Watershed - Arsenic Results



Data: County Well Index (CWI), MN Drinking Water Information System (MNDWIS), MDH
Basemap: ESRI World Street Map

Lac qui Parle-Yellow Bank Watershed - DWSMA Vulnerability



Data: MDH
Basemap: ESRI World Street Map

10 5 0 10 Miles

MINNESOTA POLLUTION CONTROL AGENCY

Marshall Office | 504 Fairgrounds Road | Suite 200 | Marshall, MN 56258-1688 | 507-537-7146

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

May 12, 2021

Chessa Frahm
District Manager
Lac qui Parle Soil and Water Conservation District
122 8th Ave S, Ste 1
Madison, MN 56256

RE: Response to Request for Water Management Issues and Priority Concerns to be addressed in the Lac qui Parle Yellow Bank Rivers One Watershed, One Plan

Dear Chessa Frahm:

The Minnesota Pollution Control Agency (MPCA) has received your request to submit water management issues pertinent to the Lac qui Parle – Yellow Bank Rivers One Watershed, One Plan (Plan) development process. The MPCA appreciates the opportunity to provide input throughout the Plan development process. As part of the MPCA's review, we are providing the following comments we would like to see addressed in the Plan.

The MPCA and other state agencies coordinated with local partners to gather, analyze, and summarize information to develop the Watershed Restoration and Protection Strategies (WRAPS) reports for the Lac qui Parle River Watershed (LqPRW) and the Minnesota River Headwaters Watershed (MRHW). The MRHW contains the Yellow Bank River and Emily Creek portions of the planning area. The following pages provide a brief summary of available information from the watershed approach process. The MPCA requests you consider this information during development of the Plan.

Background Information

The State of Minnesota employs a watershed approach to restore and protect Minnesota's rivers, lakes, and wetlands. The watershed approach includes the following processes that can be used to inform water planning:

1. Watershed monitoring and assessment
2. Stressor identification (SID) of biological impairments
3. Total Maximum Daily Loads (TMDLs)
4. WRAPS

The following pages provide a brief description of these processes and internet links for the reports associated with these efforts.

Monitoring and Assessment

In 2015, a comprehensive approach was taken to monitor and assess surface water bodies in the LqPRW and the MRHW for aquatic life, recreation, and fish consumption use support. For details on the data collected, refer to *LqPRW Monitoring and Assessment Report (wq-ws3-07020003b)* https://www.pca.state.mn.us/water/watersheds/lac-qui-parle-river and the *Minnesota River – Headwaters Watershed Monitoring and Assessment Report (wq-ws3-07020001b)* https://www.pca.state.mn.us/water/watersheds/minnesota-river-headwaters.

Monitoring data are used to determine if water quality is supporting a water body's designated use. During the assessment process, data on the waterbody are compared to relevant standards. When pollutants/parameters in a waterbody do not meet the water quality standard, the waterbody is considered impaired. When pollutants/parameters in a waterbody meet the standard (e.g. when the monitored water quality is cleaner than the water quality standard), the waterbody is considered supporting. Data from three water quality monitoring programs inform water quality assessment and create a long-term data set to track progress toward water quality goals. These programs will continue to collect and analyze data in the LqPRW and MRHW as part of Minnesota's Water Quality Monitoring Strategy. Intensive Watershed Monitoring (IWM), the Watershed Pollutant Load Monitoring Network (WPLMN) and Citizen Stream and Lake Monitoring Program (CSMP and CLMP) data provide a periodic but intensive "snapshot" of water quality conditions throughout the watershed.

Within the Lac qui Parle – Yellow Bank Rivers planning area, there are 90 impairment listings. Table 1 summarizes the listings by impairment type. Table 2 lists out the impaired stream reaches in the MRHW that are in the planning area. See the Monitoring and Assessment reports mentioned above for details. Figures 1 and 2 show stream and lake assessments for LqPRW and MRHW respectively, for aquatic life (AqL), aquatic recreation (AqR) and limited resource values (LRV).

Table 1 Summary of water quality impairments for the Lac qui Parle - Yellow Bank Rivers planning area.

Impairment Type	LqPRW Number of Listings	MRHW Number of Listings	Beneficial Use
Fishes bio assessment	19	10	Aquatic Life
Aquatic macro-invertebrate bio assessment	22	5	Aquatic Life
Dissolved oxygen	2	-	Aquatic Life
Turbidity/TSS	7	1	Aquatic Life
Fecal coliform; *E. coli*	17	6	Aquatic Recreation
Lake nutrient eutrophication	1	-	Aquatic Recreation

Table 2 Impaired stream reaches in the Minnesota River - Headwaters Watershed portion of the Lac qui Parle - Yellow Bank Rivers planning area.

AUID-3	Stream	Impairment Type
07020001-510	North Fork Yellow Bank River	Fish, bacteria
07020001-525	Yellow Bank River	Fish, invert, TSS, bacteria
07020001-526	South Fork Yellow Bank River	Fish, bacteria
07020001-547	Emily Creek	Fish, invert, bacteria
07020001-548	Unnamed creek	Fish
07020001-551	Unnamed creek	Fish, invert, bacteria
07020001-561	Unnamed creek	Fish
07020001-569	Unnamed creek	Fish
07020001-570	Unnamed creek	Fish, invert, bacteria
07020001-576	Emily Creek	Fish, invert

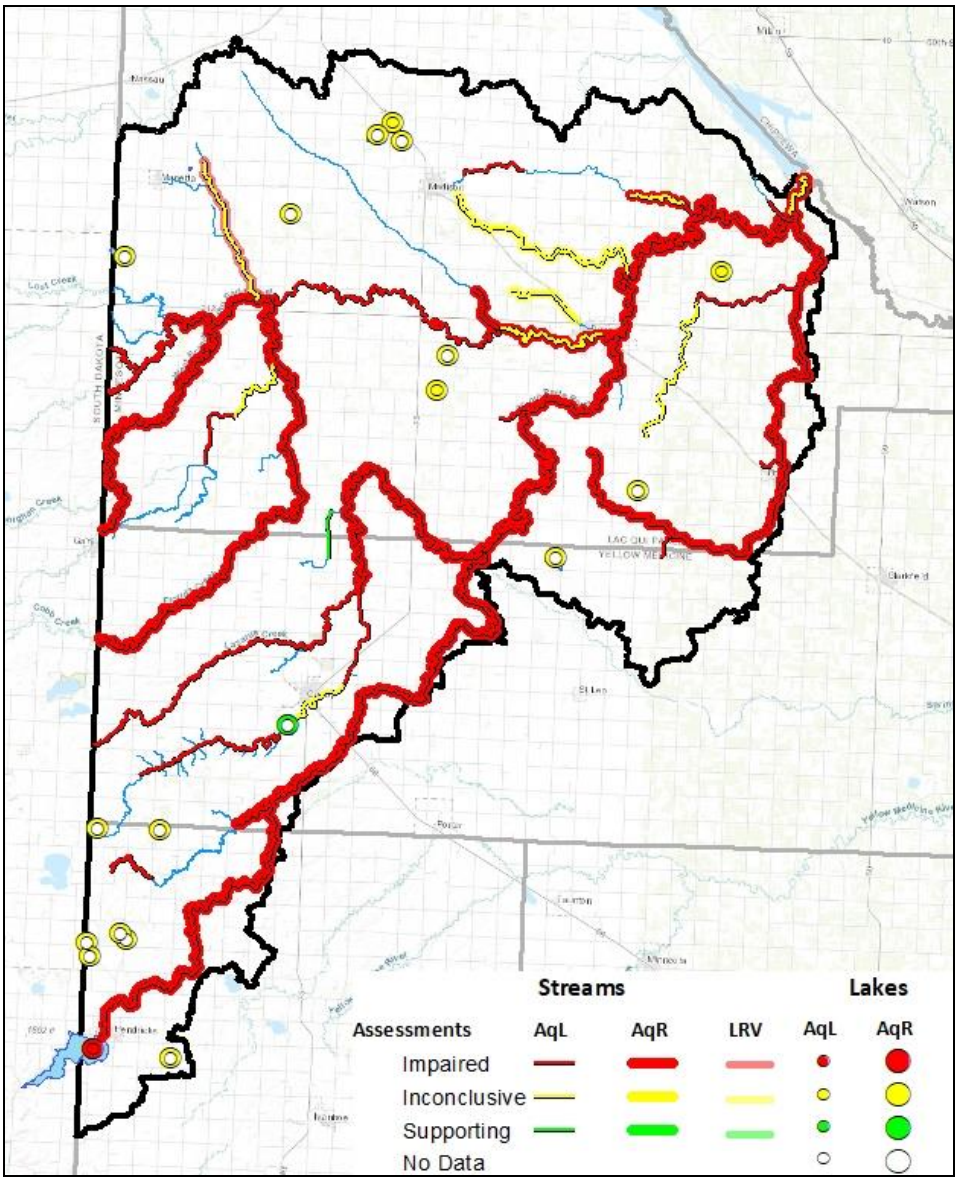


Figure 1 Lac qui Parle River Watershed assessments.

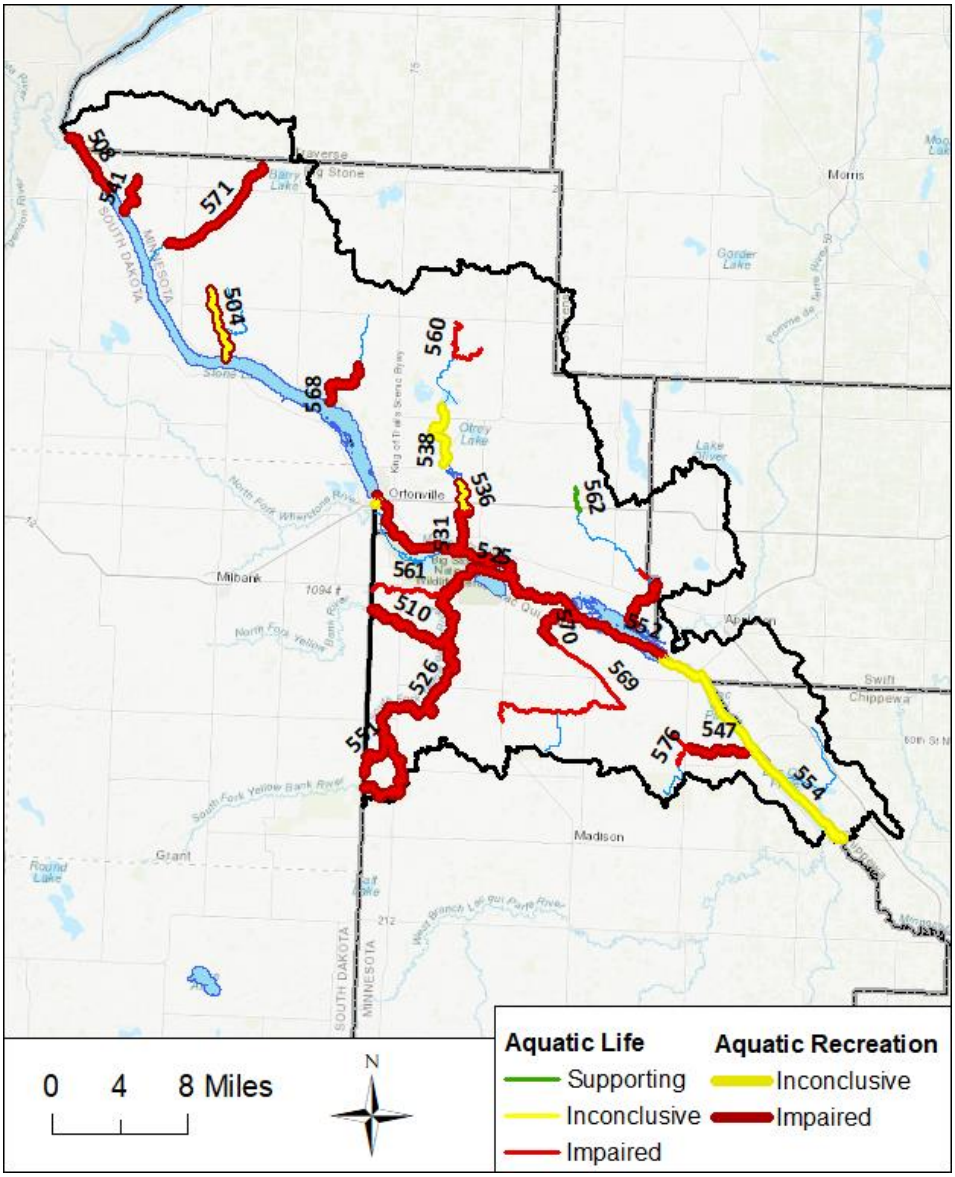


Figure 2 Minnesota River - Headwaters Watershed stream assessments.

Stressor Identification

SID is performed on biological impairments to determine what pollutant and non-pollutant stressors are causing impairments to the aquatic biological community. The process is described in more detail and documented in the *LqPRW SID Report (wq-ws5-07020003a)* https://www.pca.state.mn.us/sites/default/files/wq-ws5-07020003a.pdf and the *Minnesota River – Headwaters Watershed SID Report (wq-ws5-070200001a)* https://www.pca.state.mn.us/sites/default/files/wq-ws5-07020001a.pdf for the reaches listed for aquatic life impairments (fish, aquatic macroinvertebrate impairments). SID was completed on 27 waterbodies in the LqPRW and on 10 waterbodies in the MRHW portion of the planning area for biota (fish and/or macroinvertebrates) impairments. Table 3 summarizes the primary stressors identified in the Lac qui Parle – Yellow Bank Rivers P planning area.

Table 3. Stressor identification summary for the aquatic life impaired streams in the Lac qui Parle - Yellow Rivers One Watershed, One Plan planning area.

Stressors	LqPRW Number of reaches	MRHW Number of reaches
Low DO	8	5
Eutrophication	18	6
Nitrates	4	1
TSS	8	1
Lack of Habitat	22	7
Altered Hydrology	17	9
Connectivity	6	1
Temperature	1	-

Total Maximum Daily Loads

The Clean Water Act requires TMDLs be developed for waters that do not support their designated uses. A TMDL essentially provides the allowable pollutant loading, as well as needed reductions, to attain and maintain water quality standards in waters that are not currently meeting standards. There are four TMDL reports either completed or drafted for the impaired waterbodies in the Lac qui Parle – Yellow Bank Rivers One Watershed, One Plan planning area.

