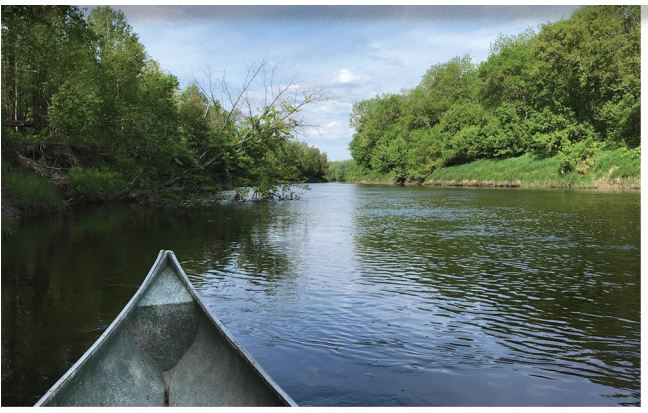
CLEAN WATER LAND & LEGACY AMENDMENT

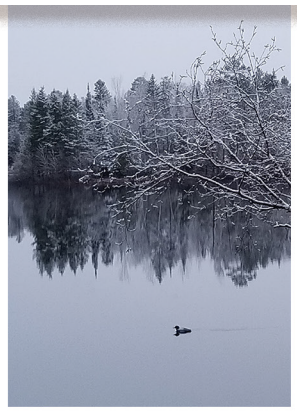
Little Fork

COMPREHENSIVE WATERSHED MANAGEMENT PLAN

Formal Review Draft

2027 - 2037





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Little Fork
COMPREHENSIVE WATERSHED MANAGEMENT PLAN

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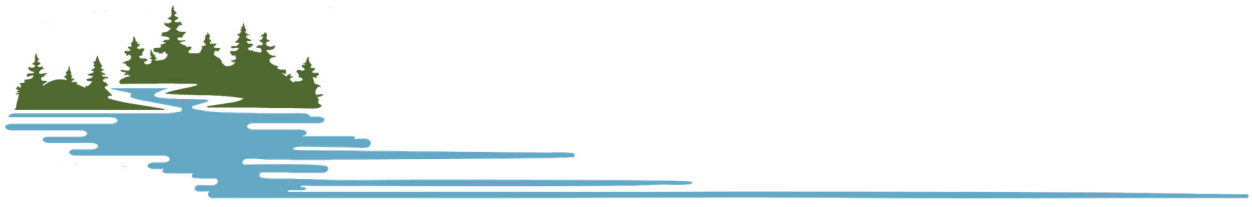
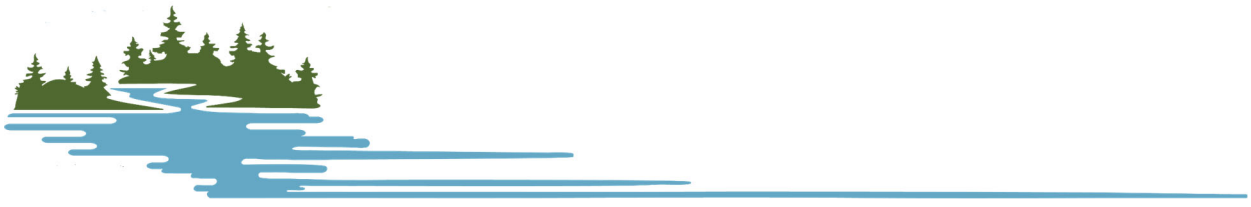


Acronyms

1W1P	One Watershed, One Plan
AIS	Aquatic Invasive Species
BMP	Best Management Practice
BWSR	Board of Water and Soil Resources
CO2	Carbon Dioxide
CRP	Conservation Reserve Program
CWMP	Comprehensive Watershed Management Plan
DNR	Minnesota Department of Natural Resources
DWSMA	Drinking Water Supply Management Area
E. coli	Escherichia coli
EAB	Emerald Ash Borer
ELB	Eastern Larch Beetle
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FEMA	Federal Emergency Management Agency
FMG	Forest Management Guidelines
FSA	Farm Service Agency
HHW	Household Hazardous Waste
LFRW	Little Fork River Watershed
LGU	Local Government Unit
LSP	Landscape Stewardship Plan
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MFRC	Minnesota Forest Resources Council
MnDOT	Minnesota Department of Transportation
MOA	Memorandum of Agreement
MPCA	Minnesota Pollution Control Agency
MS4	Municipal Separate Storm Sewer System
MWRA	Minnesota Rural Water Association
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PFAS	Per- and polyfluorinated substances
RIM	Reinvest in Minnesota
SFIA	Sustainable Forest Incentive Act
SNA	Scientific and Natural Area
SSTS	Subsurface Sewage Treatment Systems
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy

TSS	Total Suspended Solids
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WBIF	Watershed-Based Implementation Funding
WCA	Wetland Conservation Act
WCD	Watershed Conservation District
WMA	Wildlife Management Areas
WPLMN	Watershed Pollutant Load Monitoring Network
WRAPS	Watershed Restoration Project Strategy



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Section 1.
Executive Summary

Watershed Overview

The Little Fork River Watershed (LFRW), located in Northern Minnesota, is a unique watershed located along the southern edge of the Rainy-Lake of the Woods basin (**Figure 1.1**). The watershed borders the Mesabi iron range in the south and flows into the Rainy River along the Canadian border near International Falls. The watershed drains close to 1.2 million acres, although the watershed is sparsely populated, with only two cities with more than 500 residents.

The LFRW has many important resources: wetlands, peatlands, lakes, and streams which are all valuable to the residents and wildlife of the watershed. The resources provide habitat for wildlife as well as recreation and economic resources for its citizens. The LFRW also has several wild rice waterbodies, an important cultural resource for the Bois Forte Band of Chippewa. The watershed is largely covered by peatlands in the north, while the southern portion of the watershed is characterized with rolling topography and is dotted by lakes.

The LFRW is located in three counties: Koochiching (39%), St. Louis (48%), and Itasca (12%). This document outlines the efforts of all three counties, working together, to implement a 10-year comprehensive watershed management plan (CWMP) as a part of the Board of Soil & Water Resources (BWSR)'s One Watershed, One Plan (1W1P) program for the LFRW. The 1W1P aims to create smart resource management by developing resource management plans along watershed boundaries, not political ones. In addition, this plan will also lay the ground work for collaboration with other neighboring watersheds, such as the Big Fork River Watershed, the Rainy River-Rainy Lake/Lower Rainy River Watershed, the Rainy-Headwaters Vermilion River Watershed, the Upper Mississippi-Grand Rapids Watershed, and the St. Louis River Watershed.

Credit: Sam Sayeed

The Little Fork River Watershed:

Forests and waters sustaining healthy Northwoods communities.

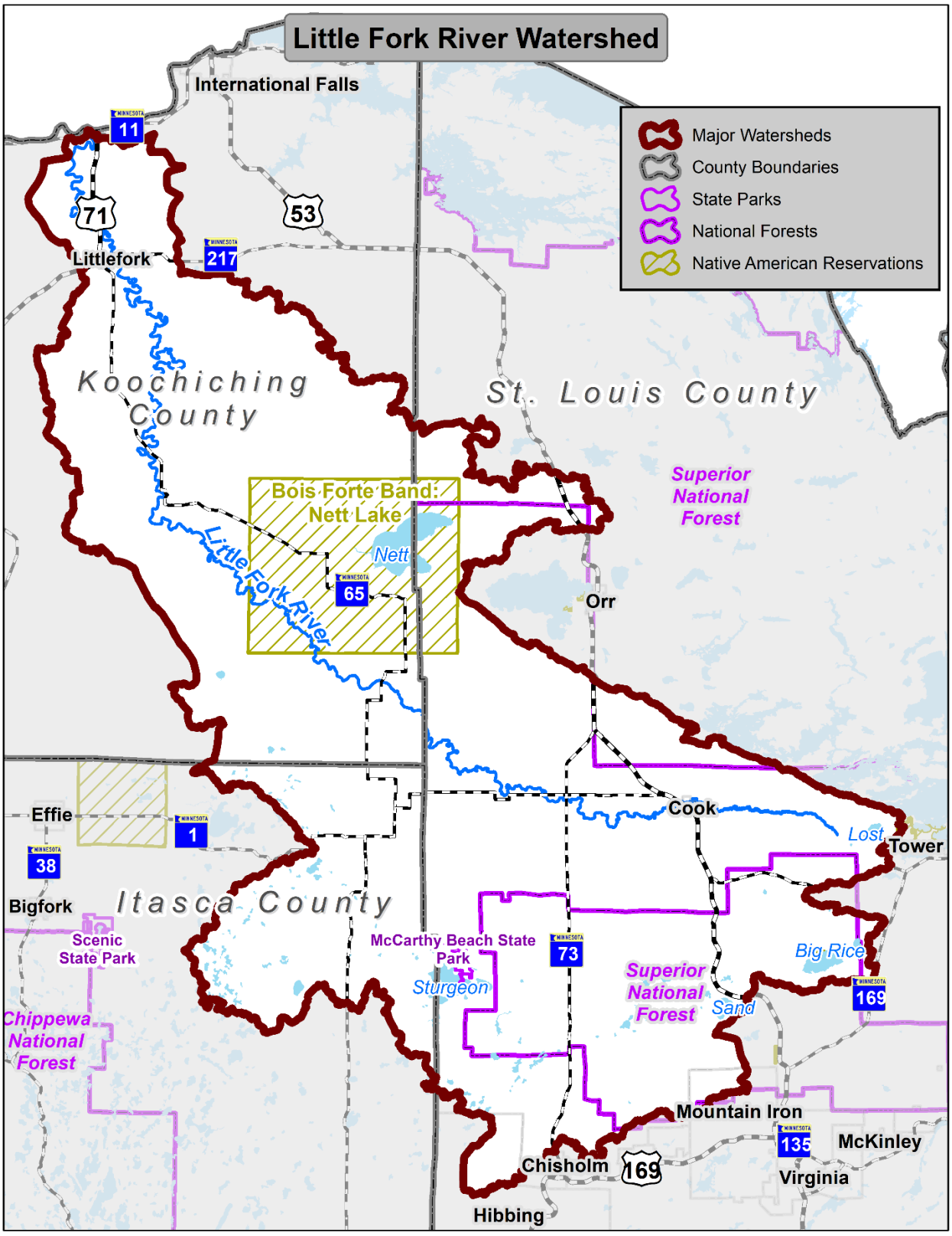


Figure 1.1 Location of the LFRW in Itasca, Koochiching, and St. Louis Counties.

Roles and Responsibilities

During the planning process, three committees worked to develop the sections of this plan. Each committee operated independently, with varying expertise that helped shape the decisions, content, and scope of this document.

Figure 1.2 The three committees responsible for planning the LFRW CWMP.

The Steering Committee facilitated the planning process, produced much of the plan content, and developed the details for implementation options and best management practices (BMPs). The Steering Committee is the core group responsible for tracking, administrating, and implementing the plan and consists mostly of staff members from the counties and SWCDs (**Figure 1.2**).