- Lake Hendricks TMDL Report
  https://denr.sd.gov/dfta/wp/tmdl/tmdl_hendricks.pdf

- Lac qui Parle Yellow Bank Bacteria, Turbidity, and Low Dissolved Oxygen TMDL Assessment Report
  https://www.pca.state.mn.us/sites/default/files/wq-iw7-24e.pdf

- Draft LqPRW TMDL Report
  A draft report can be received upon request prior to public noticing, which will take place in 2021. When public noticed, it will be located at
  https://www.pca.state.mn.us/water/watersheds/lac-qui-parle-river

- Draft Minnesota River – Headwaters Watershed TMDL Report
  A draft report can be received upon request prior to public noticing, which should take place in 2021.When public noticed, it will be located at
  https://www.pca.state.mn.us/water/watersheds/minnesota-river-headwaters

Watershed Restoration and Protection Strategies

Much of the information presented in WRAPS reports is synthesized from the Monitoring and Assessment, SID, and TMDL reports. However, the WRAPS report presents additional data and analyses including watershed-scale models and tools, detailed analyses and output from these work products, and a set of potential strategies for point and nonpoint source pollution that will cumulatively achieve, or otherwise make significant progress toward, water quality targets. Two WRAPS reports, *Lac qui Parle River WRAPS Report* and *Minnesota River Headwaters WRAPS Report*, have been drafted that cover the Plan planning area. These reports are expected to be public noticed in 2021; however, draft reports can be obtained upon request prior to public noticing. Once published, the reports can be found at

https://www.pca.state.mn.us/water/watersheds/lac-qui-parle-river for LqPRW; and
https://www.pca.state.mn.us/water/watersheds/minnesota-river-headwaters for MRHW.

Two key products of these WRAPS reports are the strategies table and the priorities section, each developed with input and review from local county, SWCD and watershed district staff, and state natural resource, and conservation professionals. The strategies table provides high level strategies necessary to restore and protect water bodies in the watershed. The priorities section presents criteria to identify priority areas for water quality improvement.

The primary audience for the WRAPS report is local planners, decision makers, and conservation practice implementers; watershed residents, neighboring downstream states, agricultural businesses, governmental agencies, and other stakeholders are the secondary audience.

Goals and 10-year Targets
Among the required elements of WRAPS are timelines for achieving water quality targets and interim milestones within 10 years of strategy adoption. It is the intent of the implementing organizations in these watersheds to make steady progress in terms of pollutant reduction. However, needed pollutant load reductions are generally high and will require significant adoption of conservation practices. Accordingly, as a very general guideline or goal, it is assumed that 1% to 2% of the overall needed reduction will occur per year on average. This means that a 10% reduction goal is expected to be achieved in 5 to 10 years and 50% reduction goal will take 25 to 50 years.

Again, this is a general guideline and approximation. Factors that may mean slower progress include limits in funding or landowner acceptance, challenging fixes (e.g., unstable bluffs and ravines, invasive species) and unfavorable climatic factors. Conversely, there may be faster progress for some impaired waters, especially where high-impact fixes are slated to occur or where the watershed is subject to focused efforts.

WRAPS Strategies
A set of restoration and protection strategies were developed to achieve water quality targets for waterbodies addressed in both WRAPS reports that cover the Lac qui Parle Yellow Bank Rivers One Watershed, One Plan planning area.

Where possible, the strategies were derived through quantitative methods; however, in other cases, only more qualitative characterization of actions was feasible. The chief goal of providing this information is to inform local planning. Specifically, by providing an overall set of actions needed to meet the goals (over some period of years or decades), local planners can focus on a subset of actions to take on for their shorter-term (e.g., 10-year) planning cycle. This provides a means to gauge a plan's ability to make progress over time as well as make adjustments through adaptive management.

MPCA Water Management Priorities

The MPCA recommends focusing on the following priorities in the Lac qui Parle Yellow Bank Rivers One Watershed, One Plan planning process. The priorities were identified based on the existence of these issues being watershed wide. It is recommended that tools from the WRAPS report be utilized to further prioritize and target these watershed wide issues. These tools include Hydrological Simulation Program-Fortran (HSPF) developed subwatershed rankings, protection and restoration classification, and assessment status.

Biota (Aquatic Life)

Address the stressors to aquatic life. Aquatic life use impairments within the watershed are complex. Biotic impairments are a result of nonpoint source pollution and localized stress linked to poor habitat condition, altered hydrology and high phosphorus levels. Stabilizing hydrology, increasing riparian buffer width, and stabilizing stream banks would greatly help the in-stream habitat. Low dissolved oxygen should be addressed by addressing other pollutants such as nutrients.

Altered Hydrology

Seek changes to the landscape that reduce the volume, rates, and timing of runoff and increase the base flows needed to prevent continued and further impairments. Managing the hydrology to provide a consistent base flow is imperative for the survival of the biological communities in the watershed. Increasing rainfall infiltration and water retention, and improving vegetative cover are activities that are needed to stabilize hydrology and reduce impairments.

Drainage Watershed Management

Currently, drainage improvement projects have limited input from local staff to aid in the integration of conservation practices that would help to alleviate hydrology concerns and downstream impacts from increases in water volume. The MPCA recommends early coordination with landowners, SWCD staff, agencies, and engineers to develop improvement projects that account for volume increases.

In most engineering designs of drainage improvement projects, the existing conditions are based on the original design and upgrades. Many drainage improvement projects seek an increase in the drainage coefficient from 0.1 to 0.25 inches/day to a more modern 0.5 inches/day for tile and 1 inch/day for open ditches. Engineering reports often indicate that the pipe is in disrepair and that the as built coefficient isn't meeting its original design which means that even if the system is being maintained there will be an increase in volume.

We would encourage the group to discuss drainage watershed management with an emphasis on finding ways to store and or reduce the increased volume of water based on the increase in drainage coefficient in improvement projects by working with land owners in areas where improvement will eventually be considered.

Nutrients

Reduce nutrient delivery to the watershed. Lake Hendricks is impaired due to high levels of phosphorus and is the headwaters to Lac qui Parle River and should be a priority for restoration. Del Clark Lake is in full support for nutrients and should be a protection priority by minimizing the amount of nutrients entering the waterbody. High levels of nutrients (phosphorus) drive nuisance algae blooms which can deprive lakes of their oxygen as the algae die off and decay, causing fish kills. High levels of algae cause increased levels of turbidity, degrading aquatic recreation and aquatic life. Blue-green algae can also cause serious health issues for humans and pets.

Management plans can help reduce the amount of phosphorus and nitrogen reaching the river by appropriately valuing the nutrient worth of manure and previous crops and focusing on the timing and intensity of fertilizer and manure applications. These reductions would also aid in the low dissolved oxygen problems present in some parts of the watershed.

Sediment

Reduce and control sediment entering the water bodies of the watershed. Total suspended solids (TSS), and turbidity (measure of water clarity affected by sediment, algae, and organic matter), are common

impairments and stressors to aquatic life in the watershed. Reducing TSS will also likely reduce the means by which other pollutants are conveyed (phosphorus and bacteria).

Bacteria

Control pathways delivering human and livestock feces to waterbodies. High levels of bacteria are watershed-wide. The abundance of livestock, improper manure management, and over-grazed pastures in the watershed may correlate with this finding. High bacteria levels are also attributed to noncompliant septic systems, so continued inspections and upgrades will be important.

The MPCA recognizes all of the cooperation and work from the local partners within the LqPRW and MRHW, and offers our continued support in local water planning. Thank you for the opportunity to provide comments during the planning process. If we may be of further assistance, please contact Katherine Pekarek-Scott at katherine.pekarek-scott@state.mn.us or 320-444-7186.

Sincerely,

Katherine Pekarek-Scott

This document has been electronically signed.

Katherine Pekarek-Scott
Environmental Specialist
Watershed Division

PKS:jdf

Appendix C

Appendix C. Priority Issues

Resource Category	Resource	Aggregated/Proposed Issue	Survey Rank	Score-LGU	Score-TMDL/WRAPS	Score - 60 day	Aggregate Score	Aggregate Rank
Groundwater	Aquifer	Decreased groundwater recharge and supply	3	2	1	2	8	Medium-High
	Drinking Water	Groundwater contamination public water supplies	3	3	1	3	10	High
		Contamination private wells	3	1	1	2	7	Medium-High
Habitat	Aquatic	Loss of aquatic habitat	1	2	3	2	8	Medium-High
	Riparian	Lack of floodplains (for wildlife habitat, etc.)/lateral connectivity	1	2	2	2	7	Medium
		Loss of riparian buffers	1	2	2	2	7	Medium
	Terrestrial	Decline in habitat, wildlife populations, and plant populations	1	2	1	2	6	Low
	Wetlands	Drained and declining quality of wetlands	1	2	2	1	6	Medium
Land Stewardship	Agricultural Lands	Declining soil health	3	1	1	3	8	High
	Rural and Urban Communities	Changes to land use, land cover, and land management that impact habitat, drainage, flooding, and erosion	2	2	3	3	10	High
		Flood damages to private and public lands	2	3	1	2	8	Medium-High
		Subsurface sewage treatment systems, and unsewered or under-sewered areas	2	1	2	1	6	Medium-High
		Changing precipitation	2	1	2	1	6	Medium
		Stormwater/urban water management	2	3	2	1	8	Low
		Too many regulations	2	2	1	1	6	Low
Surface Water	Lakes	Algae growth and harmful algal blooms due to phosphorus and nitrogen	2	2	1	2	7	Medium
		Accelerated erosion leading to sedimentation and other water quality issues	2	2	1	1	6	Low
	Streams and Drainage Systems	Excess runoff that increases contaminants to surface waters	2	3	3	3	11	High

Resource Category	Resource	Aggregated/Proposed Issue	Survey Rank	Score-LGU	Score-TMDL/WRAPS	Score - 60 day	Aggregate Score	Aggregate Rank
		Water quality impairments (DO, AqL, AqR, pH, E. coli, mercury, biological) outside of sediment and nutrients	2	3	3	3	11	High
		Connectivity and hydrologic changes that degrade streams and drainage systems	2	3	3	3	11	High
		In-channel erosion contributing to impacts on water quality and habitat	2	2	3	3	10	High
		Accelerated erosion leading to sedimentation and other water quality issues	2	3	2	3	10	High
		Drainage increasing total runoff and further accelerating water quantity and quality impacts	2	1	1	2	6	Medium
		Municipal/industrial discharge (incl. WWTPs)	2	2	2	1	7	Low
		Inadequate agricultural drainage	2	2	1	1	6	Low

Appendix D

Appendix D – Targeted Conservation Practices

The prioritize, target, and measure application (PTMApp) was used to determine feasible location for the implementation of best management practices (BMPs) and conservation practices (CPs), "practices" from here on, within the Lac qui Parle-Yellow Bank Watershed. The estimated reduction of sediment, total phosphorus (TP), and total nitrogen (TN) loading resulting from the potential implementation of each practice was also estimated, as was the expected cost-share amount based on 2019 environmental quality incentives program (EQIP) values for each practice type.

Practice Screening Process

By default, PTMApp provides suitable locations for 24 different practice types based on natural resources conservation service (NRCS) installation guidelines. However, many of the feasible practice locations may not be practical for one or more reasons. For example, practices with low overall load reduction or practices that are not typically implemented within the watershed due to lack of landowner acceptance.

As a result, the default output practices from PTMApp were preliminarily screened based on a set of practicality criteria, shown in Table 1**Error! Reference source not found.**. These criteria removed practices that were either ineffective at removing sediment, TP, or TN; inefficient at reducing sediment, TP, or TN; or both. Practices were removed from further analysis if any criteria value was less than or equal to the values presented in Table 1.

Table 1 Preliminary PTMApp practice screening criteria to remove ineffective or inefficient practices.

NRCS Practice name (PTMApp code)	Sediment load reduction (tons/yr)	TP load reduction (lbs/yr)	TN load reduction (lbs/yr)	Load treatment efficiency	Sediment reduction fraction	TP reduction fraction	TN reduction fraction
Structural Practices							
Farm Pond/Wetland (378)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Drainage Water Management (554)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Water and Sediment Control Basin (638)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Regional Wetland/Pond (656_1)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Wetland Construction (657)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Riparian Buffer (390)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Filtration Strip (393)	0.25	0.25	0.5	0.5	0.1	0.1	0.1

NRCS Practice name (PTMApp code)	Sediment load reduction (tons/yr)	TP load reduction (lbs/yr)	TN load reduction (lbs/yr)	Load treatment efficiency	Sediment reduction fraction	TP reduction fraction	TN reduction fraction
Saturated Buffer (604)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Denitrifying Bioreactor (605)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Infiltration Trench/Small Infiltration Basin (350)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Multi-stage Ditch (582)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Critical Area Planting (342)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Grade Stabilization (410)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Grassed Waterway (412)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Lake and Wetland Shoreline Restoration (580)	0.25	0.25	0.5	0.5	0.1	0.1	0.1
Management Practices							
Perennial Crops (327)	0.25	0.25	1	0.5	0.1	0.1	0.1
No till (329)	0.25	0.25	1	0.5	0.1	0.1	0.1
Cover Crops (340)	0.25	0.25	1	0.5	0.1	0.1	0.1
Reduced till (345)	0.25	0.25	1	0.5	0.1	0.1	0.1
Forage / Biomass Planting (512)	0.25	0.25	1	0.5	0.1	0.1	0.1
Prescribed Grazing (528)	0.25	0.25	1	0.5	0.1	0.1	0.1
Nutrient Management of Groundwater (590_1)	0.25	0.25	1	0.5	0.1	0.1	0.1
Nutrient Management for Phosphorus (590_2)	0.25	0.25	0	0.5	0.1	0.1	0.1
Nutrient Management for Nitrogen (590_3)	0.25	0	1	0.5	0.1	0.1	0.1

The remaining practices were screened again based on a more rigorous set of criteria that were determined based on local knowledge of commonly implemented practices in addition to more stringent load reduction requirements. The secondary screening criteria are presented in Table 2, and were applied to all practices within the watershed. Only those practice types shown in Table 2 were considered for further review. Other practices, including any not in Minnesota, were removed from consideration when prioritizing possible practices.

Table 2. Rigorous, secondary screening criteria applied to the feasible practices within the Lac qui Parle River Watershed.

NRCS Practice name (PTMApp code)	Screening criteria 1	Screening criteria 2	Screening criteria 3
Drainage Water Management (554)	Treated volume > 1 ac-ft		
Water and Sediment Control Basin (638)	Treated acres > 10 ac	Treated volume > 2 ac-ft	Sediment load reduction > 10 tons/yr
Regional Wetland/Pond (656_1)	Treated acres > 100 ac	Treated volume > 10 ac-ft	
Wetland Construction (657)	Treated acres > 100 ac	Treated volume > 10 ac-ft	
Riparian Buffer (390)	Treated acres > 10 ac	TN load reduction > 10 lbs/yr	
Filtration Strip (393)	Treated acres > 10 ac	Sediment load reduction > 0.5 tons/yr	
Saturated Buffer (604)	TN load reduction > 5 lbs/yr		
Denitrifying Bioreactor (605)	TN load reduction > 10 lbs/yr		
Grade Stabilization (410)	Treated acres > 40 ac	Sediment load reduction > 1.5 tons/yr	
Grassed Waterway (412)	Treated acres > 10 ac	Sediment load reduction > 2 tons/yr	
Perennial Crops (327)	Treated acres > 10 ac	Sediment load reduction > 10 tons/yr	
Cover Crops (340)	Treated acres > 10 ac	Sediment load reduction > 10 tons/yr	
Reduced till (345)	Treated acres > 10 ac	Sediment load reduction > 10 tons/yr	
Prescribed Grazing (528)	Treated acres > 10 ac		
Nutrient Management for Phosphorus (590_2)	Treated acres > 10 ac	TP load reduction > 5 lbs/yr	
Nutrient Management for Nitrogen (590_3)	Treated acres > 10 ac		

Practice Selection Process

Once all undesired practices were removed, the remaining practices were divided into ten groups based on their location within one of the ten Lac qui Parle River Watershed planning regions.

Within each planning region, the remaining practices were sorted based on their overall sediment load reduction to find the “best” practices for reducing sediment loading to the outlet of each planning region. Planning region load reduction goals are presented in Section E of the main body of the report. Each reduction goal was split, with 70% of the overall goal intended to be reduced using structural practices, and 30% of the overall goal intended to be achieved with field management practices (See Table 1). Within each planning region, structural practices were selected from greatest sediment reduction to least, until the structural fraction (30%) of the overall sediment reduction goal was reached. The remaining 30% of the overall planning region sediment reduction goal was reached in a similar manner using management practices. These became “targeted” practices which could be implemented to work toward achieving the various water quality goals.

Estimated TN and TP reduction from those targeted practices were evaluated to determine if any additional water quality goals were also achieved, if applicable. If additional water quality goals were not achieved, the yet unselected practices were prioritized in a similar manner to reach TN or TP load reduction goals. Water storage goals were also reviewed in the same manner.

In the case where there were not enough screened structural practices to achieve 70% of the overall sediment load reduction goal, or subsequent TN, TP, or water storage goals, management practices were used to cover the difference and raise the overall estimated load reduction to meet the planning region or watershed-wide goals.

The practices that were targeted to allow for planning region load reduction goals to be met are presented in the maps attached to this appendix. Some practices occupy the same spatial location as other practices and may be obscured in the figures.

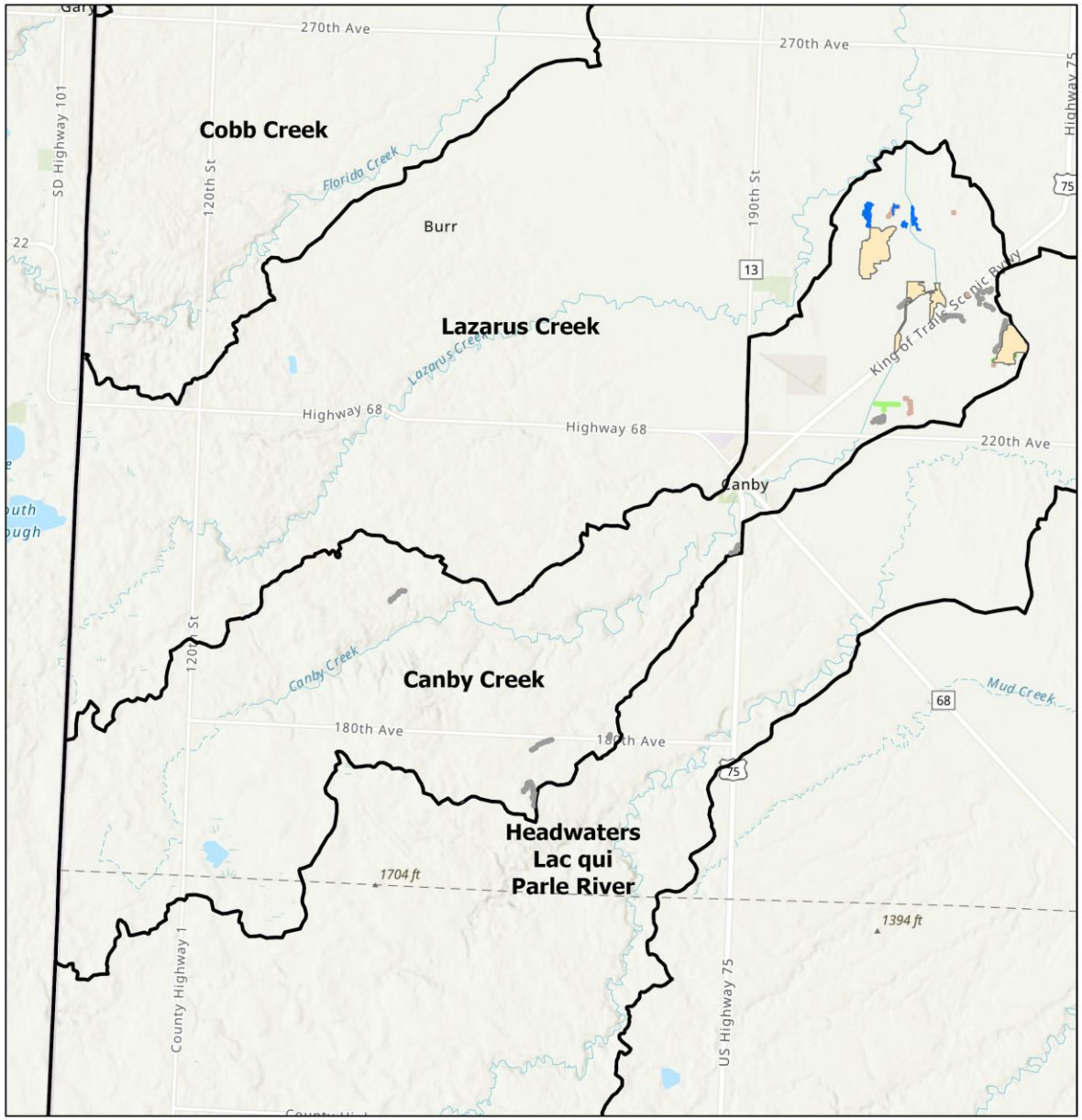
Practice Summary Spreadsheet

As a secondary asset to allow watershed managers to estimate the expected load reduction of practices that may not have been presented in the results from the rigorous practice screening and prioritizing effort, a practice summary spreadsheet was also created. The spreadsheet allows users to calculate estimated sediment, TN, or TP load reduction of a practice or practices that are not part of the standard or screened output from PTMApp.

The summary spreadsheet uses available PTMApp data to produce unit load reduction equations for all practice types within every priority resource catchment within the entire Lac qui Parle River-Yellow Bank Watershed.

To use the summary spreadsheet, a user needs to enter the location of the proposed or current practice(s), based on the smallest PTMApp priority resource catchment ID# that contains the practice(s). The treated acreage of the practice(s) is entered as either the contributing drainage area to the practice (most structural practices), or the footprint acreage of the practice (select structural practices and all management practices). From there, the spreadsheet presents the cumulative sediment, TN, and TP load reduction estimates as measurable at the field edge, priority resource catchment outlet, and any other downstream priority resource location.

The summary spreadsheet is available within the supplemental materials.



Lac qui Parle Watershed Planning Region: Canby Creek

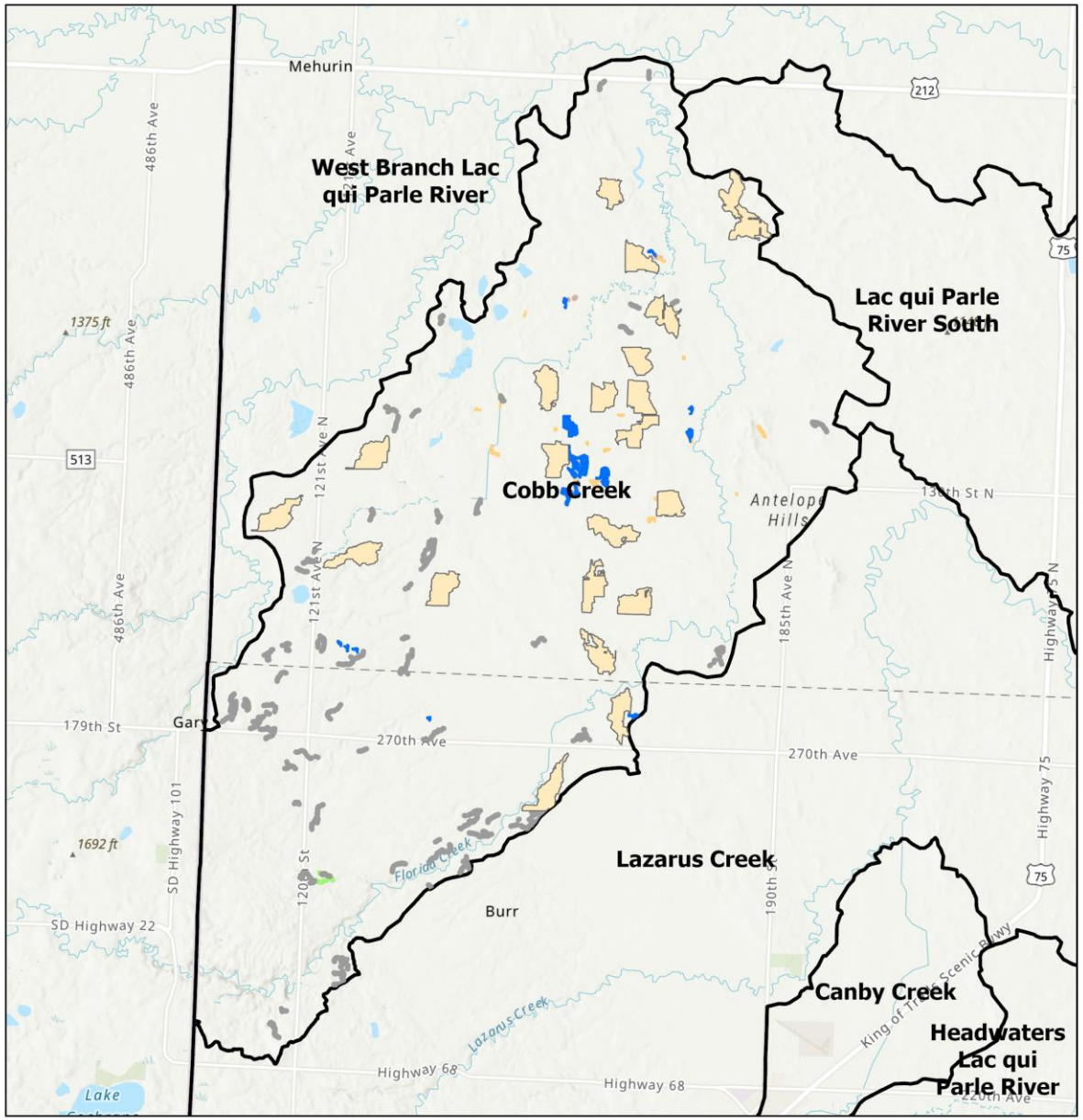
Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Grassed Waterway (412)
- Cover Crops (340)

N

0 1 2 3 Miles



Lac qui Parle Watershed Planning Region: Cobb Creek

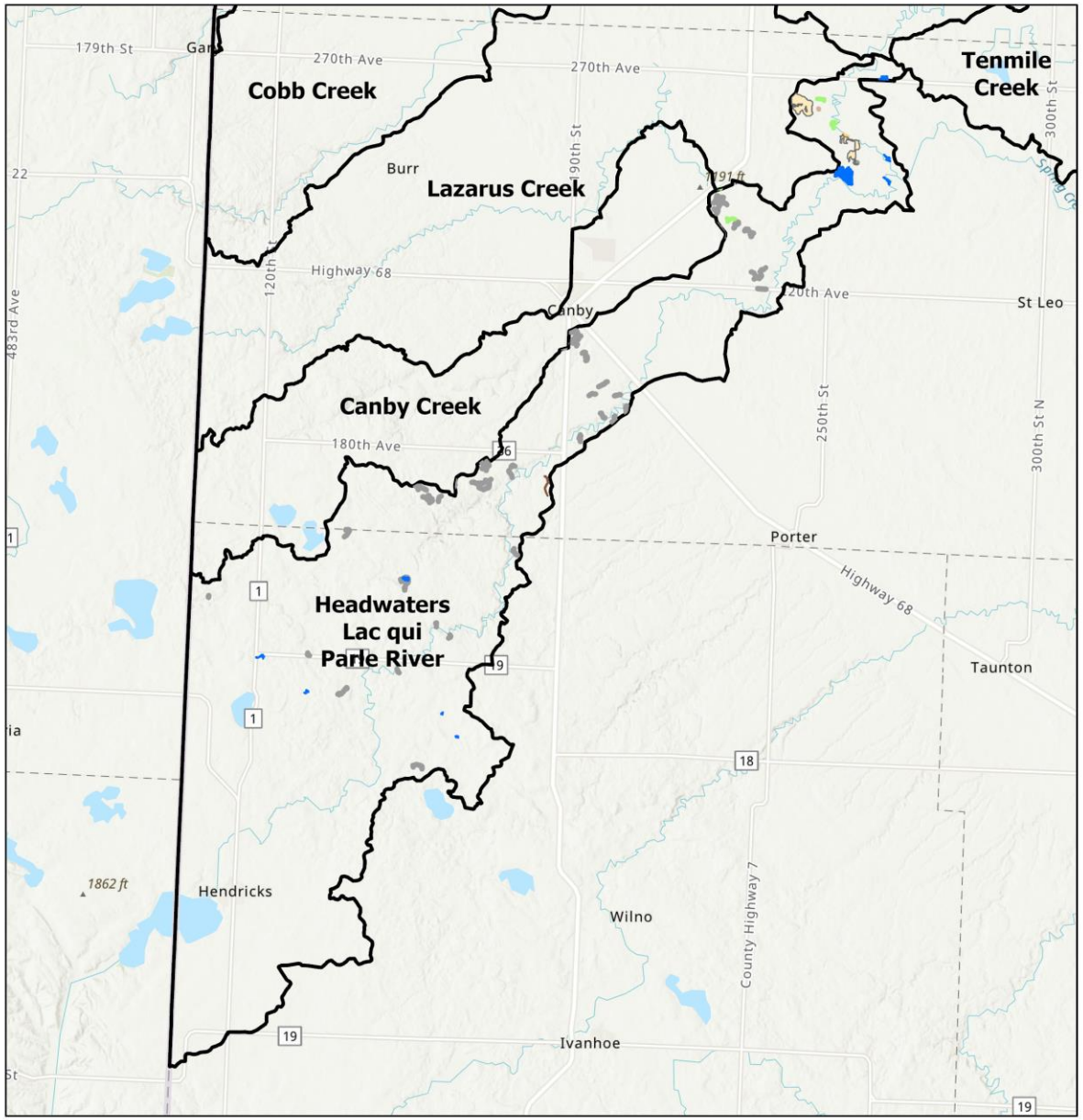
Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Riparian Buffer (390)
- Grassed Waterway (412)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 Miles