A representative from each governmental unit was appointed by each county and Soil and Water Conservation District (SWCD) board to serve on the Policy Committee, which is the decision-making body for this plan. The plan content was shaped by the Advisory Committee, which consisted of the counties and SWCDs in the watershed, State Agencies, Federal Agencies, local stakeholders, and other experts. A full list of representatives of the three committees can be found in the Acknowledgements of this plan.

Identifying and Prioritizing Issues

The first step in the LFRW CWMP planning process was defining the most pressing issues facing natural resources in the watershed (**Figure 1.3**). An "issue" is a risk, problem, or opportunity in the LFRW that can impact any resource (e.g., lake or stream). Resources provide habitat, food, recreation, drinking water, refuge, or a variety of other uses for the people, residents, or wildlife in the LFRW. The process for identifying and prioritizing issues is shown below in **Figure 1.3.**

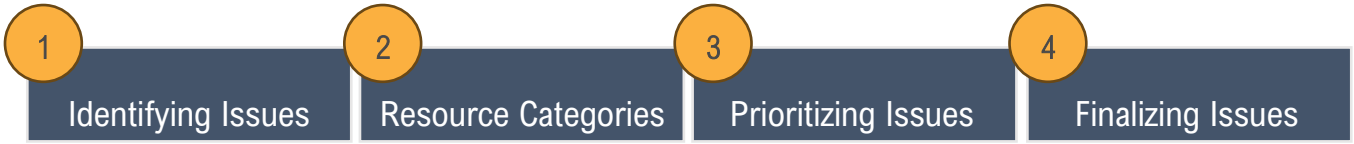


Figure 1.3 Identifying and prioritizing issues for the LFRW CWMP.

To identify known issues in the LFRW, a comprehensive list of issues which impact all resources in the watershed was generated by conducting a review of existing documents authored by local experts and state agencies, as well as analysis of available data. These came from a variety of sources: existing local plans such as county comprehensive water management plans; Minnesota Pollution Control Agency (MPCA) reports such as the Little Fork River Watershed Restoration Project Strategy (WRAPS); Minnesota Department of Natural Resources (DNR) reports such as the Little Fork River Watershed Context Report; comment letters from state

agencies that were requested at the start of the planning process; scholarly papers published related to the LFRW; and any other local knowledge from members on the planning committees for this plan. During this process, common themes for the issues were formed based on how issues impact specific resources. Thus, "resource categories" were created to sort and organize identified issues most important to the wildlife and citizens of the LFRW (**Table 1.1**). These were deemed the most pressing resources in the LFRW that could be adequately addressed through this planning process.

Table 1.1 Resource categories for the LFRW CWMP.

Resource Categories						
						
Groundwater	Stormwater	Farms	Lakes	Wetlands	Forests	Streams

This resource categories listed above were grouped to create four separate "topic meetings", attended by members of the Advisory Committee and other technical experts with a strong background in each topic to ensure that the CWMP adequately addresses the most important local concerns. The four topic meeting categories were Lakes & Streams, Forests & Wetlands, Farms & Groundwater, and Urban Stormwater & Drainage. The goal of these meetings was to brainstorm issues related to each resource category or topic in the LFRW. From these meetings, a set of issues were refined and finalized by the Steering Committee (**Table 1.2**).

Table 1.2 Issue statements for the LFRW CWMP.

Resource(s)	Issue Statement
	**Eroding gullies and streambanks** contribute to turbidity and TSS impairments and reduced habitat quality.
	**Altered hydrology** from culverts, ditching, and channelization has impacted stream flow and aquatic habitat.
	**Flooding** along rivers can threaten economic and natural resources.
	**Nutrients** have the potential to decrease water quality and impact aquatic recreation and aquatic life.
	**Wild rice health** faces risks from development, climate, pollution, and invasive species.
	**Lakeshore alteration** impacts water quality and shoreland habitat.
	Managing **forest health** is vital to sustaining economic, ecological, and recreational benefits.

Resource(s)	Issue Statement
	**Forest protection** prevents conversion, and safeguards sensitive species, water quality, and habitat.
	**Forest and recreational infrastructure** affect hydrology, runoff, and erosion.
	**Wetland and peatland health** is impacted by invasive species, climate, ditching, and wildfire effects.
	**Groundwater** quality and sustainability need assessment and protection.
	**Agricultural runoff and livestock access** increases erosion, nutrients, sediment, and bacteria in streams and groundwater.
	**Stormwater runoff** in developed areas contributes pollutants to streams and lakes.

Measurable Goals

Following issue development, measurable goals were then established (**Table 1.3**). These goals aimed to directly address either one or multiple issues. These goals set quantitative, measurable progress that the plan works towards over its lifespan. For the LFRW plan, both short-term and long-term goals were established. Short-term goals are the aim of the 10-year implementation period. Long-term goals refer to an ideal long-term condition for the watershed and will take longer than the 10-year implementation period. Priority areas were also established for each goal, based on relevant data and local expertise. Maps for these priority areas can be found in Section 4. **Table 1.3**, below, lists the goals for this plan, as well as the issues addressed by each goal, the short-term measurable goal, and the long-term goal or desired condition.

Table 1.3 Short-term and long-term goals for the LFRW CWMP.

Goal Name	Issues Addressed	Short-Term Goal	Long-Term Goal
Agricultural Land Management	Nutrients, Agricultural Runoff	• 830 acres of agricultural BMPs (5% of all crop and pasture acres in the watershed)	• 1,653 acres of agricultural BMPs (10% of all crop and pasture acres in the watershed)
Hydraulic Connectivity & Storage	Flooding, Wetland and Peatland Health, Altered Hydrology	• 6 projects to enhance stream connectivity • Maintain wetlands and peatlands	• No net change in discharge
Erosion Management	Lakeshore Alteration, Eroding Gullies and Streambanks	• 1 feasibility study for sediment reduction & • 2,000 feet of shoreline stabilization	• Understand and prioritize projects

Goal Name	Issues Addressed	Short-Term Goal	Long-Term Goal
Forest Management	Forest Health, Forest and Recreation Infrastructure	• Protect 1,000 acres (5%) & 10,000 acres in plans (10% of LSP long-term goals)	• Protect 19,592 acres & 99,391 acres in plans (100% of LSP long-term goals)
Drinking Water Protection	Groundwater	• 10 wells sealed • 100 septic systems replaced	• All priority wells sealed • All failing septic systems replaced
Stormwater Management	Stormwater Runoff, Nutrients	• Cook and Littlefork stormwater plans • 4 stormwater projects	• All communities have stormwater management plans and prioritized project list

Plan Implementation

To complete plan implementation, a set of actions associated with each goal were developed. These actions help to either directly address the goals (e.g., replacing failing septic systems) or indirectly (e.g., screening private wells for contamination).

Each goal also is associated with funding levels. There are three funding levels for the LFRW, shown in **Table 1.4** below. All funding levels are utilized for plan implementation, with each action connected to one or more funding levels. The three funding levels are:

- Base: this is current baseline funding. This is funding that the local government units (LGUs) currently receive through state and county allocations and competitive grant applications. This is what is already spent on conservation implementation in the LFRW.
- WBIF: this is Watershed Based Implementation Funding (WBIF). WBIF is allocation-based funding available to the partnership after the plan is adopted. It is funded by the Minnesota Clean Water Land and Legacy Amendment.
- Other: this is other funding. This is funding from partners and other funding programs such as Lessard Sams Outdoor Heritage Fund, 319 Funds, and any other additional federal funds.

Table 1.4 Funding levels for the LFRW CWMP.

Funding Levels	Abbreviations	Description	10-Year Total
Baseline Funding	Base	• Current Baseline Funding	$5,000,000
Funding Needed to Fully Implement This Plan	Base + WBIF + Additional Funding	• Current Baseline Funding & • 2025-2026 WBIF Allocation & • *An additional funding of $275,000/year needed*	$13,900,000
Other	Other	• Other Funding (i.e. Lessard Sams, DNR, NRCS, SFIA, USFS, USFWS, LSOHF, MPCA, etc.)	$7,237,268

Each action is also associated with one of the implementation programs shown in **Figure 1.4,** which are balanced based on the needs of the LFRW. The implementation of this plan will require coordinating between watershed partners and multiple funding sources. Implementation requires balance between planned

landscape management ("Manage It"), constructed environmental enhancements ("Fix It"), protected lands maintenance ("Keep It"), and Data Collect and Outreach ("Know It"). "Know It" holds up the other three implementation programs, while "Manage It" is the most common program, due to the good condition of resources in the LFRW.

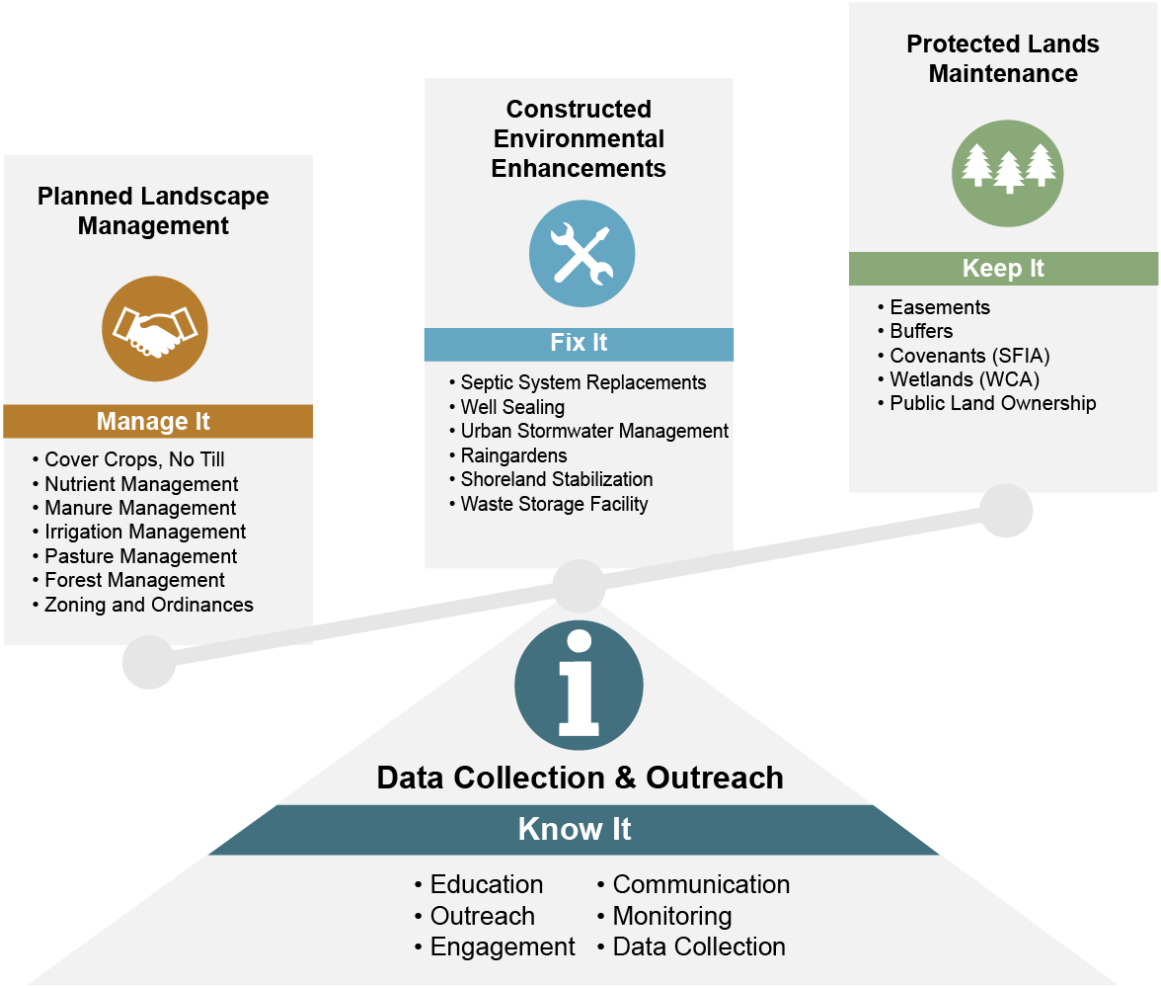


Figure 1.4 Implementation programs for the LFRW CWMP.