Lac qui Parle Watershed Planning Region: Headwaters Lac qui Parle River

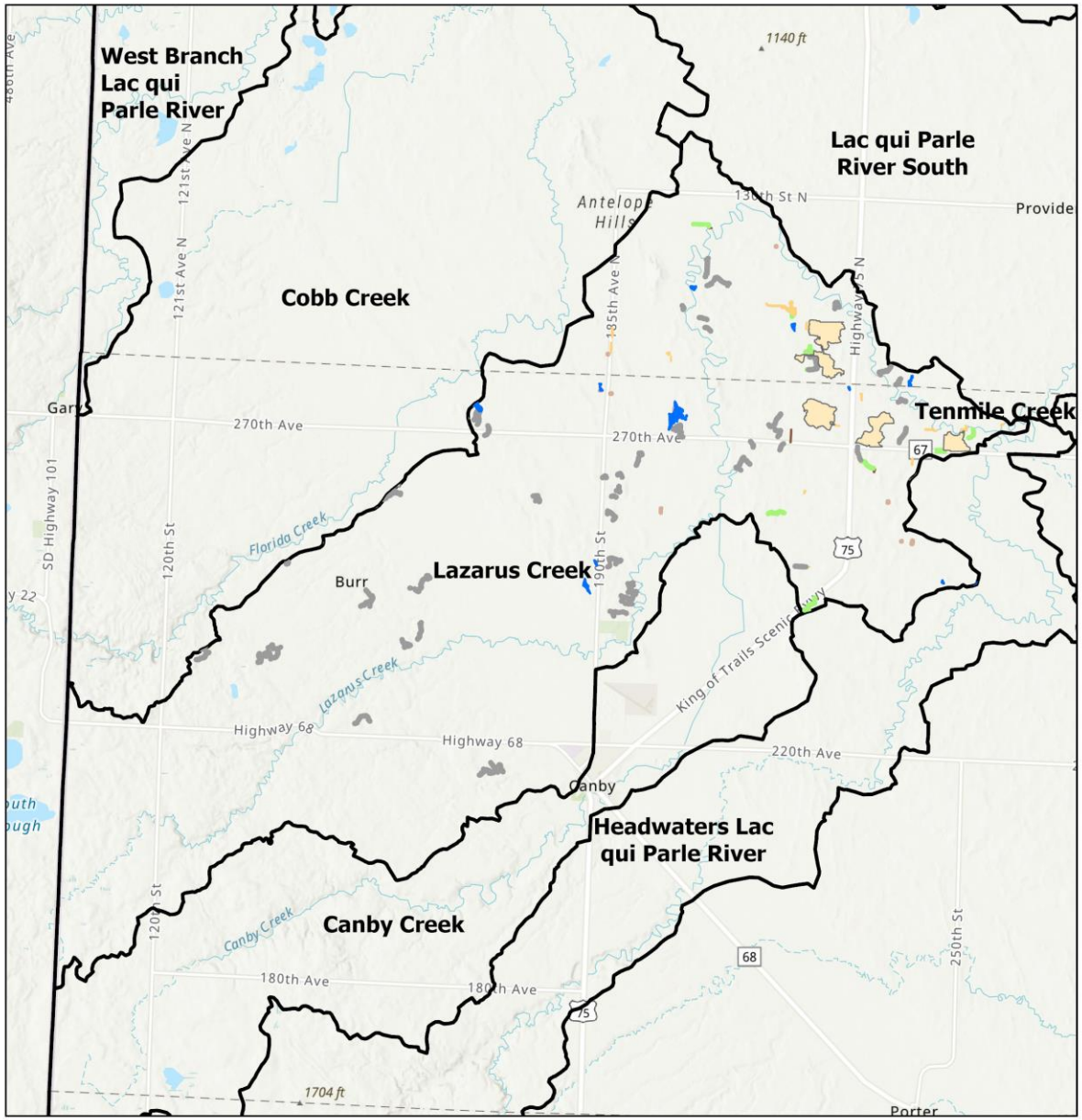
Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Riparian Buffer (390)
- Grade Stabilization (410)
- Grassed Waterway (412)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 5 6 Miles



Lac qui Parle Watershed Planning Region: Lazarus Creek

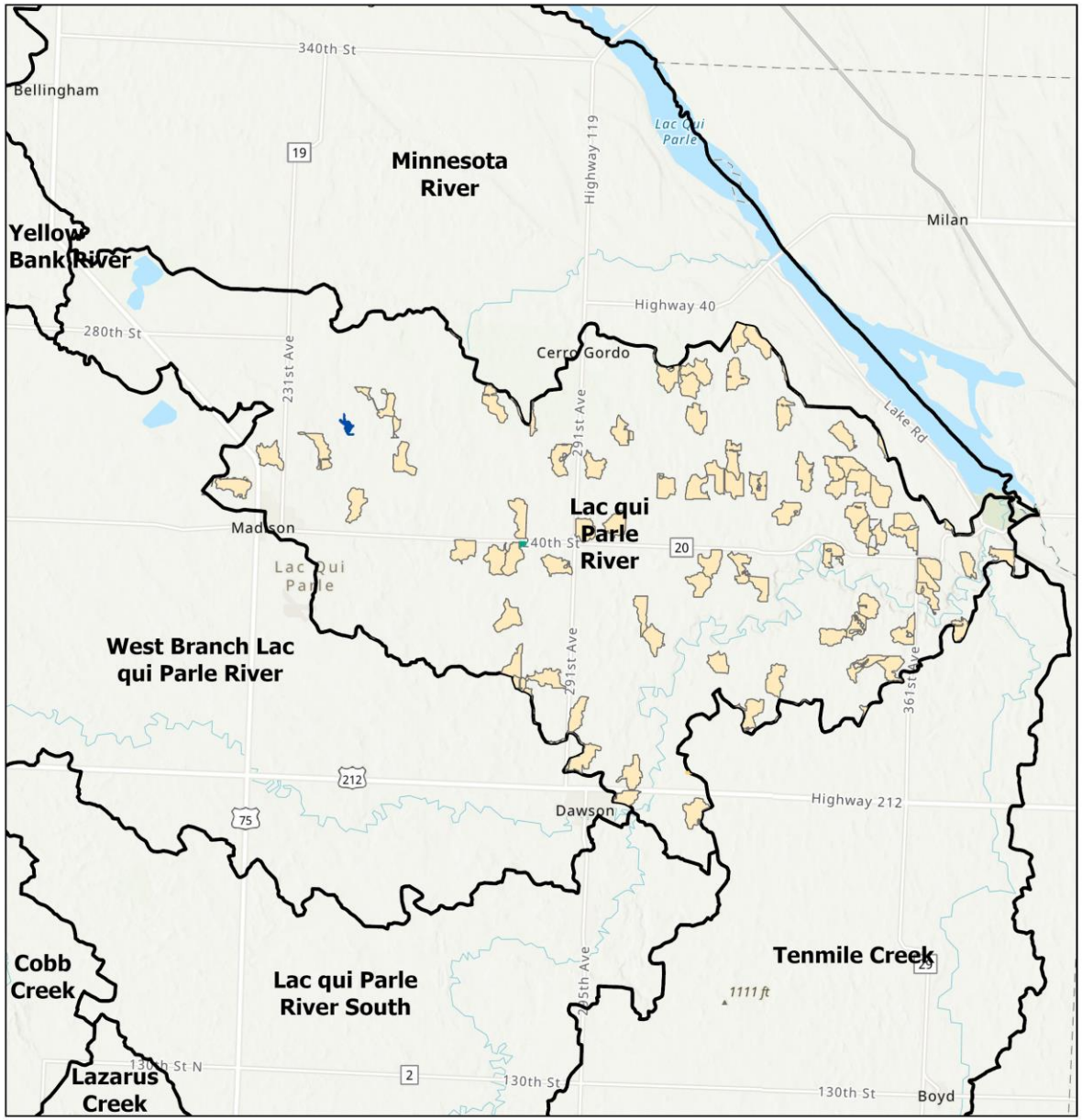
Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Riparian Buffer (390)
- Filtration Strip (393)
- Grade Stabilization (410)
- Grassed Waterway (412)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 Miles



Lac qui Parle Watershed Planning Region: Lac qui Parle River

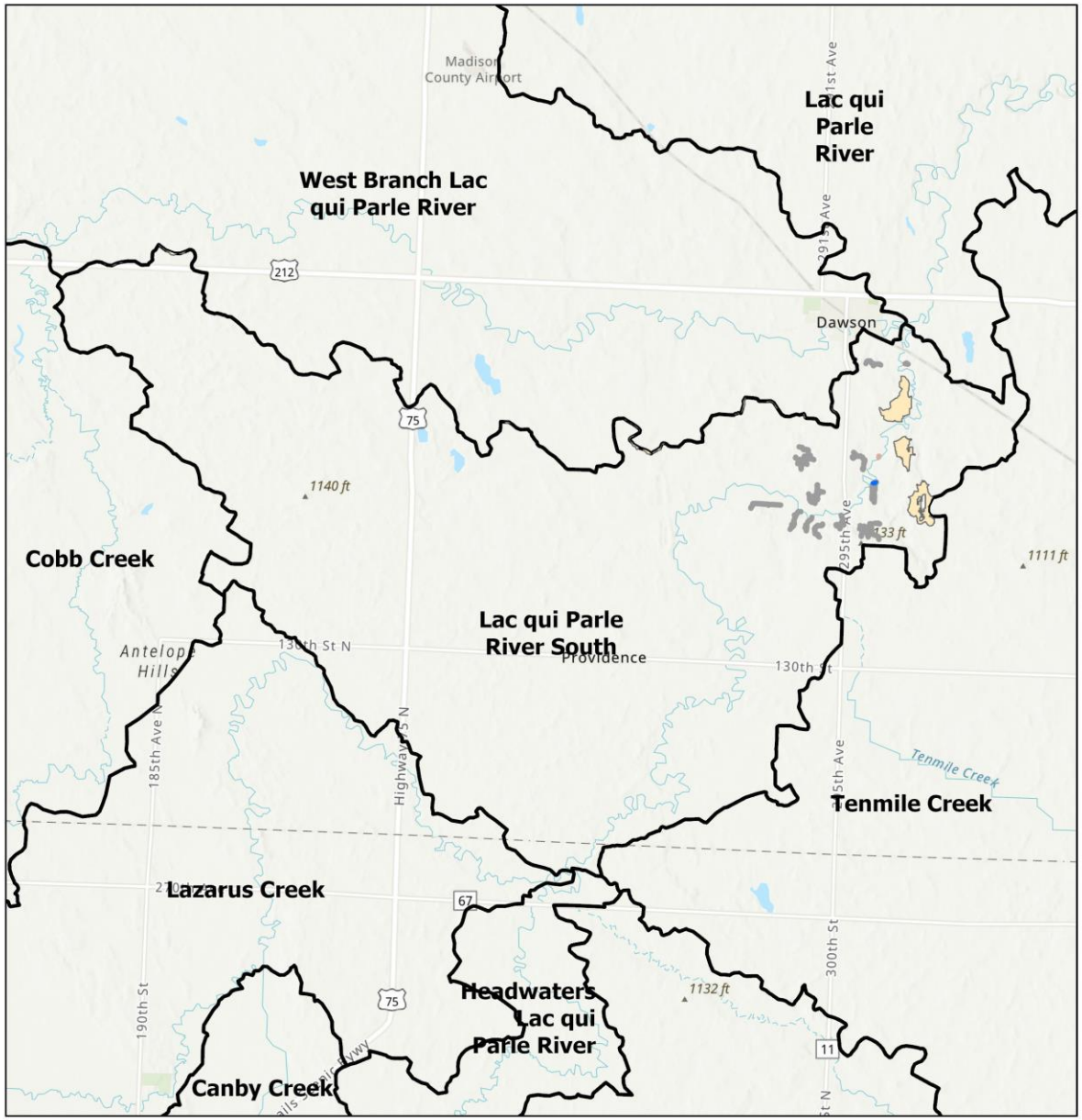
Planning Region

Practice Type (NRCS code)

- Regional Wetland (656)
- Nutrient Reduction Wetland (656)
- Riparian Buffer (390)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 5 Miles



Lac qui Parle Watershed Planning Region:
Lac qui Parle River South

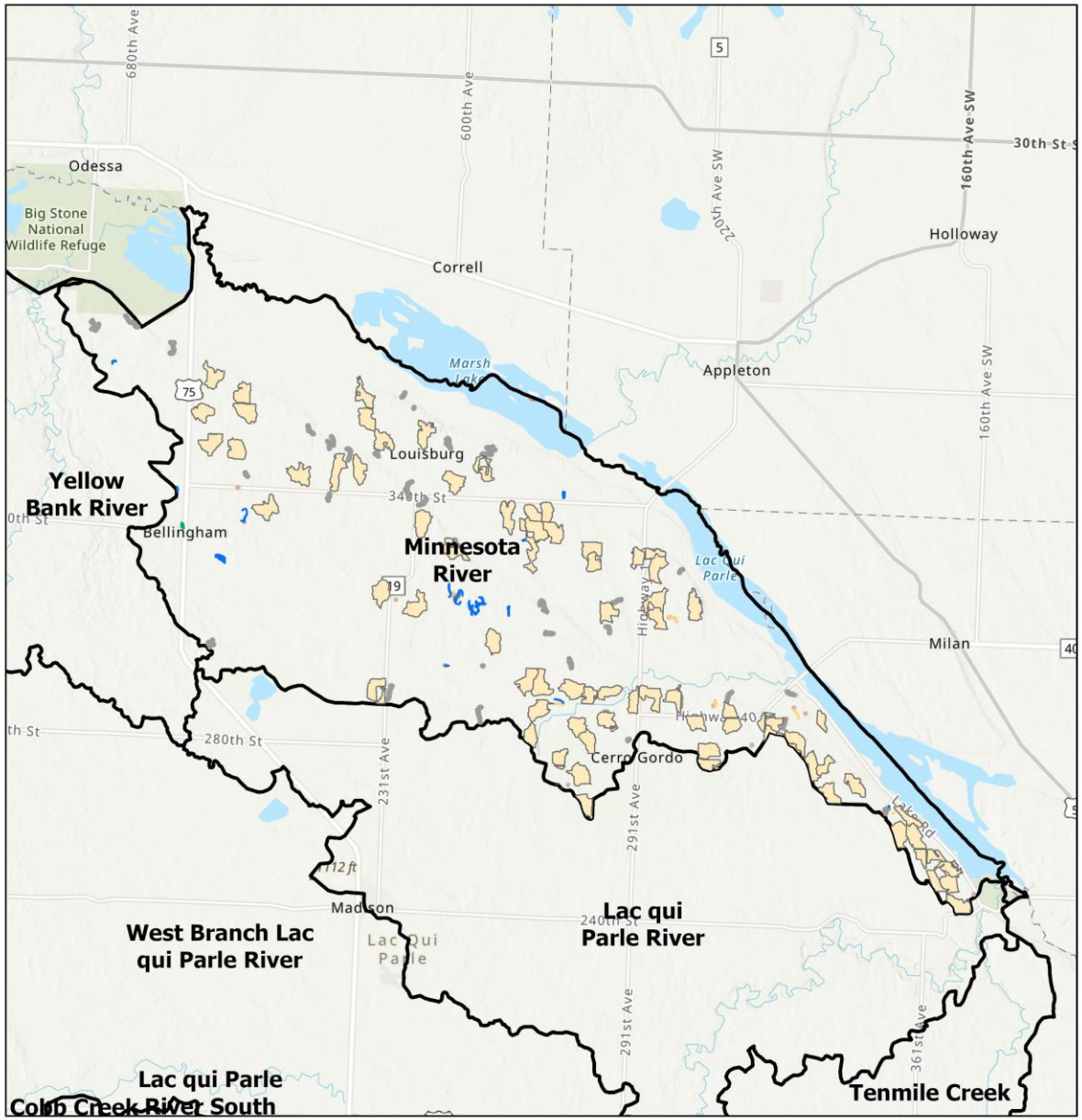
Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 Miles

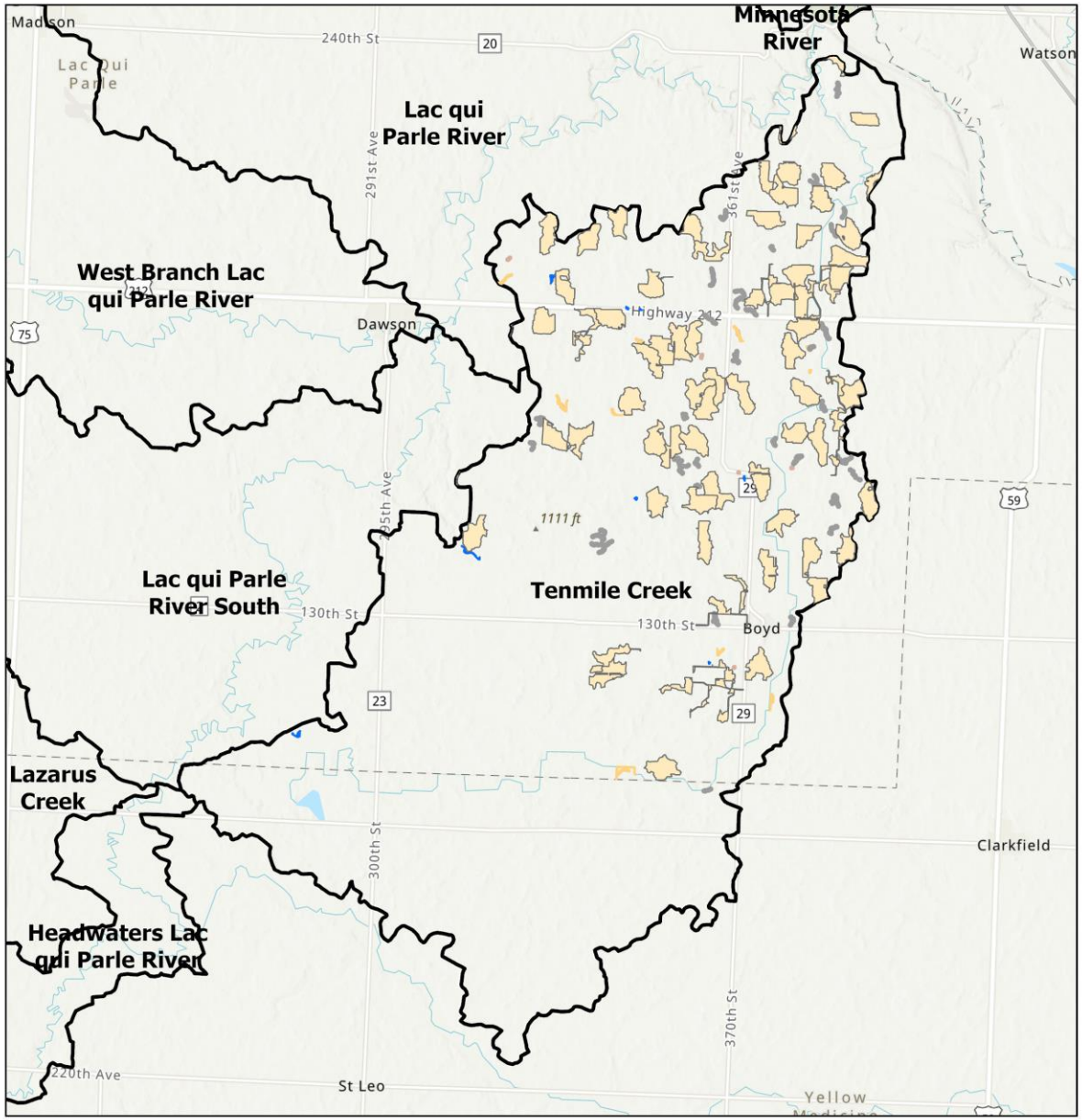


Lac qui Parle Watershed Planning Region: Minnesota River

Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Nutrient Reduction Wetland (656)
- Denitrifying Bioreactor (605)
- Riparian Buffer (390)
- Cover Crops (340)
- Reduced Tillage (345)



Lac qui Parle Watershed Planning Region: Tenmile Creek

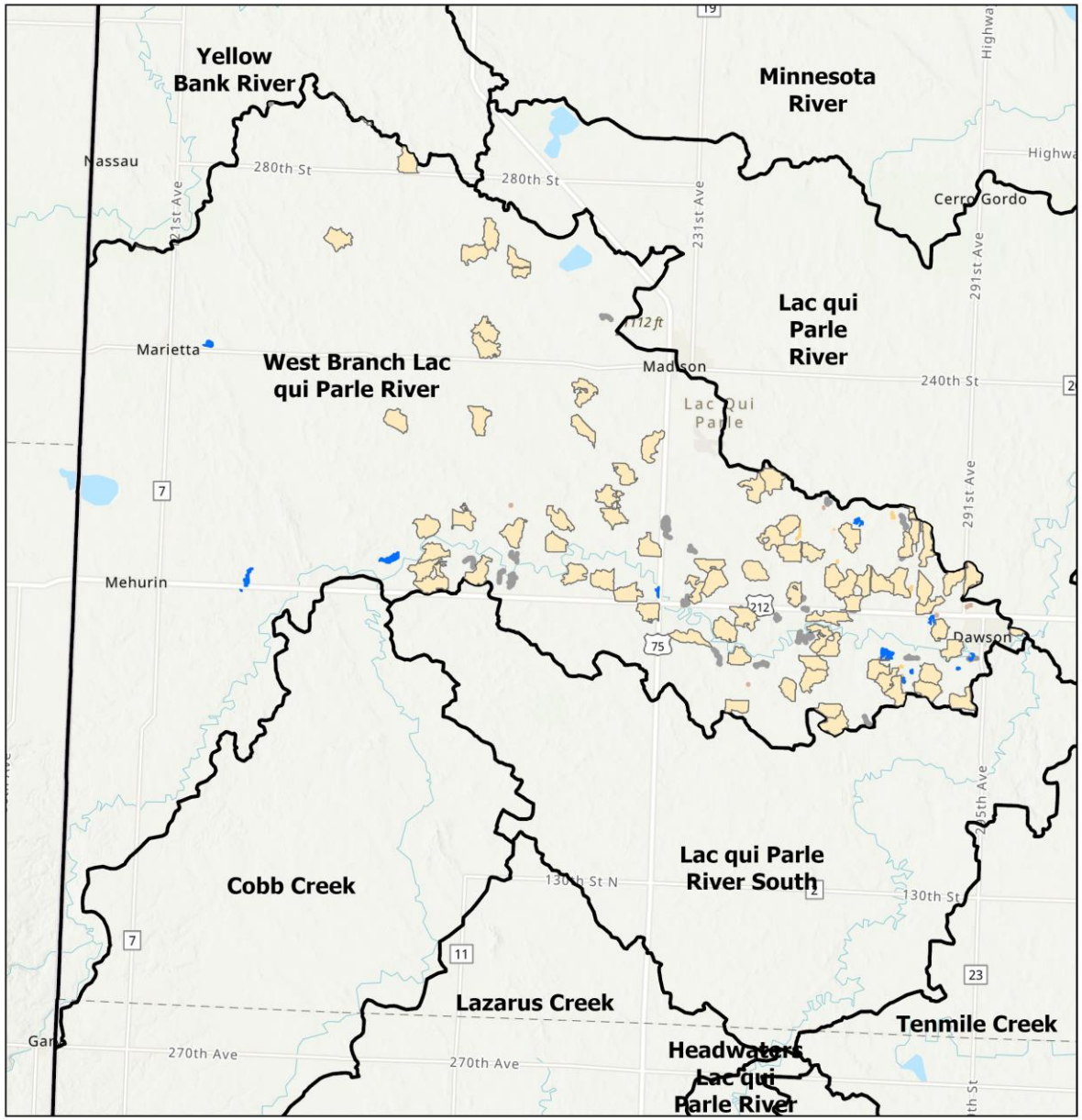
Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Riparian Buffer (390)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 5 Miles



Lac qui Parle Watershed Planning Region:
West Branch Lac qui Parle River

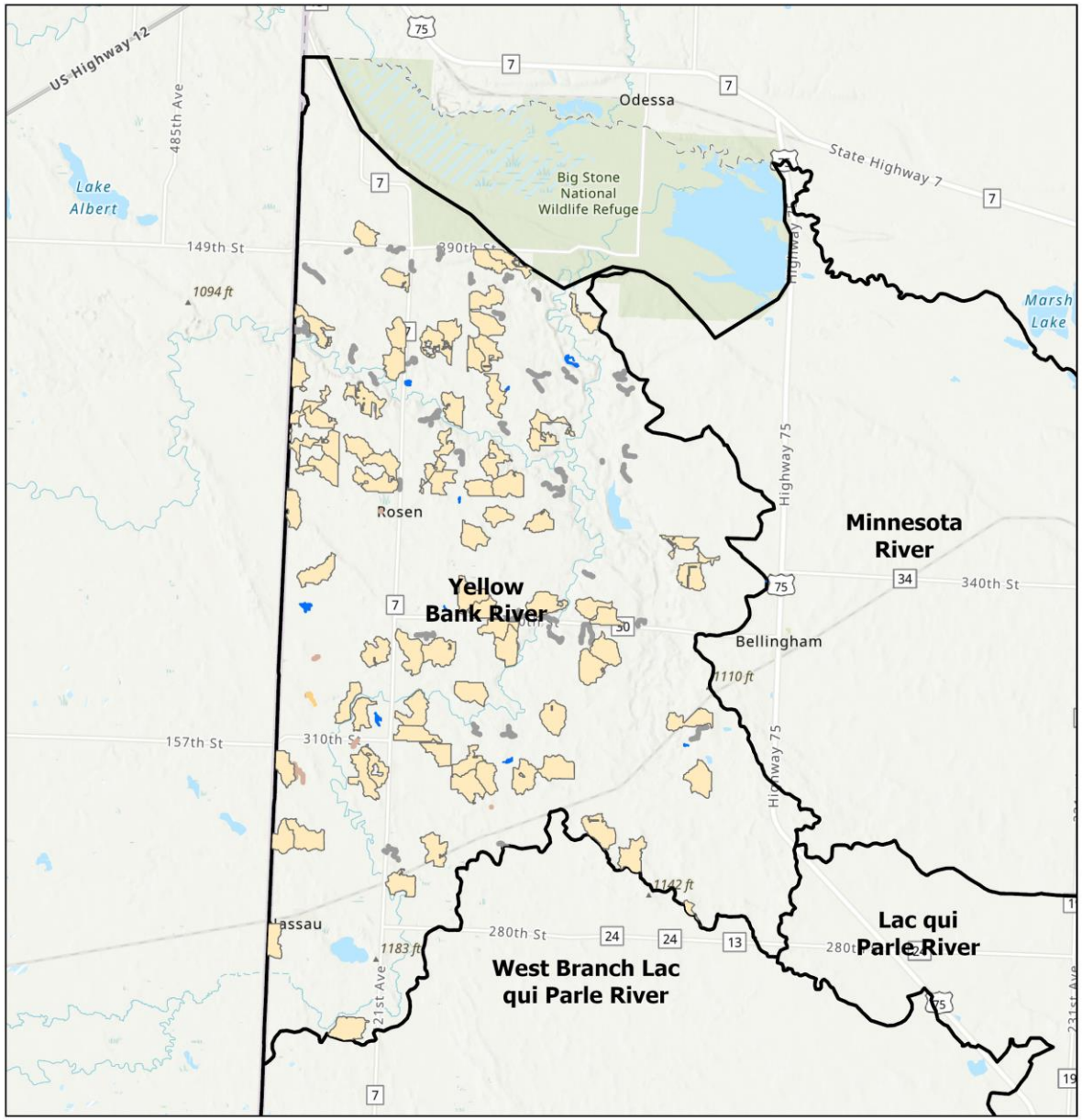
Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Riparian Buffer (390)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 5 6 Miles



Lac qui Parle Watershed Planning Region: Yellow Bank River

Planning Region

Practice Type (NRCS code)

- Drainage Water Management (554)
- WASCOB (638)
- Denitrifying Bioreactor (605)
- Riparian Buffer (390)
- Cover Crops (340)
- Reduced Tillage (345)