Plan Coordination

The LFRW Partnership is a collaboration between the three counties, their SWCDs (North St. Louis SWCD for St. Louis County), and the municipalities of Littlefork and Cook (**Figure 1.5**). These entities entered a Memorandum of Agreement (MOA) for purposes of drafting this plan and upon plan approval, these entities entered into a formal agreement to implement the plan. There are other local collaborators as well including the Bois Forte Band of Chippewa, an important partner for plan implementation.

The entities will enter into a new memorandum of agreement to implement the plan. The Policy Committee is advisory to the individual county and SWCD boards under the umbrella of the MOA.

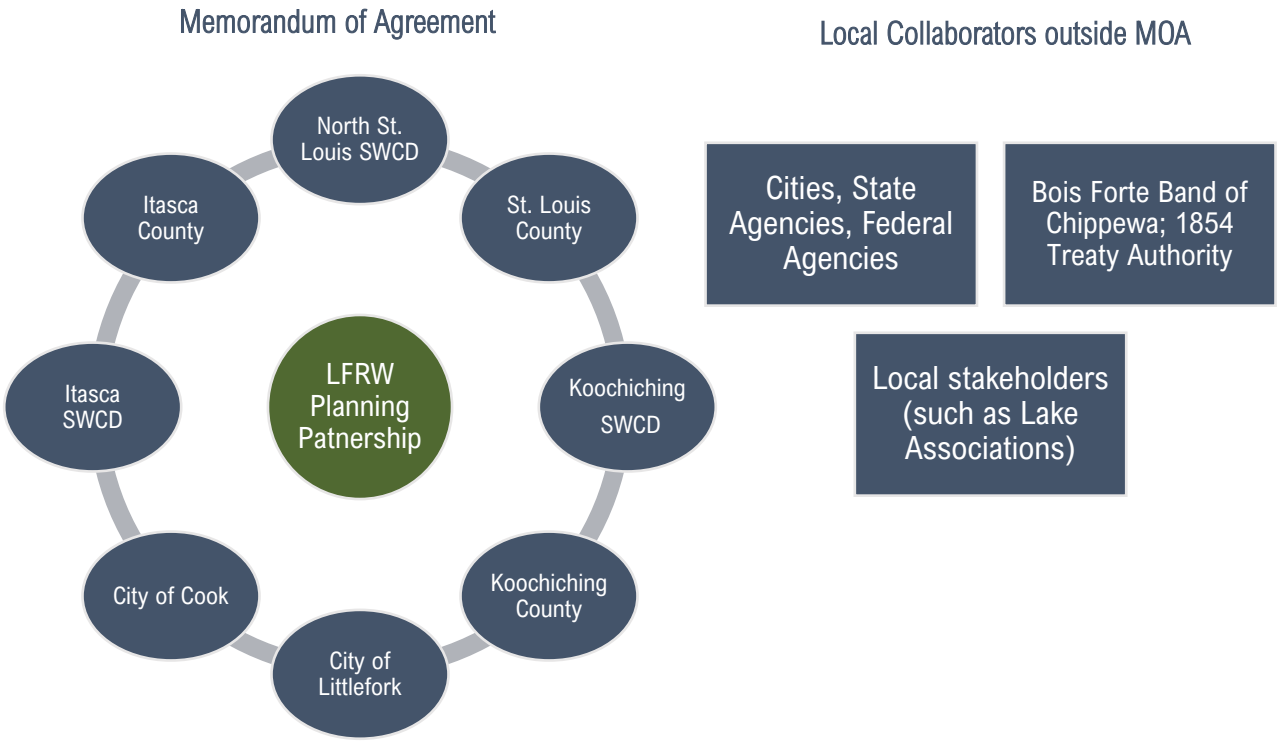


Figure 1.5 MOA partners and local collaborators for the LFRW CWMP.

Section 2.
Land and Water Resources Narrative

Introduction

Located in remote northern Minnesota is the sparsely populated LFRW. The LFRW drains 1,843 square miles (1,179,520 acres) (MPCA, 2017b). The confluence with the Rainy River is about 160 miles from the headwaters and 11 miles west of International Falls. The Little Fork River begins in the north-central portion of St. Louis County near the town of Cook (MPCA, 2017a).

The watershed consists of three counties: St. Louis County (48%), Koochiching County (39%), and Itasca County (12%) (DNR, 2015). There are no large cities within LFRW; the largest towns are Littlefork (population of 553) and Cook (population of 526; US Census Bureau, 2020a, b) (**Figure 2.1**).

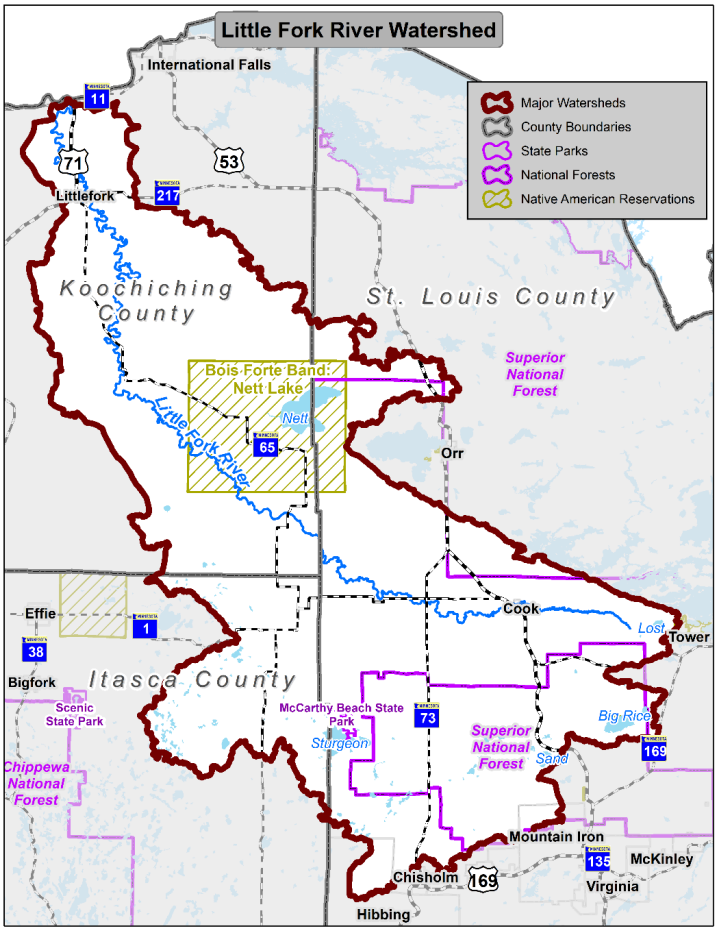


Figure 2.1. Little Fork River Watershed.

Waters in the LFRW are important for recreation such as canoeing and swimming, but they are also important for sustaining life with fishing, hunting, and wild rice harvesting. The Bois Forte Reservation is located within the watershed and contains Nett Lake, the world's largest wild rice lake (MPCA, 2021). Many of the shallow wild rice lakes throughout the watershed are known for their lower transparencies due to natural bog staining originating from the wetland-dominated watershed (MPCA, 2010). Another significant resource for all citizens of the watershed, including Tribal groups, is sturgeon. Sturgeon are an economical and cultural species. Its conservation in northern Minnesota following overfishing in the 1800s is a conservation success in the region.

Nett Lake sector is said to be the largest producer of wild rice in the United States.

Human History

The oldest known settlement in Little Fork Valley is the Nett Lake Village on Nett Lake Indian Reservation, inhabited as early as 600 B.C by the Chippewa (MPCA, 2006). The Bois Forte Band of Chippewa consists of three sectors: Nett Lake, Vermilion, and Deer Creek. The Nett Lake sector is the home to the majority of the Band members and primary government offices (Bois Forte Band of Chippewa, 2025). European/American settlers moved into the area in the 17th century. The region of Nett Lake was established in the 1866 treaty.

Pre-settlement vegetation of the LFRW consisted of mixed conifers and hardwoods such as jack pine, Norway pine, white pine, black spruce, poplar, maple, elm, and oak (MPCA, 2006). Intensive logging started in the 1890s and continued until 1937. During this time, expansive stands of pine and pulp-wood were logged. The Little Fork River served as a means to transport the harvested logs to the Rainy River. Due to the booming forestry industry, a European settlement, Littlefork, began in 1901 (MPCA, 2006).

The Little Fork River served as a means to transport harvested logs to the Rainy River.

Trapping, a historically significant economic driver in Minnesota, caused the collapse of beaver populations in the region between 1600-1900. Today, reduced trapping has caused partial recovery of this population. In northern Minnesota, beavers help protect water quality and ecosystem stability (Johnson-Bice et al., 2021).

Today, forest products, harvesting, and manufacturing are the main industries in the LFRW. Farming does occur in the lower portions of the watershed, but it consists mainly of pastureland. With large amounts of public, state, and federal land, tourism has also become a big industry.

Men rolling logs into the river near Littlefork, MN, 1937

Ricing on Nett Lake, 1946, MN Historical Society

Topography, Soils and Geology

Similarly to the rest of Minnesota, the LFRW was shaped by glacial activity. Most recently, melt water from the Wisconsin glaciation formed glacial Lake Agassiz, which existed for nearly 4,500 years. Heavy clay deposits from Glacial Lake Agassiz can be found along the mainstem channel below more recent fluvial sediment.