N

0 1 2 3 4 Miles

Appendix E

Appendix E. Local Ordinances and Responsibilities

	Statute, Ordinance, or Rule Name	Lac qui Parle County	Lac qui Parle SWCD	Yellow Medicine County	Yellow Medicine SWCD	Lincoln County	Lincoln SWCD	Area II	Lac qui Parle-Yellow Bank WD
Statutory Responsibilities	Shoreland Management *(MN Rules 6120.3300)*	Shoreland Ordinance (Env. Office)		Shoreland Ordinance/Section III of Land Use Ordinance					LqP County Env. Office overseen by WD
	Floodplain Management *(MN Statutes 103F, 104, 394)*	Floodplain Ordinance (Env. Office)		Floodplain Ordinance/Section II of Land Use Ordinance					LqP County Env. Office overseen by WD
	Individual Subsurface Sewage Treatment Systems (ISTS) *(MN Rules 7080)*	Issuance of permits & Low income fix up grant program (Env. Office)		SSTS/Section XIV of Land Use Ordinance					Low Interest Loan program in LqP county; LqP County Env. Office overseen by WD
	Solid Waste Management *(MN Statutes 115A, 400)*	Solid Waste Ordinance (LqP Env. Office)		Contracted with Lyon County					LqP County Env. Office overseen by WD
	Hazard Management *(MN Statute Chapter 12)*	LqP County Emergency Management Ordinance: (County Director of Safety and Emergency Services)		County Emergency Management Office					
	Feedlots *(MN Rules 7020)*	Feedlot Ordinance & Permitting (Env. Office)		Feedlot Ordinance/Section VII of Land Use Ordinance					LqP County Env. Office overseen by WD
	Buffers (*MN Statute 103F.48)*	Buffer Ordinance (LqP-YB WD delegated enforcement)	Installation & Inspection	Buffer Ordinance	SWCD provides technical assistance for compliance and monitoring of at least 1/3 of parcels annually.				Enforcement for LqP County
	Public Drainage Systems *(MN Statute 103E)*	LqP-YB WD provides maintenance on 101 LqP County and judicial systems (LqP commissioners – DA); Judicial ditches shared with YM county (Joint Drainage Board – DA)		County is Drainage Authority					DA for 11 Watershed Systems – 9 in LqP county and 2 in Lincoln county

	Wellhead Protection *(MN Rules 4720.5100-4720.5590)*				Municipalities and Lincoln Pipestone Rural Water have WHPP for their water supplies				
	Wetland Conservation Act *(MN Rule 8420)*	Delegated to LqP-YB WD		TEP member for LqP County		SWCD is WCA LGU for county. All city govt's are their own LGU			LGU for LqP County

	Statute, Ordinance, or Rule Name	Lac qui Parle County	Lac qui Parle SWCD	Yellow Medicine County	Yellow Medicine SWCD	Lincoln County	Lincoln SWCD	Area II	Lac qui Parle-Yellow Bank WD
Local Regulations, Rules, and ordinances	Land Use	Land use ordinance (Env. Office)		Land Use and Related Resource Management Ordinance					LqP County Env. Office overseen by WD
	Stormwater Runoff	Shoreland ordinance (Env. Office)		NA					LqP County Env. Office overseen by WD
	Aquatic Invasive Species	SWCD		Delegate to SWCD	YMSWCD receives AIS prevention aid from state thru county. Education, Prevention, Investigation/Monitoring				

Appendix F

LAC QUI PARLE-YELLOW BANK RIVER WATERSHED
JOINT POWERS COLLABORATION

THIS AGREEMENT is made and entered into this 10th day of November, 2022 (the "Effective Date"), by and between Lac qui Parle, Lincoln, and Yellow Medicine Counties (the "Counties"); and Lac qui Parle, Lincoln, and Yellow Medicine County Soil and Water Conservation Districts (the "Conservation Districts"); Area II Minnesota River Basin Projects (Area II) and the Lac qui Parle-Yellow Bank River Watershed District (the "Watershed District"), all Minnesota political subdivisions, collectively referred to herein as the Parties.

RECITALS

WHEREAS, the Counties have the statutory authority to carry out environmental programs and land use controls pursuant to Minn. Stat. Ch. 375, and as otherwise provided by law; and

WHEREAS, the Conservation Districts have the statutory authority to carry out erosion control and other soil and water conservation programs pursuant to Minn. Stat. Ch. 103C, and as otherwise provided by law; and

WHEREAS, the Watershed District has the statutory authority to carry out conservation of the natural resources of the state by land use controls, flood control, and other conservation projects for the protection of the public health and welfare and the provident use of the natural resources pursuant to Minn. Stat. Chs. 103B, 103D, and 103F and as otherwise provided by law; and

WHEREAS, Area II Minnesota River Basin Projects is a political subdivision of the State of Minnesota, with statutory authority to carry out conservation of natural resources with floodwater retention and retardation, pursuant to Minnesota Statutes Chapter 103F.171-103F.187 and as otherwise provided by law; and

WHEREAS, the Parties have a common interest and/or statutory authority to implement the Lac qui Parle – Yellow Bank Comprehensive Watershed Management Plan (the "Plan") to conserve soil and water resources through the implementation of practices, programs, and regulatory controls that effectively control or prevent erosion, sedimentation, and siltation in order to reduce damages cause by floods, protect the tax base, protect water quality, preserve and conserve natural resources, and ensure continued soil productivity; and

WHEREAS, the Parties adopted the Plan and intend on working together to implement the priorities and goals of the Plan; and

WHEREAS, with matters that relate to coordination of water management authorities pursuant to Minn. Stat. Chs. 103B, 103C, and 103D, and public drainage systems pursuant to Minn. Stat. Ch. 103E, this Agreement does not change the rights or obligations of public drainage system authorities; and

WHEREAS, pursuant to Minn. Stat. § 103B.101, subd. 14, the Minnesota Board of Water and Soil Resources (BWSR) "may adopt resolutions, policies, or orders that allow a comprehensive plan, local water management plan, or watershed management plan, developed or amended, approved and adopted, according to Chapter 103B, 103C, or 103D to serve as substitutes for one another or be replaced with a comprehensive watershed management plan;" and

WHEREAS, it is understood by the Parties that the Plan does not replace or supplant local land use, planning, and/or zoning authorities – but, instead, provides a framework to provide increased opportunities for cooperation and consistency on a watershed basis, and to allow local governments units (LGUs) to cooperatively work together to implement projects and practices consistent with the Plan with the highest return

on investment for improving water quality/quantity issues on a watershed basis; and

WHERAS, the Parties have formed this Agreement for the specific purpose of implementing the Plan pursuant to authority granted under Minn. Stat. § 103B.801.

NOW, THEREFORE, the Parties agree that the above recitals are true and correct, and in consideration of the foregoing recitals and mutual covenants, promises, and agreements under this Agreement, the Parties hereby agree as follows:

AGREEMENT

1. **Purpose.** The purpose of this Agreement is to collectively implement, as local government units (LGUs), the Plan while providing assurances that decision-making, spanning political boundaries, is supported by a written commitment from participants. The Parties are authorized to enter into this Agreement pursuant to Minn. Stat. § 471.59 and recognize the importance of partnerships to implement protection and restoration efforts for the Lac qui Parle-Yellow Bank River Watershed Planning Areas on a cooperative and collaborative basis.

2. **Relationship of the Parties.** This Agreement does not establish a joint powers entity; rather it sets the terms and provisions by which the Parties "may jointly or cooperatively exercise any power common to the contracting parties or any similar powers, including those which are the same except for the territorial limits within which they may be exercised." Minn. Stat. § 471.59. This Agreement does not include a financial obligation, but rather an ability to share resources and grant funds.

3. **Term.** This Agreement commences on the Effective Date and expires upon expiration of the Plan, which has an initial term of ten (10) years, unless terminated sooner as provided under this Agreement. If the term of the Plan is extended by the Parties, this Agreement shall extend equivalent to any subsequent term of the Plan, unless terminated sooner as provided under this Agreement.

4. **Adding Parties.** A qualifying party within the Lac qui Parle and Yellow Bank Watersheds, that is responsible for water planning and resource management according to state law, desiring to become a member of this Agreement shall indicate its intent to join by having its governing body adopt a resolution of intent and filing it with the Policy Committee for consideration. The signed resolution shall be mailed to the existing Policy Committee to initiate consideration by the Policy Committee to join the Plan. Upon approval, the joining party automatically agrees to abide by the terms and conditions of this Agreement; including, but not limited to, the rules, policies, and operating guidelines adopted by the Policy Committee.

5. **Withdrawal of Parties.** A party desiring to withdraw membership from the Plan shall indicate its intent, in writing, to the Policy Committee in the form of a resolution adopted by its governing body. Written notice must be made at least thirty (30) days in advance of withdrawing from the Plan. Any party that withdraws from the Plan remains obligated to comply with the terms of any grants that party has at the time of the party's notice to withdraw, and is obligated to participate until the grant expires or closes-out.

6. **Committees.** Committees are established to carry out the coordinated implementation of the Plan. The Parties agree to establish a Policy Committee and a Steering Committee in accordance with this Agreement and the Plan.

    a. **Policy Committee.** The Parties agree to establish the Policy Committee for the purpose of implementing the priorities and goals of the Plan. The Policy Committee will operate cooperatively and collaboratively, but not as a separate entity or governing body. The Parties agree to appoint one (1) representative, either an elected official or an appointed official (e.g. manager of the Watershed District) of the respective party, to serve on the Policy Committee. Each party's

governing body may choose to appoint an alternate, either an elected or appointed official of the respective party, to serve on the Policy Committee in the event the appointed representative is unavailable. Each party will have one (1) vote regardless of whether they choose to appoint an alternate.

i. Authority. The Policy Committee will make recommendations to the Fiscal Agent and to individual governing bodies with respect to grant agreements and amendments, interim reports, project related payments, professional contracts, work plans, budgets, and activities. Each representative is responsible for providing timely and accurate information to their respective governing bodies when actions are required by individual governing bodies of the Parties, and shall act only as directed by their respective governing bodies. The Policy Committee will meet as needed, but no less than annually, to decide on the implementation of the Plan.

ii. Operating Guidelines. The Policy Committee will establish operating guidelines to describe the functions and operations of the committees. Once established, the committees will follow the adopted operating guidelines. The Policy Committee may amend the operating guidelines as desired.

iii. Work Plan and Budget. The Policy Committee shall review and approve an annual work plan and budget consisting of an itemized statement of the revenues and expenses of the Plan for the ensuing calendar year which shall be presented to the respective governing bodies that are represented on the Policy Committee.

iv. Liaison. Representatives of the Policy Committee serve as liaisons to their respective governing bodies.

v. Primary Roles and Functions. The Policy Committee has the following primary roles and functions as provided in the Plan:

1. Receive information regarding Plan implementation funds.
2. Approve work plans, annually.
3. Approve fiscal reports, annually.
4. Review and confirm Steering Committee priority issue recommendations, annually.
5. Direct the Steering Committee on addressing emerging issues.
6. Approve Plan amendments for amendments not initiated and approved through statutory proceedings.
7. Approve joint grant applications, if needed.
8. Inform the Parties on Plan progress.
9. Any additional roles and functions deemed appropriate by a majority of the Parties' governing bodies.

b. **Steering Committee.** The Steering Committee will consist of one (1) staff member from each of the Parties or their alternate. The Steering Committee will provide support and make recommendations on implementing the Plan, including identification of priorities.

i. Primary Roles and Functions. The Steering Committee has the following primary roles and functions as provided in the Plan:

1. Review the status of available implementation funds determined by individual Plan participants.

2. Recommend the use of watershed-based implementation funds to the Policy Committee.
3. Research opportunities for collaborative grants.
4. Review and recommend annual fiscal reports.
5. Review and recommend annual reports submitted to BWSR.
6. Review and confirm priority issues, annually.
7. Evaluate and recommend response to emerging issues.
8. Prepare Plan amendments as directed by the Policy Committee.
9. Implement the Action Tables provided under the Plan.
10. Develop work plans, annually.
11. Convene implementation meetings with Plan review authorities, as needed.
12. Form subcommittees, as needed.
13. Compile results for assessments, annually.
14. Inform the Parties on Plan progress.
15. Any additional roles and functions deemed appropriate by a majority of the Parties' governing bodies.

c. **The Advisory Committee**. The Advisory Committee may consist of the Steering Team, stakeholders, the state's main water agencies, and/or plan review agencies. The Advisory Committee shall continue to provide technical support on the plan implementation to the Policy Committee, including identification of priorities. The Advisory Committee will meet as needed.

7. **Fiscal Agent.** The Policy Committee shall appoint one (1) Fiscal Agent. The appointed party may accept or reject the appointment. If the Policy Committee is not satisfied with the current Fiscal Agent, it may remove that Fiscal Agent and appoint a different Fiscal Agent.

The Fiscal Agent will provide direct time tracking and expenses for grant reimbursement. Local grant administration, management, and reporting that is directly related to and necessary for implementation are considered grant eligible activities. The Fiscal Agent agrees to:

a. Accept fiscal responsibilities associated with grant agreements and execute the grant agreement in conjunction with the respective party receiving grant funds.

b. Execute subcontracts with grant recipients describing how funds will be disbursed for the respective projects.

c. Perform financial transactions as part of Plan implementation, including reporting requirements.

d. Pursuant to Minn. Stat. § 471.59, subd. 3, be strictly accountable for all funds and regularly report all receipts and disbursements and annually provide interim/final reports and a full and complete audit report to the Policy Committee and the Parties' respective governing bodies.

e. Provide the Policy Committee with such records as are necessary to describe the financial condition of the various grant agreements.

f. Be responsible for fiscal records retention consistent with the Fiscal Agent's records retention schedule.

g. Meet website grant reporting requirements.

8. **Plan Administrator.** The Policy Committee shall appoint one (1) Plan Administrator. Local grant administration, management, and reporting that is directly related to and necessary for implementation

are considered grant eligible activities. IThe Plan Administrator will provide direct time tracking for grant reimbursement to the Fiscal Agent. These duties may also be appointed to the Steering Committee. The Plan Administrator agrees to provide the following services under this Agreement:

a. Handle administrative responsibilities associated with the implementation of the Plan and any subsequent grant(s), if any, the Parties apply for and receive.

b. Be the main contact for the Plan and grant agreements, if any, the Parties apply for and receive.

c. Be responsible for BWSR and other grant reporting requirements.

d. Provide for proper public notice of all meetings.

e. Ensure the minutes of Policy Committee meetings are recorded and made available in a timely manner to the Policy Committee and maintain a file of all approved minutes including corrections and changes.

f. Assist the Policy Committee and the Steering Committee with the administrative details to oversee implementation of the Plan.

g. Perform other duties to keep the Policy Committee and the Steering Committee informed regarding the implementation of the Plan.