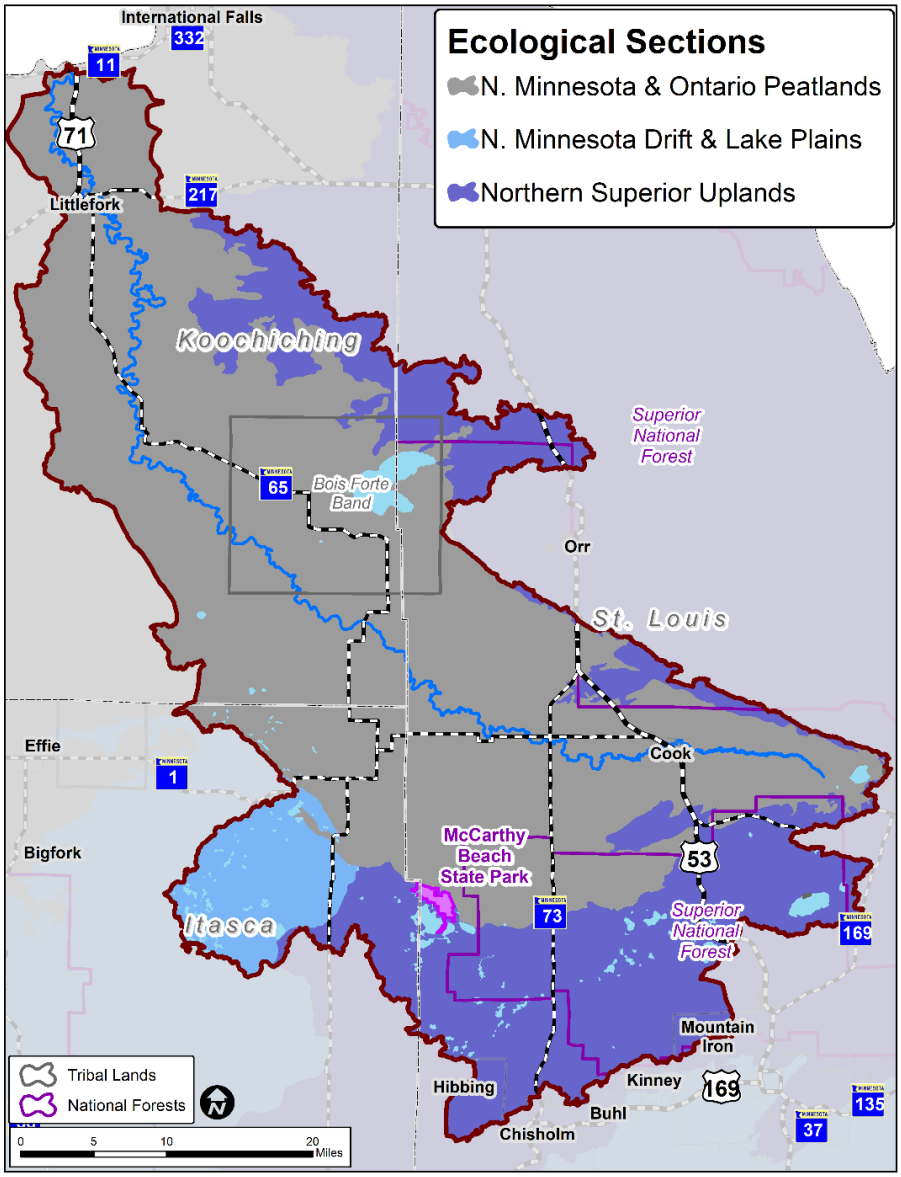


Figure 2.2. LFRW Ecological Sections

Topography varies from the northwest flat big bog area in the Northern Minnesota and Ontario Peatlands to the rolling topography of the Northern Superior uplands in the southeast part of the watershed (**Figure 2.2**). Soil types range from peat over clay at the headwaters to glacial till and ledge rock to silty clay downstream of the town of Littlefork. The entire watershed consists of highly erodible types of soil structures. The heavy clay deposits below the fluvial sediments can affect slope and bank stability and infiltrating groundwater can pool and create failure planes. From the Little Fork River headwaters in Lost Lake, to the mouth at the Rainy River, the elevation drops 300 feet, giving a two foot per mile drop between the towns of Cook and Littlefork (MPCA, 2006).

The historic extent of Lake Agassiz is shown in the Northern Minnesota and Ontario Peatlands (grey) in Figure 2.2.

Climate

The LFRW receives on average 27.3 inches of precipitation annually (30-year normal, 1995-2024) (DNR, 2025). The LFRW currently receives on average an additional 0.4 inches of rain in the fall between September and November, while overall precipitation declines during the summer months (MPCA, 2021). The climate in LFRW is changing: there has been an increase in annual precipitation with fewer but larger rainfall events. More intense storms result in increased flows while fewer storms are increasing the frequency of seasonal droughts (MPCA, 2017b).

Since 1990, annual total precipitation has increased a quarter inch per decade (DNR).

Land Uses

Wetlands and forest dominate the LFRW. The majority (93-98%) of pre-settlement wetlands in St. Louis and Koochiching counties remain today (MPCA, 2006). Almost half of the watershed is classified as wetlands and peatlands (**Figure 2.3**). Another 37% is forest, which is made up of 18% deciduous forest, 13% mixed forest, and 6% evergreen forest (DNR, 2017). The peatlands are predominantly in the northern portion of the watershed while the evergreen and deciduous forests are more common in the central and southern portion of the watershed (**Figure 2.4**).

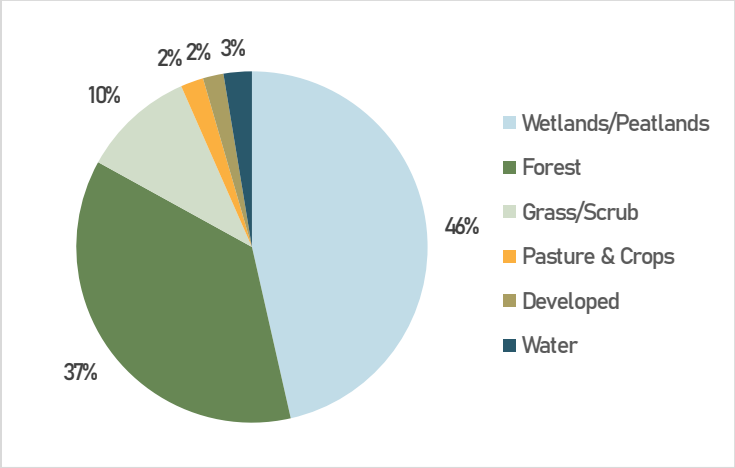


Figure 2.3. Current land cover in the LFRW.

Peatlands are different than depressional wetlands in that they are at higher elevations and slowly release water to stream channels. They consist of partially decayed vegetation, organic matter, and sphagnum moss. Peatlands are known for their inefficiency at moving water. They are ecologically unique for fish, bird, and wildlife habitat, water storage, and carbon storage. However, they are considered unproductive economically. The LFRW lies within one of the largest continuous boreal peatlands in the contiguous United States. The Little Fork River flows through the bed of glacial Lake Agassiz. Glacial lake plains are ideal environments for peat formation (Severson, et. Al, 1980; **Figure 2.2**).

LFRW lies within one of the largest continuous boreal peatlands in the contiguous United States.

Only 2.1% of the land is agriculture: 1.6% of land is pasture/hay and 0.5% is cultivated crops. The most common crops are other hay/non alfalfa, alfalfa, and less commonly soybeans, clover/wildflowers and spring wheat (CSISS, 2025).

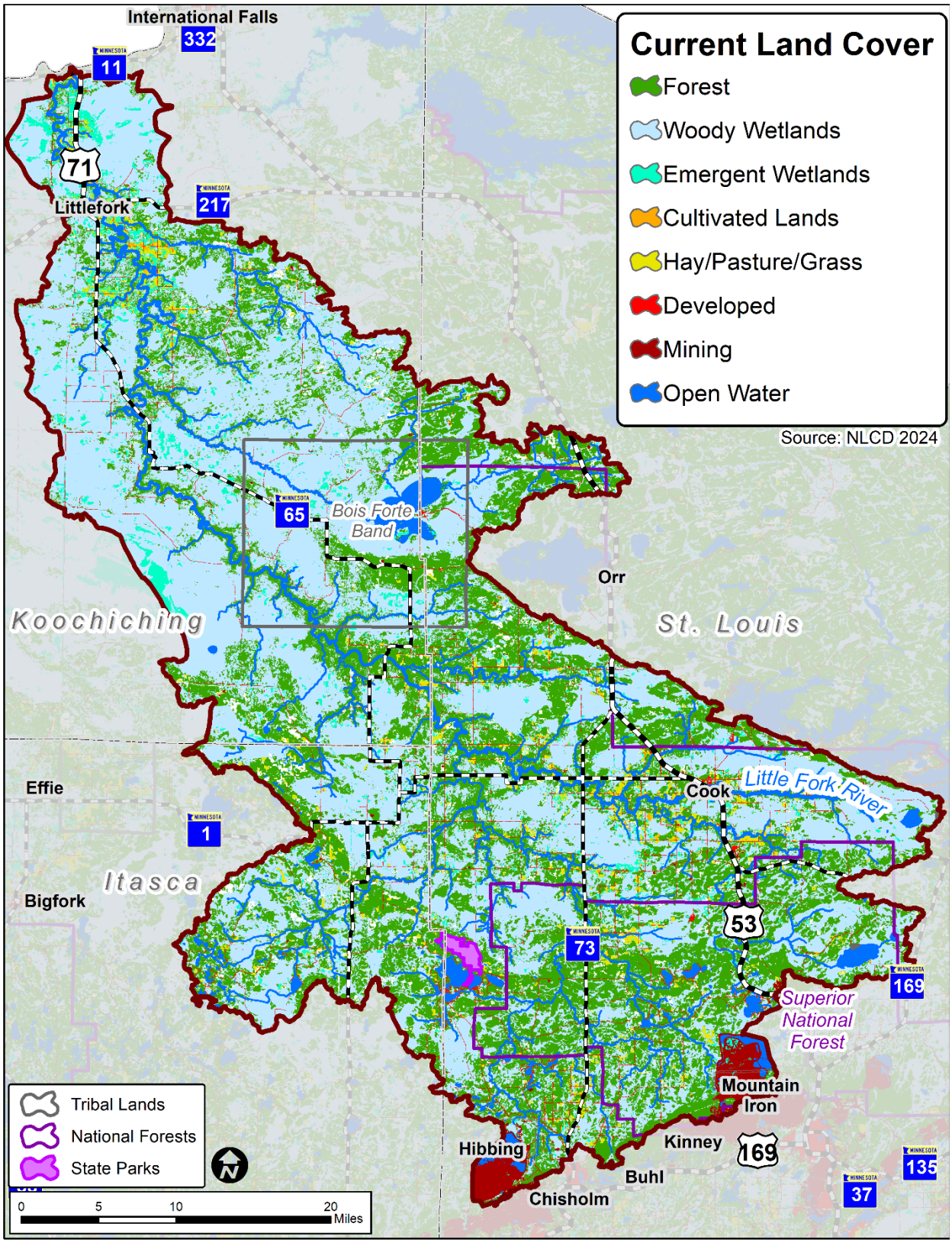


Figure 2.4. Current land cover in the LFRW (NLCD, 2024).

Water Resources

Rivers and Streams

The Little Fork River begins in the lowlands near Lost Lake and travels 160 miles to the north, draining 1,843 square miles. The Little Fork River flows through an area known as the "big bog" in northern Minnesota before the confluence with the Rainy River (MPCA, 2006). While most of the water courses are natural (79%), 11.0% of the water courses within the LFRW have been altered (DNR, 2017).

Water quality in the watershed is generally good with few pollutants due to low development and agricultural use. Some stream reaches are exceptional, supporting trout and wild rice (Figure 2.5).

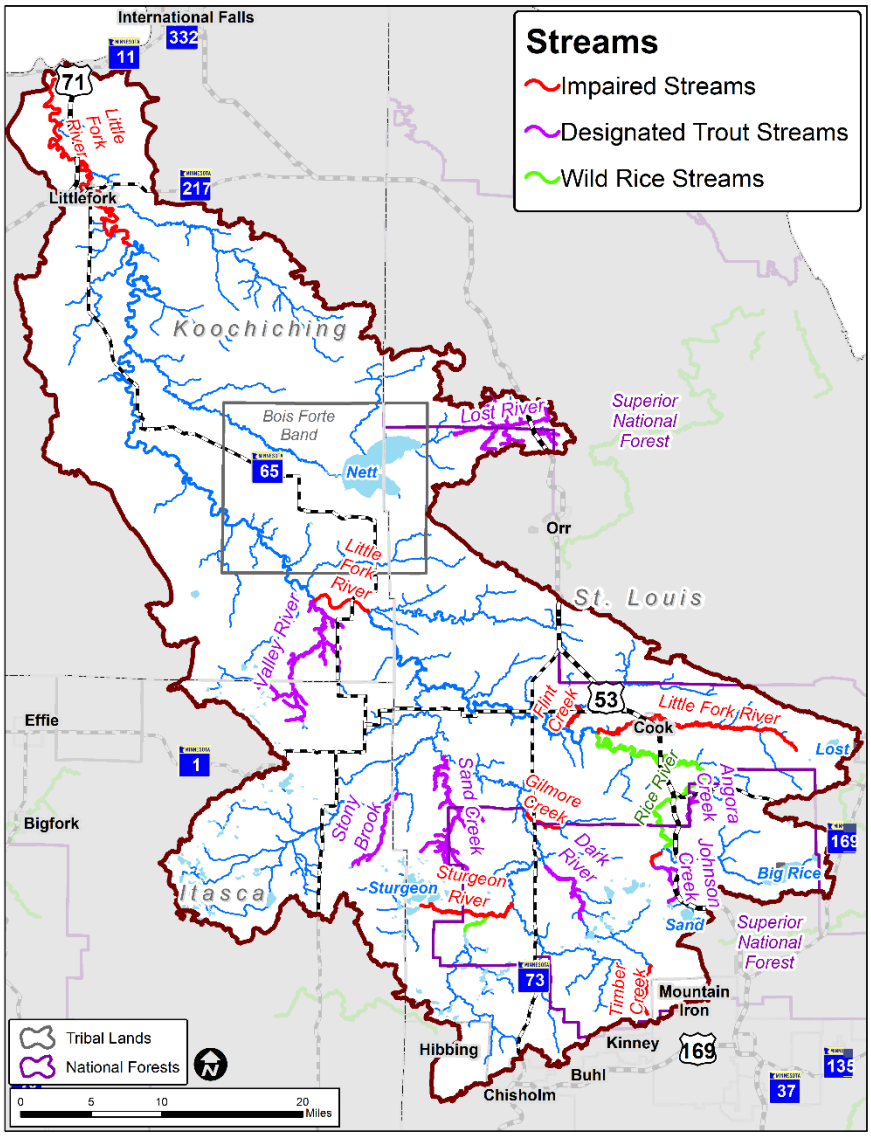


Figure 2.5. Impaired streams, trout streams, and wild rice streams (MPCA and DNR).

Most of the assessed stream reaches support aquatic recreation use, except for one *Escherichia coli (E. coli)* impairment on Flint Creek (MPCA, 2024). While a majority of locations support aquatic life use, ten are impaired. Flint Creek is impaired for total suspended solids (TSS). Gilmore, Timber, and Johnson creeks are impaired for benthic macro-invertebrates bioassessments. Johnson Creek is impaired for fish bioassessments and five segments along the Little Fork River are impaired for high turbidity (**Figure 2.5**). One stream, Sturgeon River, is impaired for sulfates, impacting conditions for wild rice production (MPCA, 2024). Historical logging in the late 19th and early 20th century has been found to be directly linked to contributing to current erosion of riverbanks

and excessive stream turbidity (MPCA, 2006). Deforestation, land use changes, and stream straightening during periods of historic logging resulted in loss of flow attenuation on the landscape (MPCA 2017).

An increasing trend in nitrates and a decreasing trend in phosphorus concentrations is expected within the watershed, corresponding to the expected changes in nutrient export from forested watersheds during the reforestation following logging events (MPCA, 2017b). Studies have shown that water quality directly corresponds to historical logging patterns. Continued work on BMPs will need to occur in order to bring harmony between the logging industry and water quality. The decrease in long-term stream flow was determined to be the results of land cover changes related to logging and reforestation and not precipitation changes (MPCA, 2006).

Nett Lake Wild Rice flyover, 2023, KBFT Radio

Lakes

There are numerous lakes in the southern portion of the watershed. There is just one lake, Dark Lake, that is impaired for sulfates, which affects wild rice production (MPCA, 2024). There are seven lakes of biological significance. Five are classified as outstanding (Nett, Big Rice, Sturgeon, Thistledew, and Owen) and two are classified as high (Lost and Little Sturgeon). Four lakes support trout, and many lakes contain wild rice (**Figure 2.6**).

Wild rice (Manoomin) is deeply intertwined with the traditions, spirituality, and livelihoods of the Ojibwe people.

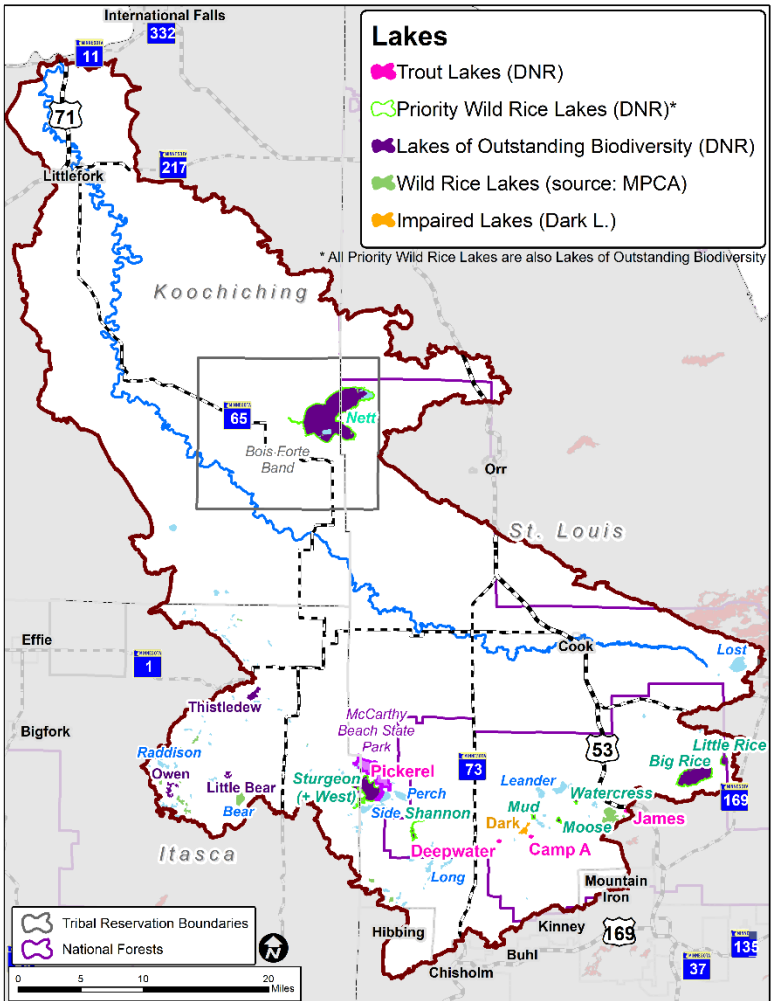


Figure 2.6. Lakes within the LFRW.

Groundwater and Drinking Water

In the LFRW, the majority of drinking water is obtained from groundwater. Most wells are within depths that encounter glacial till. Water resources are not intensively developed within the watershed due to the lack of population. The largest withdrawals are at Littlefork and Cook, which have municipal water supplies (Helgesen, Lindholm, and Ericson, 1976).

Most of the watershed has a very low/low pollution sensitivity of near-surface materials (**Figure 2.7**). Few locations in the northwest and southeast have high pollution sensitivity. In some areas, the surface is so hard due to bedrock at or near the surface that it limits infiltration of water but increases the risk that contaminants may run over the surface directly into lakes and streams (DNR, 2017). Generally, pollution sensitivity is tied to material type: sandier materials create rapid movement of pollutants into groundwater, while heavier, clay-rich materials slow contamination. Other factors include depth to rock outcrops, flow restricting layers, and surface/subsurface connections.

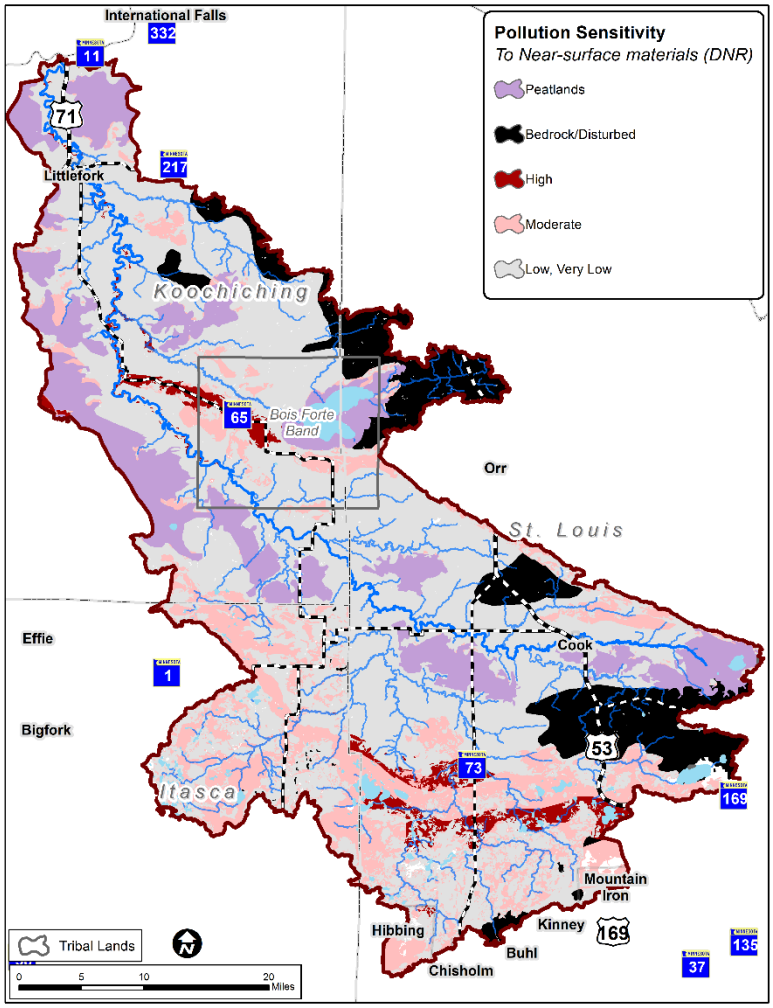


Figure 2.8. Pollution sensitivity in the LFRW. Pollution sensitivity is defined by material type. Both Cook and Littlefork Drinking Water Supply Management Areas (DWSMAs) have moderate vulnerability ratings.