9. **Authorized Representatives.** The following persons will be the primary contacts for all matters concerning this Agreement:

Lac qui Parle County
Rhyan Shicker or successor
County Water Planner
122 8th Ave South, Suite 1
Madison, MN 56256
Telephone: (320) 598-7321

Lac qui Parle SWCD
Rhyan Schicker or successor
District Manager
122 8th Ave South, Suite 1
Madison, MN 56256
Telephone: (320) 598-7321

Lincoln County
Dale Sterzinger or successor
County Water Planner
200 S. Co Hwy 5, Suite 2
Ivanhoe, MN 56142
Telephone: (507)694-1630

Lincoln SWCD
Dale Sterzinger or successor
District Manager
200 S. Co Hwy 5, Suite 2
Ivanhoe, MN 56142
Telephone: (507)694-1630

Yellow Medicine County
Jolene Johnson or successor
County Water Planner
1000 10th Ave, Suite 2
Clarkfield, MN 56223
Telephone: (320) 669-7524

Yellow Medicine SWCD
Tyler Knutson or successor
Director
1000 10th Ave, Suite 3
Clarkfield, MN 56223
Telephone: (320) 669-4442

Lac qui Parle-Yellow Bank WD
Trudy Hastad or successor
600 6th Street, Suite 7
Madison, MN 56256
Telephone: (320)598-3117

Area II Minnesota River Basin Projects
Kerry Netzke or successor
1424 E. College Drive, Suite 300
Marshall, MN 56258
Telephone: (507)537-6369

10. **Plan Implementation.** The Parties agree to begin implementation of the Plan within one hundred twenty (120) days of state approval and to provide notice of Plan adoption pursuant to the respective governing bodies' resolution adopting the Plan.

11. **Additional Documents.** The Policy Committee will create and implement operating guidelines, subcontracts, and cost share agreements. The operating guidelines describe the functions and operations of the committees. Subcontracts will be entered into between the Fiscal Agent and the respective party acting as project operator describing how funds will be disbursed for the project. Cost share agreements will be entered into between project operators and landowners describing how the project operator will disburse funds to participating landowners.

12. **Compliance with Laws.** The Parties agree to abide by all federal, state, and local laws, statutes, ordinances, rules, and regulations now in effect, or hereafter adopted, pertaining to this Agreement or to the Plan.

13. **Indemnification.** Each party to this Agreement shall be liable for the acts of its officers, employees, contractors, subcontractors, or agents and the results thereof to the extent authorized or limited by law and shall not be responsible for the acts of any other party, its officers, employees, contractors, subcontractors, or agents. The provisions of the Municipal Tort Claims Act found under Minn. Stat. Ch. 466, and other applicable laws, govern liability of the Parties. To the fullest extent permitted by law, actions by the Parties, and their respective officers, employees, contractors, subcontractors, and agents pursuant to this Agreement, are intended to be and shall be construed as a "cooperative activity." It is the intent of the Parties that they shall be deemed a "single governmental unit" for the purpose of liability, as set forth in Minn. Stat. § 471.59, subd. 1a(a) and does not create any liability or exposure of one party for the acts or omissions of any other party.

14. **Employee Status.** The Parties agree that the respective employees or agents of each party shall remain the employees or agents of each individual respective party.

15. **Records Retention and Data Practices.** The Parties agree that each respective party will be responsible for any records prepared or maintained by that party, and all parties shall be subject to the Minnesota Government Data Practices Act. Record retention will follow the Fiscal Agent's retention schedule in accordance with Minn. Stat. § 138.17. If this Agreement is terminated, all records will be turned over to the Fiscal Agent for continued retention.

16. **Timeliness.** The Parties agree to perform obligations under this Agreement in a timely manner and keep each other informed about any delays that may occur.

17. **Termination.** This Agreement may be terminated at any time before expiration upon written consent of a majority of the Parties hereto. The parties acknowledge their respective and applicable obligations, if any, under Minn. Stat. § 471.59, subd. 5 after the purpose of this Agreement has been terminated.

18. **Amendment.** Any amendment, addition, alteration, or deletion of any part of this Agreement can be introduced by the Policy Committee at any meeting. Upon thirty (30) days' advance written notice of the proposed amendment given to each party to this Agreement, the Policy Committee may enact the amendment, addition, alteration, or deletion of this Agreement upon ratification by each party to this Agreement.

19. **Severability.** In the event that any term, part, or provision of this Agreement is held to be invalid or unenforceable, all other terms, parts, and provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable term, part, or provision severed from the remainder of this Agreement.

20. **Entire Agreement.** This Agreement, the Plan, the operating guidelines, and any exhibits and amendments thereto, contains the entire and exclusive understanding of the Parties with respect to implementation of the Plan and supersedes all prior agreements, understandings, statements, representations, and negotiations, in each case oral or written, between the Parties with respect to their subject matter, except as otherwise provided herein.

21. **Governing Law.** This Agreement will be governed by and construed in accordance with the laws of the State of Minnesota.

22. **Assignment.** The terms of this Agreement are hereby made binding upon the Parties hereto, their successors and assigns, and no party under this Agreement may assign their interest in this Agreement to any other person or entity without the written consent of the other Parties.

23. **Rules of Construction.** The Parties acknowledge that they have had the opportunity to review this Agreement, and that they have an equal bargaining position in this transaction. No rule of construction that would cause any ambiguity in any provision to be construed against the drafter of this document will be operative against any party to this Agreement.

24. **Representation.** The Parties, having been represented by counsel or having waived the right to counsel, have carefully read and understand the contents of this Agreement, and agree they have not been influenced by any representations or statements made by any other Parties.

25. **Counterparts.** This Agreement may be executed in counterparts, meaning that the Agreement is valid if signed by each party even if the signatures of the Parties appear on separate copies of the same Agreement rather than on a single document.

26. **Effective Date.** The Effective Date of this Agreement is the date of the last signature appearing below.

IN TESTIMONY WHEREOF, the Parties have executed this Agreement on the dates written below.

[Signatures appear on the following pages.]

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **LAC QUI PARLE COUNTY**

APPROVED:

BY: _____ 11/1/22
Board Chair Date

ATTEST: _____ Administrator 11/1/22
(Name) Jacob Sieg (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **LAC QUI PARLE SOIL AND WATER CONSERVATION DISTRICT**

APPROVED:

BY: Rose Weber 11-10-22
Board Chair Date

ATTEST: Rhyan Shigley, District Manager 11.10.22
(Name) (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **LINCON COUNTY**

APPROVED:

BY: _____ 10-4-22
Board Chair Date

ATTEST: Deb Vieth, Auditor-Treasurer 10-4-22
(Name) (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **LINCOLN SOIL AND WATER CONSERVATION DISTRICT**

APPROVED:

BY: _____ 9-26-2022
Board Chair Date

ATTEST: Dale Sterzinger District Manager 9-26-2022
(Name) (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **YELLOW MEDICINE COUNTY**

APPROVED:

BY: _____ 10/25/22
Board Chair Date

ATTEST: _____ 10/25/22
(Name) (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **YELLOW MEDICINE SOIL AND WATER CONSERVATION DISTRICT**

APPROVED:

BY: x _____ 9-22-22
Board Chair Date

ATTEST: _____ Director 9/22/2022
(Name) (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: n/a
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **LAC QUI PARLE-YELLOW BANK WATERSHED DISTRICT**

APPROVED:

BY: _____ 10/4/22
Board Chair Date

ATTEST: _____ 10/4/22
(Name) (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____
Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

PARTNER: **AREA II MINNESOTA RIVER BASIN PROJECTS**

APPROVED:

BY: _____ 10/6/22
Board Chair Date

ATTEST: Kenny Netzke Exec. Director 10/6/22
(Name) (Title) Date

APPROVED AS TO FORM *(use if necessary)*

BY: _____
Attorney Date

Appendix G

Lac qui Parle-Yellow Bank
Local Funding

Estimated Current Revenue for Plan Implementation

Purpose: The purpose of this spreadsheet is to arrive at **baseline estimate of the existing dollars** available in the plan area during implementation. This means we need to separate dollars into proposed implementation programs: Capital Projects; Data Collection & Monitoring; Education & Outreach; Projects & Practices; and Regulatory. Your responses should represent **noncompetitive** dollars for your whole organization. **We will apportion the total dollars for your organization by the % of your organization in the plan area**. Please include staffing and administration dollars in each of the categories. You may want to check with your County counterparts for funding estimates, especially for funding that would fit in the capital projects or operations and maintenance programs. Please cite the funding sources used to estimate existing funding for each implementation program.

State Grant Dollars	Funding Source(s)	LqP SWCD	LqP County	YM SWCD	YM County	Lin SWCD	Lincoln Cnt	LqP-YB WD
Projects & Practices		$ 17,862.72		$ 4,094.40	$ 8,507.28	$ 4,800.00	$ 2,580.00	$ 175,610.78
Data Collection & Monitoring		$ 2,300.00		$ -	$ -	$ -	$ 3,780.00	
Education & Outreach		$ 3,023.12		$ 11,107.92	$ 1,200.00	$ 426.00	$ 3,780.00	
Regulatory (Statutory/Ordinances)		$ 26,689.20		$ 10,530.72	$ 14,151.84	$ 1,053.36	$ 6,000.00	$ 7,266.80
Capital Projects (e.g. Impoundments, Ditch		$ -		$ -	$ -	$ -	$ -	
Operations & Maintenance (e.g. Ditch Repair)		$ -		$ 2,160.00	$ -	$ -	$ -	
Administration								
Total		$ 49,875.04	$ -	$ 27,893.04	$ 23,859.12	$ 6,279.36		$ 182,877.58

Federal Grant Dollars	Funding Source(s)	LqP SWCD	LqP County	YM SWCD	YM county	Lin SWCD	Lin Cnty	LqP-YB WD
Projects & Practices		$ -		$ -	$ -	$ -	$ -	
Data Collection & Monitoring		$ -		$ -	$ -	$ -	$ -	
Education & Outreach		$ -		$ -	$ -	$ -	$ -	
Regulatory (Statutory/Ordinances)		$ -		$ -	$ -	$ -	$ -	
Capital Projects (e.g. Flood Control; Stream Restoration)		$ -		$ -	$ -	$ -	$ -	
Operations & Maintenance (e.g. Ditch Repair)		$ -		$ -	$ -	$ -	$ -	
Administration								
Total		$ -	$ -	$ -	$ -	$ -		$ -

Local Match Dollars	Funding Source(s)	LqP SWCD	LqP County	YM SWCD	YM county	Lin SWCD	Lincoln Cnty	LqP-YB WD

Projects & Practices		$ 4,465.68		$ 1,023.60	$ 1,440.00	$ 2,400.00	$ 1,584.00	$ 5,000.00
Data Collection & Monitoring		$ -		$ -	$ -	$ -	$ -	
Education & Outreach		$ 1,116.88		$ 2,520.00	$ -	$ -	$ -	$ 5,000.00
Regulatory (Statutory/Ordinances)		$ -		$ 2,106.72	$ 4,596.72	$ 1,053.36	$ 5,520.00	$ 5,266.80
Capital Projects (e.g. Flood Control; Stream Restoration)		$ -		$ -	$ -	$ -	$ -	
Operations & Maintenance (e.g. Ditch Repair)		$ -		$ -	$ -	$ -	$ 13,680.00	
Administration								
Total		$ 5,582.56	$ -	$ 5,650.32	$ 6,036.72	$ 3,453.36		$ 15,266.80

Appendix H

	Material	Comments represent changes in material and content of the plan.
	Editorial	Spelling, grammatical, clarification, or visual issues with graphics.
	Note	Generally consist of a statement expressing a perspective.

Section	Page	Paragraph	Sentence	Organization	Initials	Comment	Material	Editorial	Note	Plan Change Made (Yes/No)	Comment Response / Action
Appendix E				MDH	AS	MDH recommends that Appendix E should have edits finalized in order to complete the tables and have consistency with table format.		X		**Yes**	Revised as suggested: edits finalized.
B	B9	Bottom		BWSR	JB	Third sentence from the bottom of page B9 discusses the altered watercourse scores for the major watersheds in the Lac qui Parle Watershed. Understanding that a reference is part of that sentence, BWSR recommends restating where the score came from as part of that sentence.		X		**Yes**	Revised as suggested. Sentence added reiterating the background of the score.
C	C17	Irrigation		MDA	RL	This section mentions agricultural irrigation in the watershed, noting 48 active agricultural irrigation permits concentrated in the Cobb Creek and West Branch planning regions. If available, it could be useful to include a large-scale map of the watershed with permitted irrigation locations as a visual tool to the reader.	X			**Partial**	Comment received with thanks. A link to the MN Database has been provided to provide up-to-date active irrigation permits.
D	D5, D-10	#3		BWSR	JB	Change the decreased groundwater recharge and supply goal scale to watershed-wide. This will align better with page D10, where it says Goal 4-decreased groundwater recharge and supply is watershed-wide.		X		**Yes**	Revised as suggested. Goal moved to watershed-wide.
D	D7-D15	Top of page		BWSR	JB	Change “Goal” to “Issue” or add the word “Issue” in the heading for Goals 1-13. This will align better with table D1.		X		**Yes**	Revised as suggested.
D	All	All		BWSR	JB	Make sure issue titles are worded the same in section D and other sections. As an example, the wording for Goal 2 doesn’t match the issue in table D1 “contamination of private wells.”		X		**Yes**	Revised as suggested.
D	D7-D15	Right column		BWSR	JB	Give numerical value to long-term goals that say extend short-term goal. If no numerical value can be established, a goal specifying what would success look like and how would it be measured could be used as well.	X			**Yes**	Revised as suggested. New goals were developed for the four long-term goals which previously stated "extend short-term goal".
D	D7-D15	All		BWSR	JB	Please add language to each of the watershed-wide goals that clarifies what funding level is to be used to achieve the short-term measurable goals.		X		**Partial**	All funding levels are used for these short term goals. Sentence added to Section G (page G-4) and Section D (page D-1) to clarify.
D	D11-D15			BWSR	JB	Recommend clarifying if the long-term goals are to be watershed-wide goals or limited to the high priority planning regions. This could also be clarified in the first paragraph of page D1.	X			**Yes**	Revised as suggested.