Habitat

Roughly 52% of the land in the watershed is open to the public. There are several state forests and the Superior National Forest that provide opportunities for hunting, fishing, and canoeing. Being an area of pristine condition, there is 5% high and 8% moderate ranked sites of biological significance (DNR, 2017).

Credit: Anita Provinzino

There are four Scientific Natural Areas (SNA) within the watershed: Nett Lake Peatland SNA, Myrtle Lake Peatland SNA, Potato Lake SNA, and Lost Lake Peatland SNA. Four state forests: (Smokey Bear State Forest, Koochiching State Forest, George Washington State Forest and Sturgeon River State Forest) and one National Forest (Superior National Forest) are spread throughout the watershed. McCarthy Beach State Park is the only state park within the watershed located in the southern part of the watershed. Many sites of outstanding, high, and moderate biodiversity significance exist throughout the watershed.

Land Ownership

A significant percentage (52%) of the land is publicly owned. The majority of the private and corporately owned land (44% of LFRW) is situated near the small-sized cities of Littlefork and Cook. Littlefork is located on Little Fork River in the northern part of the watershed close to the mouth of the river, while Cook is in the southeast, closer to the headwaters. About 4% of the land is Tribal land (Nett Lake Reservation) located in the north central part of watershed (**Figure 2.8**).

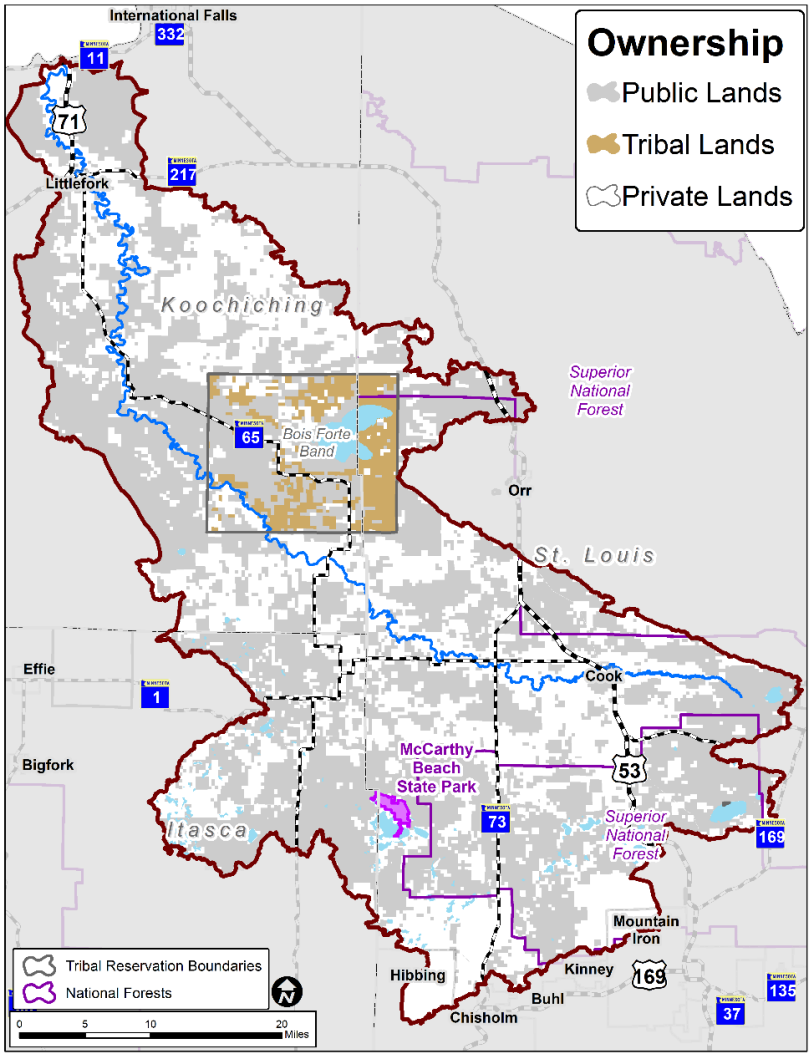


Figure 2.9. Landownership within the LFRW. Tribal lands are the Nett Lake Reservation.

Socioeconomic

Between 2000 and 2010, the population of the watershed decreased by nearly 200 people (DNR, 2015). The population of the LFRW was estimated to be 7,319 in 2010 (DNR, 2015) The median household income in St. Louis, Koochiching, and Itasca counties are $67,269, $69,115, and $66,380, which is lower than the median for Minnesota (median income in Minnesota is $85,086) (US Census Bureau, 2020c, d, e).

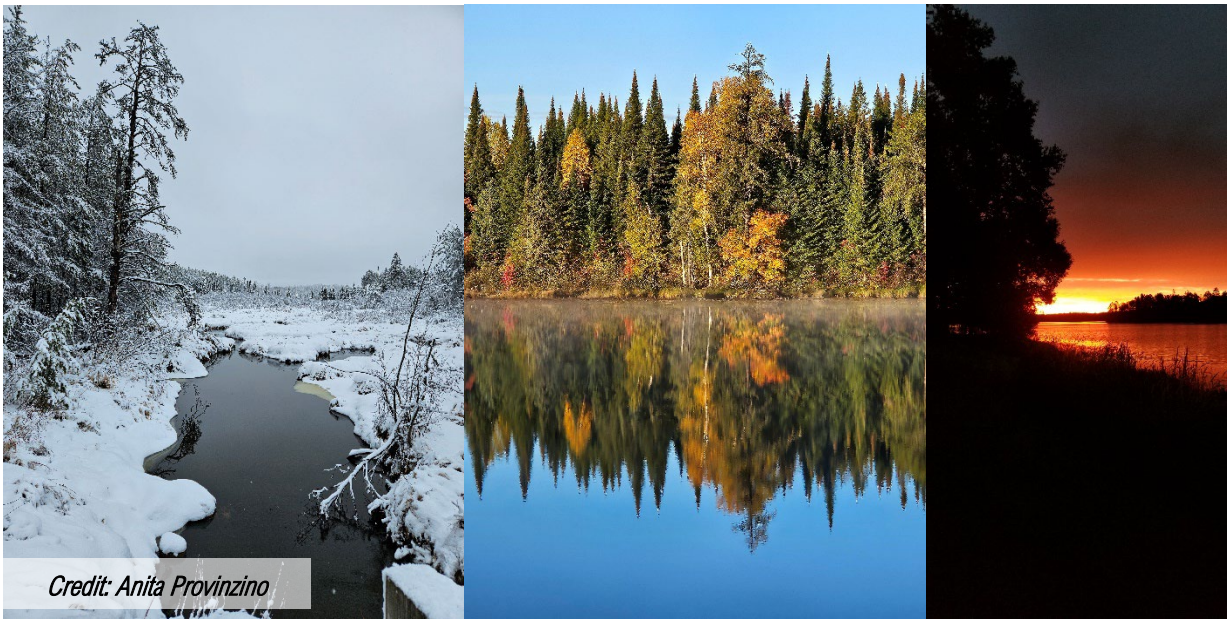
LFR WATERSHED:		MINNESOTA:
Median Income $67,588	$	Median Income: $85,000
12.2% below the poverty line		9.3% below the poverty line
Mean age 46		Median age 39

The employment rate is 61.5%, 56.6% and 52.0% for St. Louis, Koochiching, and Itasca counties (Minnesota employment rate is 66.2%) (USCB, 2020a, b, c). In Minnesota, 9.3% of the population lives below the poverty line. In St. Louis, Koochiching and Itasca 13.3%, 10.7%, and 12.7% live below the poverty line (USCB, 2020a, b ,c). The median age of St. Louis, Koochiching, and Itasca counties are 41.7, 48.6, and 46.9 while the state median age is 39.1 (USCB, 2020a, b, c). The top industries within the three counties are (over 5% of the population in any of the counties):

- Educational services, health care, and social assistance
- Arts, entertainments, recreation, accommodation, and food services
- Retail trade
- Manufacturing
- Professional, scientific, management, administrative, and waste management services
- Transportation, warehousing, and utilities
- Construction
- Finance, insurance, real estate, rental, and leasing
- Public Administration

Summary

The LFRW is characterized by generally good water quality, thanks in large part to its extensive public lands, wetlands, forests, and minimal development. While significant growth or urbanization isn't expected in the future, it remains essential to protect, restore, and enhance the watershed's natural resources to ensure clean, healthy water for generations to come.



Credit: Anita Provinzino

Section 3.
Priority Issues

The first step in the planning process was determining the most pressing issues facing the natural resources of the LFRW. An "issue" in this plan is a risk, problem, or opportunity in the LFRW that can impact any resource (e.g., streams or forests). Resources provide habitat, food, recreation, drinking water, refuge, or a variety of other uses for the people, residents, or wildlife in the LFRW. The goal of this plan is to guide the protection, enhancement, and restoration of watershed resources by identifying priority issues and implementing actions that address them effectively.

This section explains how issues are identified, prioritized, and addressed through planning and implementation, starting with the identification of issues and ending with the finalized list of issues (**Figure 3.1**).

Figure 3.1 Process for issue development in the LFRW.