D	D10	Goal 4		MDA	RL	Decreased groundwater recharge and supply. Host two education and outreach events per year. (Page E13 and E18). Consider mentioning, or including, the University of Minnesota Extension (https://extension.umn.edu/soil-and-water/irrigation) as a partner for any agricultural irrigation education and outreach events, factsheets, or materials considered in the future. There is significant new irrigation-based research related to scheduling, variable rate applications, cover crops, as well as nitrogen use and water quality impacts in Minnesota. Though this research is not being done in the watershed, the information is relevant and informative especially where ag irrigation permits are increasing. See the links below for more information. o Pope county: www.mda.state.mn.us/rosholtfarm o Sherburne county: https://sprf.cfans.umn.edu/	X			**Yes**	Revised as suggested.
D	D-10			MDH	AS	MDH previously commented during informal review on the need for watershed wide action items for irrigation water management and education and/or actions for drinking water conservation. The MDH initial comment letter contained a priority issue to promote conservation practices that improve groundwater recharge and wise water use. Please add irrigation water management to page D-10. We would like to see some details that this Goal #4 would be to address water usage at the household/consumer level and also with irrigation and other high-capacity users.	X			**Partial**	Examples of educaional events will also be added in EO-1 to provide a better vision of the educational events aimed at the household/consumer level. Overall, this was addressed in other ways throughout the plan (emerging issues, education). These are a result of Advisory Comittee discussions.
D	D-5, D-10			MDH	AS	Page D-5 lists Decreased Groundwater Recharge and Supply with specific planning region goal scale. On Page D-10, Goal #4, Decreased Groundwater Recharge and Supply it is listed as watershed wide. Please clarify if these will be by priority subwatershed or watershed wide. MDH recommends they be watershed wide.	X			**Yes**	Revised as suggested.
D	D-5, D-8			MDH	AS	Page D-5 lists Contamination of Private Wells as the issue. On Page D-8 the goal/issue is Testing and Sealing of Private Wells.	X			**Yes**	Revised as suggested.
E	General			BWSR	JB	Please clarify what MSHA score will be used to show rate of progress. Recommend changing the planning region goal from Improve MSHA scores by X% to Improve MSHA scores specified in the July 2018 MPCA monitoring and assessment report by X%. During the life of this plan there will be a phase II WRAPS and the MSHA scores are subject to change at that time. Also, BWSR thinks it's important that the local partners are aware that MPCA only does a MSHA assessment as part of the WRAPS process. The local partners will need to work with MPCA to follow their MSHA protocol and complete the assessment locally or in partnership with an outside organization/consultant	X			**Yes**	Goals will be revised: short- term goal will now be related to miles of restoration. Long-term goal will be to compare and reassess based on MPCA's WRAPS process during the lifetime of this plan.
E	E48	RM-1		BWSR	JB	Watershed-Based Implementation Funding can't be used to pay for water quality monitoring such as, but not limited to, routine, baseline, diagnostic, or effectiveness monitoring. This includes both surface and groundwater monitoring activities. Please Change the funding level for activity RM-1 to Level 1 or Level 3.		X		**Yes**	Revised to indicate that level 1 funding is all that will be used for the planned actions in RM-1
E	All			BWSR	JB	Please add the planning region name to top of the measurable goal table and targeted action table for each of the planning regions.		X		**Yes**	Revised as suggested.
E	E6-E42	Many		BWSR	JB	The map figure reference at the start of each planning region is off by one. Please review and make sure all figure numbers are correct and accurately referenced in Section E.		X		**No**	Corrected and checked all figure numbers.

E	E48	RM-2		MDA	RL	MDA could be listed as an implementation partner. (Township Testing and Ambient Water Quality Monitoring networks may apply)		X		**Yes**	Revised as suggested.
F	General			BWSR	JB	As required on page 8, section 4b of the BWSR One Watershed, One Plan plan content requirements (version 2.1), a list of comprehensive or land use plans adopted for each LGU is required. Consider adding a table with this information on page F10. See below for the exact language from the plan content requirements.		X		**Yes**	Revised as suggested- a table was generated listing all Comprhenive Land Use and Water Management Plans within the watershed.
F	General	cont				cont: Comprehensive or land use plans: List the date of the last Comprehensive Plan adoption for each LGU. Describe the land use authorities within the watershed as well as potential opportunities to achieve goals through, or potential conflicts with, comprehensive land use plans."		X		**Yes**	Continued from above.
F	F2	2	For the purposes…	BWSR	JB	Page F2 – Please update the last three sentences of the first paragraph under the heading Cost-Share Program to be consistent with BWSR requirements as outlined in the Grants Administration Manual. Consider the following language:		X		**Yes**	Revised as suggested with additional language.
F	F2	cont	cont	BWSR	JB	(cont.)At times, on-site inspections and maintenance may be needed or required to allow structural and non-structural practices to continue to function as intended. BWSR's recommended inspection plans, according to the Grants Administration Manual (GAM), should verify that all components of the practice, including upland protection or contributing watershed treatment, remain in place and are in good repair, identify repairs necessary in accordance with the operation and maintenance plan, and identify further assessment or action needed if necessary repairs are beyond the scope of the operation and maintenance plan. Site inspections are generally required to be completed at a minimum of one year after completion, then at 33 percent and 66 percent intervals, and at the next to last year of the effective life of the project. However, the frequency of actual inspections should be specific to the site, project installed, and findings on previous inspections. In addition, inspections should be performed on a case-by-case basis, such as after storms producing unusually heavy runoff or possibly if property ownership changes.		X		**Yes**	Continued from above.
F	F2	1	"Cost-share programs…"	BWSR	JB	Under the heading Cost-Share Programs, in the first paragraph, please change "financial incentive" to "financial assistance".		X		**Yes**	Revised as suggested.
F	F5	n/a	n/a	BWSR	JB	Research and Monitoring Program. Recommend adding a map that shows the location of all the continuous monitoring sites.	X			**Partial**	Comment received with thanks. The decision was made to not include this map, as these sites are documented in the WRAPS documents, which will be updated at least once during the lifetime of this plan. A reference will be added to this document in the plan.
G	G4			BWSR	JB	Breakdown estimated annual average to separate local from state and federal in table G1 and clarify if the amount listed has already been adjusted to reflect the % of the LGU in the planning area and clarify in appendix F.	X			**Yes**	Revised as suggested.
G	G7	2		BWSR	JB	Recommend adjusting the "State Funding Request" heading to also apply to other collaborative funding opportunities and add a sentence in the paragraph to support replication of the WBIF funding request process for other state and non-state funding opportunities	X			**Yes**	Revised as suggsted.

G	G8	3	"The advisory…"	BWSR	JB	Last sentence of the last paragraph under “Reporting” says MOA Bylaws. Please update to refence the Joint Powers Collaboration Bylaws.		X		**Yes**	Revised as suggsted.
G	G3	Collaboration with other Units of Government.		MDA	RL	Please remove (MDA) from behind the “Farm Bill Biologist” and replace with Pheasants Forever. MDA does not have any Farm Bill Biologists.		X		**Yes**	Revised as suggested.
G	G6	Program/Grant		MDA	RL	MDA – Nutrient Management Initiative. Please include an indicator dot under the Education & Outreach column.		X		**Yes**	Revised as suggested.
General	E-1, G-8	Table		BWSR	JB	The funding level table on page E-1 assumes current funding will remain stable. Will the local government units (LGU) self-report an audit to the partnership to ensure that this is taking place? BWSR suggests a sentence encouraging the LGUs do this as part of the five-year evaluation on page G8 under the heading “Five-year Evaluation”.	X			**Yes**	Revised as suggested. Sentence added to page G8 to indicate that an assessment of local contributions will occur during the five-year evaluation.
General	n/a	n/a		BWSR	JB	The planning partners should be commended for acknowledging the benefits that could arise from an inter-state partnership with South Dakota while remaining focused on implementation efforts that benefit Minnesota’s natural resources with Minnesota specific measurable goals.			X	**No**	Comment noted for implementation with thanks.
General	i			BWSR	JB	Add Conservation Reserve Program to the list of Abbreviations.	X			**Yes**	Revised as suggested.
General				MDA	RL	The MDA maintains a variety of water quality programs including research, demonstration, as well as ground and surface water monitoring. Our goal is to provide you with the data to help address resource concerns and further engage the agricultural community in watershed implementation efforts. Please refer to the MDA’s priority concerns letter for more information on MDA’s water quality, research, and on-farm programs that may be of assistance in the future.			X	**No**	Comment noted for implementation with thanks.
General				MPCA	KPS	The MPCA appreciates that education and outreach are included in the Plan. The MPCA suggests that tasks focusing on education and outreach be targeted to priority areas to coincide with reaching priority goals.	X			**Partial**	Thank you for the comment. We have added clarifying language in the table caption to contextualize the educational outreach events. We plan to have widespread educational events, but make sure that outreach occurs in priority areas. We added language that indicates the importance of being able to educate throughout the watershed, while also educating for targeted actions.

General				MPCA	KPS	The MPCA acknowledges the use of MPCA's Stream Habitat Assessment (MSHA) score for a measurable goal of improving habitat. The MPCA develops MSHA scores when completing biological monitoring for the purpose of assessing water quality and developing biological criteria. During the life of this Plan, MSHA scores will be completed in 2026 and 2027 at select monitoring sites. More information about MSHA protocols for stream monitoring sites can be found on the MPCA website at https://www.pca.state.mn.us/sites/default/files/wq-bsm3-02.pdf.			X	**No**	Comment noted for implementation with thanks.
General				DNR	SR	Hydrology in the planning area has been substantially altered by diverse factors—namely changes in climate, land cover, and land use—in ways that markedly affect the quantity and quality of water moving across the landscape. The DNR priority issues letter, dated 5/20/2021, identified the primary drivers of these changes and opportunities to address adverse impacts now and in the future. Principal among our recommendations was to increase water storage and attenuate the flow of water on the landscape by implementing a combination of: soil health practices for croplands; working lands and prairie restoration initiatives to increase perennial vegetation coverage, especially native species; stream restoration and culvert modification projects to enhance lateral (floodplain) and longitudinal (upstream-downstream) connectivity, reducing stream bed and bank erosion and increasing connectivity for fish and wildlife passage; and water storage practices that mitigate increased flows of from agricultural drainage projects—particularly public drainage system improvements.			X	**No**	Comment noted for implementation with thanks.
General				DNR	SR	(cont) In a planning area where few assessed waters fully support water quality goals, it is imperative to vigorously pursue opportunities to restore lands and waters and strengthen resiliency of the watershed in the face of a changing climate that will likely exacerbate existing water quality impairments.				**No**	Continued from above.
General				DNR	SR	Abundant opportunities exist across the planning area to protect and restore lands and waters, and the draft plan identifies many of the key issues necessary to address existing impairments and increase watershed-scale resiliency. The watershed is largely dominated by corn and soybeans at present, and facilitating broad implementation of soil health practices is rightfully a key objective of the draft plan, as is preserving and increasing lands with continuous vegetation coverage; both have vast potential to substantially enhance soil infiltration and water holding capacity, storing precipitation where it falls and benefitting groundwater recharge.			X	**No**	Comment noted for implementation with thanks.
General				DNR	SR	Storing water is integral to remediating existing and preventing future water quality impairments, while also reduce flooding. The draft plan includes quantitative short-term and long-term goals to support water storage. The DNR highly encourages prioritizing water storage efforts that leverage natural features and processes and accrue benefits not only to water quantity and quality, but also to aquatic and terrestrial ecosystems, fish and wildlife species, and public and private infrastructure and property. Temporary storage via channels with well-connected floodplains and restored wetlands for long-term retention are preferred methods to achieve those objectives, especially when located in the upper part of the watershed. The proposed Lac qui Parle River and Florida Creek restorations—both of which have broad support among public and private stakeholders—are prime examples of such multi-benefit projects, and the DNR appreciates their inclusion in the draft plan's capital improvement section.			X	**No**	Comment noted for implementation with thanks.

General				DNR	SR	The removal and/or modification of road-stream crossing structures that restrict longitudinal connectivity—perched and hydraulically-undersized culverts, in particular—in the Lazarus Creek drainage and other locations throughout the watershed (e.g., West Branch Lac qui Parle River) is a key element of the draft plan that would increase fish and wildlife access to critical habitat while reducing negative impacts to adjacent infrastructure and property. The DNR strongly supports efforts to maintain and improve longitudinal connectivity for aquatic organisms while maximizing water storage benefits for existing and prospective dam/impoundment and retention projects, particularly those sited on perennial or intermittent watercourses and designated trout streams and tributaries.			X	**No**	Comment noted for implementation with thanks.
General				DNR	SR	In a planning area where the overwhelming majority of water quality pollutants are from non-point sources, numerous issues and goals in the draft plan correctly state that most impairments are driven by excess runoff. The plan is mostly tacit, however, with respect to a substantial subset of projects that directly increase and often expedite the flow water off the landscape: agricultural drainage—including the public drainage system network and private ditches and tiles. A key need in the draft plan is to include more targeted strategies to specifically address the impact of agricultural drainage on impaired waters. Maintaining the status quo regarding agricultural drainage without due consideration for vital water quantity and quality mitigation will not help improve impairments of aquatic life and/or recreation that exist for nearly all fully assessed waters in the planning area. We ask that the county drainage authority and watershed district, as regulators, work to ensure that agricultural drainage projects mitigate increased flows by implementing beneficial water storage practices.			X	**Partial**	Thank you for the comment. Lanaguage will be added above the Education Table in Section E to address partially address this comment. There are opportunities for conservation projects that would make progress towards the goals of this plan alongside adequate draiange for working lands. However, this plan is not desiged to address the intracaceys of drainage law.
General				DNR	SR	Within sub-watersheds that contain extensive public drainage infrastructure and interconnected private drainage systems, abundant opportunities exist to reduce high flows and store water. Completing a multipurpose drainage management plan—similar to the enclosed plan for Martin County—in advance of prospective public drainage system repair or improvement projects can help target specific practices that could be implemented by individual landowners to reduce water quantity and benefit water quality while facilitating drainage. Numerous provisions of public drainage law (MN Statutes Chapter 103E) require drainage authorities to investigate and collaborate with benefitted landowners to implement measures that achieve multipurpose water management—including preferred mechanisms like wetland and perennial vegetation restoration, riparian buffers and grassed waterways, and in-field soil health practices. In addition to 1W1P funding, the DNR highly recommends that the local partners solicit money for such practices from BWSR grant and cost-share programs such as the Clean Water (Multipurpose Drainage Management, Projects and Practices) and General (Erosion Control and Water Management) funds.	X			**No**	Thank you for this comment. Language for this is already included in Section F of the plan.
E			Describe Cover Crops		Public Comment Hearing	Request a description of how Cover Crops can operate. Suggestion "Cover crops will be implmented in a manner that is agronomically sound while providing environmental benefits, consistent with best available science".	x			**Yes**	Revised as suggested in section D (page D-7)
A	A-12		table A-4		Public Comment Hearing	Add "S" at the end of resources		x		**Yes**	Revised as suggested
G	G-8		Bullets for amendments		Public Comment Hearing	Add bullet "emerging practices and technology"	x			**Yes**	Revised as suggested