Identify Issues

To identify LFRW-specific issues, the planning partners developed a comprehensive list of issues which impact all resources in the watershed. The planning partners created this list by conducting a review of existing documents authored by local experts and state agencies, as well as analysis of available data. The materials used to develop this list were:

- Local Plans
  - St. Louis County Comprehensive Water Management Plan (2010)
  - Koochiching County Comprehensive Water Management Plan (2018)
  - Itasca County Comprehensive Water Management Plan (2022)
- MPCA Reports
  - Water Quality Assessment of Select Lakes in the Little Fork River Watershed (2010)
  - Little Fork River Watershed Sediment Reduction Project Total Maximum Daily Load (2017)
  - Little Fork River Watershed Restoration Project Strategy Report (2017)
  - Little Fork River Watershed Monitoring and Assessment Report (2011)
  - Watershed Assessment and Trend Report (2021)
  - Effect of Historical Logging on Geomorphology, Hydrology, and Water Quality in the Little Fork River Watershed (2006)
  - Little Fork River Watershed Stressor Identification Report (2026)

- Minnesota Department of Natural Resources (DNR) Reports
    - Evaluation of Hydrologic Change Technical Summary, Little Fork River Watershed (2023)
    - Watershed Report Card (2015)
    - Watershed Context Report (2017)
- Comment letters and supporting materials from local interest groups and state agencies
    - DNR
    - Minnesota Department of Health (MDH)
    - BWSR
    - MPCA
- Scholarly papers published related to the LFRW
    - Baker, A. et al. (2025)
- Local knowledge from planning partners who manage the resources of the watershed, including the Steering, Policy, and Advisory Committees

As issues were identified when reviewing these materials, common resources were also identified. These common resources became the basis of resource categories, to better organize the identified issues that impact the same resources. This helps with identifying goals and actions that can positively impact a resource category and tackle the most pressing issues in the LFRW. The resource categories identified are shown in **Table 3.1**.

Table 3.1 Resource categories for the LFRW. These were identified during the process of literature and data review.

Resource Categories						
Farms	Forests	Groundwater	Lakes	Stormwater	Streams	Wetlands

Meetings and Committees

Public Kickoff

On July 22 and July 24, 2025, the Little Fork River Watershed Planning Group held two public kickoff meetings to introduce LFRW residents to the 1W1P program and receive public feedback on issues in the watershed. The meeting was advertised widely to gather a large, diverse group of landowners and residents, as well as those with interests (e.g., employed in the watershed) within the watershed. Between the two meetings, there were 36 attendees.

At the event, a survey was conducted for those who attended to provide their input about the planning process and to gather stakeholders' general thoughts on the watershed. Those who were unable to attend the event were able to complete an online survey. Results from both the in-person and online surveys have been combined (both surveys asked the same questions). In total, 21 respondents provided input.

Attendees of these meetings were asked to complete activities to help identify issues and prioritize them. These activities facilitated citizens sharing information about the following topics:

- Issues, concerns, and opportunities in the watershed
- Desired future conditions in the watershed
- Prioritizing watershed topics
- Sharing additional information

A full report with results from these activities and the online survey can be found in **Appendix B**. These activities and results were valuable for the planning partners to begin issue prioritization.

Topic Meetings

The resource categories were grouped to create four separate "topic meetings" by the Steering Committee using input from the public kickoff. These meetings brought together stakeholders and local experts (Advisory Committee) to provide a strong background in each topic to ensure that the 1W1P adequately addresses the most important local concerns. The four topic meeting categories were Lakes & Streams, Forests & Wetlands, Farms & Groundwater, and Urban Stormwater & Drainage. The goal of these meetings was to brainstorm issues related to each resource category or topic in the LFRW. Each meeting followed the same format:

1. 1W1P purpose and planning process
2. Introduction to the LFRW
3. Introduction to topic meeting data (information provided prior to the meeting that identified key data related to the topic meeting)
4. Brief presentation(s) by local experts
5. Brainstorming issues and opportunities to consider for the topic
6. Organize and group issues to form issue statements
7. Prioritize issue statements
8. Develop action items that address issue statements
9. General discussion

Topic meeting reports were distributed after the meeting. Topic meeting summary reports are provided on the project website and can be found in **Appendix C**. The outcomes of these meetings laid the foundation for the development of goals, and subsequently targeted implementation actions.

Priority Issues

From the topic meetings, priority issues were brainstormed and refined. These were deemed to be the most pressing issues for each topic meeting. From each topic meeting between 2-4 issue statements were prioritized. **Table 3.2** below identifies the resource categories, the issue name, and a brief issue statement that provides more context to the specific issue in the LFRW. For this plan, there is no explicit ranking of the priority issues, however some issues will be associated with more goals than other issues.

Table 3.2 Priority issues for the LFRW plan.

Resource(s)	Issue Name	Issue Statement
	Eroding gullies and streambanks	Eroding gullies and streambanks contribute to turbidity and TSS impairments and reduced habitat quality.
	Altered hydrology	Altered hydrology from culverts, ditching, and channelization has impacted stream flow and aquatic habitat.
	Flooding	Flooding along rivers can threaten economic and natural resources.
	Nutrients	Nutrients have the potential to decrease water quality and impact aquatic recreation and aquatic life.
	Wild rice health	Wild rice health faces risks from development, climate, pollution, and invasive species.
	Lakeshore alteration	Lakeshore alteration impacts water quality and shoreland habitat.
	Forest health	Managing forest health is vital to sustaining economic, ecological, and recreational benefits.
	Forest protection	Maintaining a forested landscape prevents conversion, and safeguards sensitive species, water quality, and habitat.
	Forest and recreational infrastructure	Forest and recreational infrastructure affect hydrology, runoff, and erosion.
	Wetland and peatland health	Wetland and peatland health is impacted by invasive species, climate, ditching, and wildfire effects.
	Groundwater	Groundwater quality and sustainability need assessment and protection.
	Agricultural runoff and livestock access	Agricultural runoff and livestock access increases erosion, nutrients, sediment, and bacteria in streams and groundwater.
	Stormwater runoff	Stormwater runoff in developed areas contributes pollutants to streams and lakes.

Additional Emerging Concerns and Local Considerations

Additional emerging concerns and local considerations are important issues in the LFRW, but they are outside the scope of the plan. They impact the priority resources described above and should be considered and monitored throughout the lifespan of the plan, although goals and implementation actions will not be developed for emerging concerns and local considerations. They may become prioritized issues in future watershed planning or considered during plan implementation if new data, funding, or programs become available. It is also possible that collaboration with partners can occur on these as actions.

Emerald Ash Borer & Eastern Larch Beetle

Emerald ash borer (EAB) and the eastern larch beetle (ELB) are insects that are infecting Minnesota's trees. Emerald ash borer is an invasive insect that kills ash trees and has been detected in the LFRW (DNR, 2026a). Koochiching, Itasca, and St. Louis counties have some of the highest population of ash trees in Northern Minnesota, therefore the impacts of EAB will be particularly large in the LFRW. The ELB is a native bark beetle that infects tamarack trees. Historically, small outbreaks are localized and did not cause widespread mortality (DNR, 2026b). However, warmer climates have lengthened the growing season and the ELB's reproductive success continues to grow; there are currently more than one million acres with affected forest tamarack in Minnesota, much occurring in Koochiching County (as well as Itasca and St. Louis; DNR, 2026b). The destruction caused by the loss of both ash and tamarack trees impacts water quality: losing these trees in wetland forests and shoreline along the Little Fork River will impact hydrology, potentially worsening flooding issues, as well as degrading water quality (DNR, 2023).

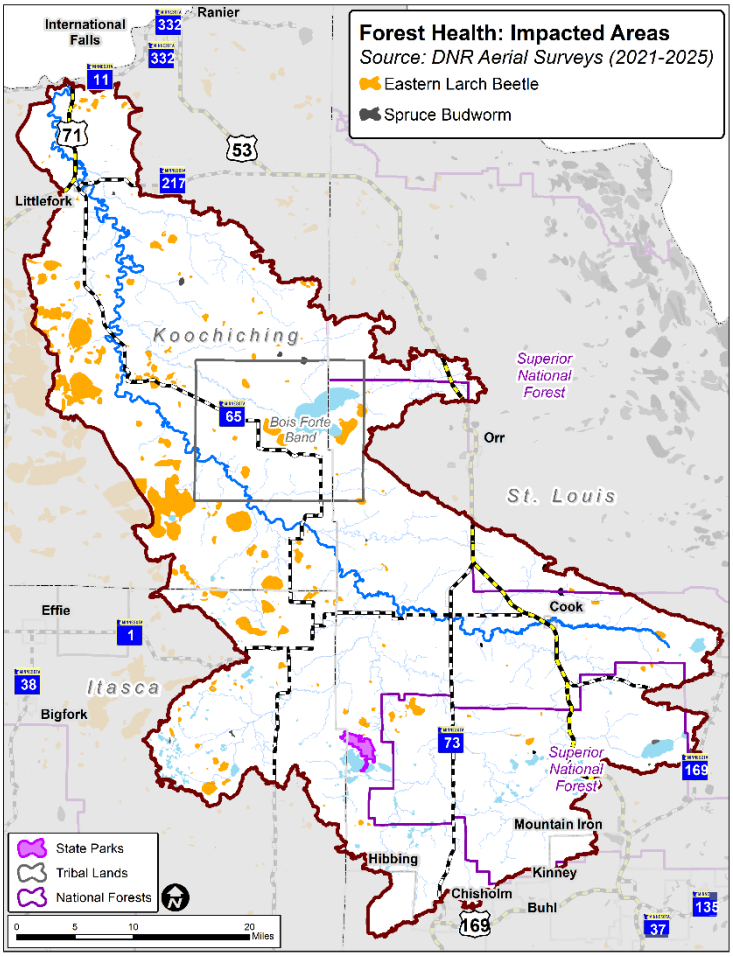


Figure 3.2. Extent of ELB impacts in the LFRW (DNR).

Climate Variability and Resilience

Climate variability will have an impact on plan implementation. Rising temperatures and increasing precipitation will impact the resources of the watershed. Climate change can impact seasonal cycles in chemistry, nutrients, sediment, ice cover, snow melt, and more. The past century has seen increases in precipitation and discharge in the LFRW (DNR, 2023). Since 1925, precipitation has increased by an average of 0.3 inches per decade, increasing the amount of discharge with it (DNR, 2025). The last decade has seen two very high precipitation years: 32.9 inches in 2017 and 34.4 inches in 2023, while 2021 and 2022 were quite dry, with 23.2 and 22.0 inches of precipitation, respectively.

The upcoming decades are expected to have less-predictable climatic and weather patterns (DNR, 2023) therefore building resilience in the landscape is particularly important. Storage capacity in the watershed is currently plentiful, however increasing storage availability can help buffer from unexpected changes.

Plan actions such as the installation of agricultural and livestock BMPs, as well as land protection and peatland restoration will have positive carbon storage impacts (see **Section 4**). These practices will help reduce the carbon footprint of the LFRW by sequestering carbon in the landscape.

Credit: Anita Provinzino

Contaminants of Emerging Concern

Several contaminants are outside the scope of watershed plans due to their relatively new standing as concerns. Additionally, local funding is not equipped to address these issues. These contaminants include microplastics, per- and polyfluoroalkyl substances (PFAS), estrogenic compounds, pharmaceuticals, nanomaterials, and more (EPA, 2025; Domingo and Nadal, 2019). These contaminants do not have defined standards set by the Environmental Protection Agency (EPA), and research continues to determine their impact on human health. While active monitoring of these contaminants is not within the scope of this plan, planning partners and local agencies can be aware of their potential risks and integrate them into future plans as needed.

The LFRW has other additional contaminants that require monitoring. Well samples in Itasca and St. Louis County have also shown elevated manganese levels in the watershed (MDH, 2025). Naturally occurring arsenic concentrations have also been found in all three counties (MDH, 2025) The contaminants should continue to be monitored throughout the life of this plan, although direct action is likely not to be taken from this plan's implementation.

Mining

Northern Minnesota has a long history of mining dating back into the late 19th century. It is an economically important industry to the area, as it contributes over 10,000 jobs and adds approximately $4 billion to the state's economy (UMD, 2020). Most of the mining activity in the LFRW is concentrated along the southern border of the watershed. There are several potential impacts from mining activity, including altered hydrology, runoff, and groundwater seepage from tailings management areas, soil disturbance, loss of or conversion of wetlands, sulfate impairments, and changes to flow and water quality. Mine expansion and closure can also impact flow, temperature, and water quality (Maest et al., 2020). Mining activities have led to impairments for sulfate in the watershed, which is currently being addressed through permitting requirements adjacent to the Sturgeon River (MPCA). This is particularly important for wild rice protection, as wild rice is particularly sensitive to elevated sulfate levels. Note that this plan is not regulatory in nature. Instead, continued monitoring for the potential impacts of mining, as well as water quality and quantity management in the watershed will be important moving forward.

Waste Management

The MPCA is currently proposing a new set of rules for managing demolition landfills (MPCA, 2025) regarding landfill lining in the Minnesota. These rules have been proposed to improve protection of water resources, however concern over the potential costs and barriers may cause landowners to dispose of their waste in inadequate ways such as burning or burying waste. The proposed rules could result in the closing of more demolition landfills, particularly in northern Minnesota. This would require longer haul distance and fewer options for the public, resulting in potentially more harm to water quality. Monitoring this situation will be important moving forward for water quality related to waste management in the watershed as the MPCA rules regarding demolition landfills are enacted.

Funding

Achieving the goals outlined in this plan is directly dependent on the level of funding available. Adequate and consistent financial resources are essential to maintain planned activities, support staffing needs, and ensure steady progress toward key outcomes. If future funding levels decline, the scope and pace of implementation will necessarily be reduced, resulting in slower progress and fewer goals reached. Sustained investment is therefore critical to realizing the full impact of this plan.

Of particular concern is aquatic invasive species (AIS) funding. While AIS is discussed in this plan, and WBIF cannot be used to supplant AIS funding, a funding cut to AIS could cause major disruptions to current programs.

Little Fork River

Section 4.
Goals and Implementation

Developing goals and connected implementation actions are an integral part of the 1W1P process, as it builds upon the previous section's work of identifying priority issues in the watershed. This section will establish specific goals and identify actions that can help achieve those goals.

Measurable Goals

Measurable goals help identify progress over the course of the 10-year implementation plan for this project. The goals in this section were developed to directly address priority issues. However, these goals do not match one-to-one with priority issues, as most goals address more than one priority issue or resource. These quantitative goals were developed by the Steering and Advisory Committees based on models, local knowledge, and the capacity of the staff within the watershed to achieve them. The goals were then approved by the Policy Committee.

Each goal sheet includes the following components:

- Description: background information on the goal
- Issues Addressed: which priority issues are addressed by the goal
- Already Accomplished: how much has already been accomplished related to this goal
- Short-term Goal: goal for the 10-year implementation period
- Desired Future Condition: long-term goal for the watershed without a timeframe
- Telling the Story: the larger impact from achieving the goal

Targeted Implementation

The targeted implementation tables in this section outline actions that will be taken during the 10-year implementation period. They outline specific actions that help to achieve each goal and include the following:

- Program Type: Manage it, Fix it, Keep it, or Know it (**Figure 4.1**).
- 10-year Outcome: Outcome from the action.
- Priority Areas: Areas for implementation.
- Lead/Supporting Entities: Who is leading (in bold) and who is supporting the action.
- Timeline for Implementation: What years will the action be occurring.
- Tracking Output: Does the action provide direct or indirect progress towards plan goals.
- Funding Level: Which level of funding will provide resources for this action. Funding levels for the LFRW are summarized in **Table 4.1.**
- Total Costs: 10-year cost for implementing the action.

The implementation of this plan will require coordinating between watershed partners and multiple funding sources. Implementation requires balance between planned landscape management ("Manage It"), constructed environmental enhancements ("Fix It"), protected lands maintenance ("Keep It"), and Data Collect and Outreach ("Know It"). Each action in the tables below is associated with one of the implementation programs in Figure 4.1. Due to the highly protected nature of the LFRW, the plan finds a balance with more effort into the "Manage It" implementation program compared to "Keep It", with "Know It" providing the foundation for action implementation.

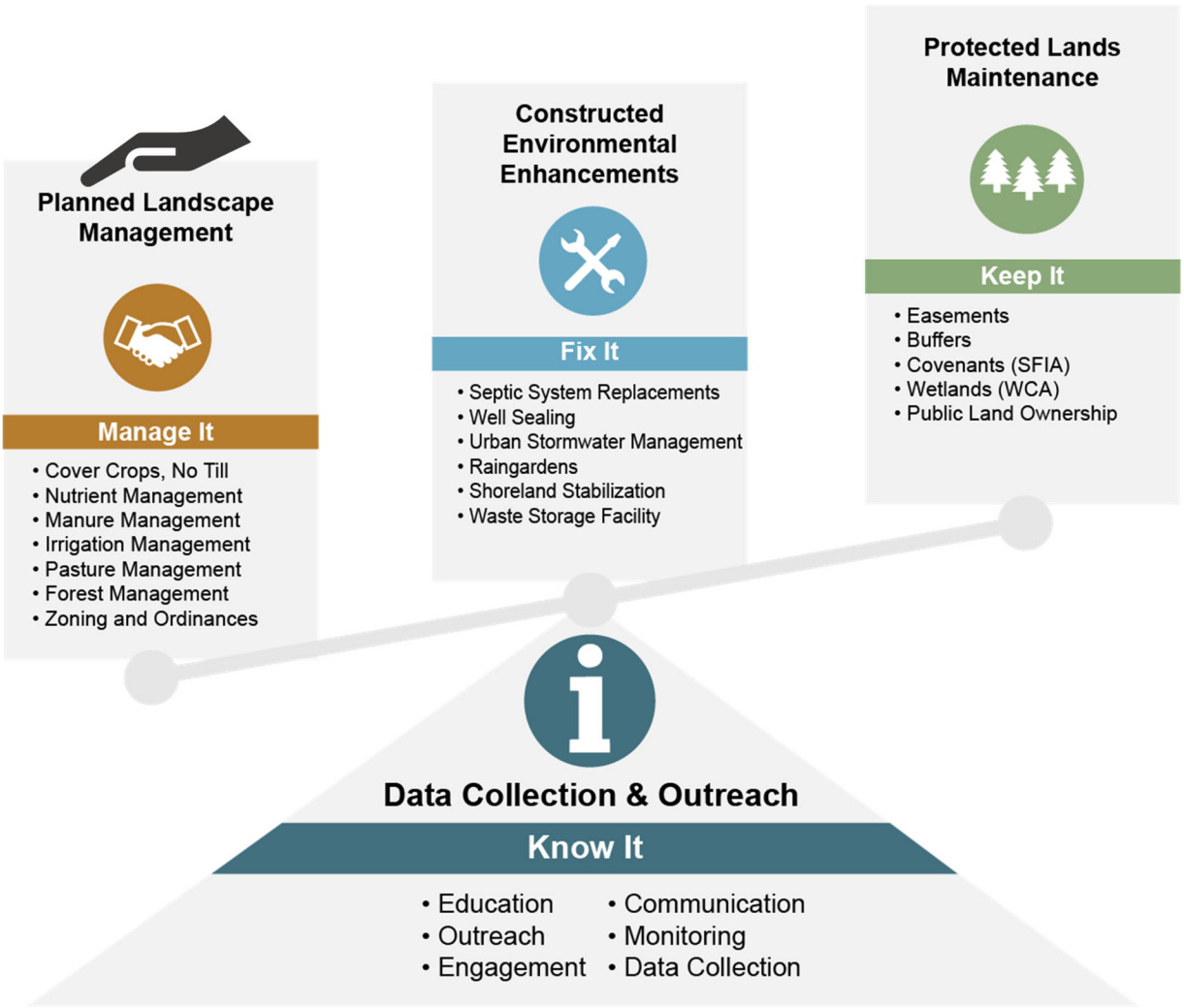


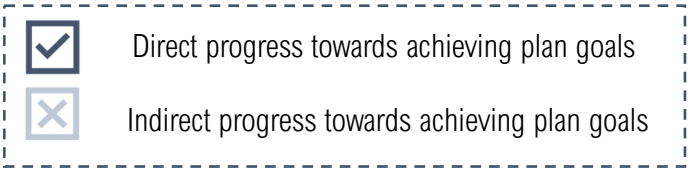
Figure 4.1 Balance of implementation programs in the LFRW 1W1P.

Each action in the Targeted Implementation Schedule has a funding level associated with it. Sometimes an action has two funding levels. An example of two funding levels is if the project is funded with both state and other funding sources. The funding levels for this project are outlined in Table 4.1. Base level funding represents current funding for Counties, SWCDs, and Cities. WBIF is the additional funding provided for this plan. Other Funding includes any other sources of potential funding, such as Natural Resources Conservation Service (NRCS) or Lessard Sams Outdoor Heritage Fund.

Table 4.1 Funding amounts at three levels for the LFRW 1W1P.

Funding Levels	Abbreviations	Description	10-Year Total
Baseline Funding	**Base**	• Current Baseline Funding	$5,000,000
Funding Needed to Fully Implement This Plan	**Base** + **WBIF** + Additional Funding	• Current Baseline Funding & • 2025-2026 WBIF Allocation & • *An additional funding of $275,000/year needed*	$13,900,000
Other	**Other**	• Other Funding (i.e. Lessard Sams, DNR, NRCS, SFIA, USFS, USFWS, LSOHF, MPCA, etc.)	$7,237,268

Each action in the action tables contains a 10-year output. Some of these actions generate direct progress towards their goal, while others are actions which address the goal but do not make direct progress towards achieving the specific goal. All goals are marked as either direct or indirect, as shown by the toggle below. For example, under the Forest goal, the action of forest and land protection directly addresses the plan goal of protected 980 acres. In contrast, outreach action under the same goal helps meet the goal by raising awareness of protection programs, however the action itself only creates indirect progress towards the goal.



The costs and locations indicated in the action tables represent a best-case scenario. Actions require voluntary participation, field verification, and funding, therefore prioritized projects may not always be possible or feasible. In that case, the next highest priority projects should be targeted. Additionally, it is possible that projects may emerge that are not identified in the action tables. These projects should be pursued if the benefits are comparable to those identified during the planning process. Several factors will determine if an implementation project occurs, which includes the following factors (but is not limited to these factors):

- Funding available for implementation action
- Readiness of practices and projects for implementation
- Emerging data on resource conditions
- Emerging practices
- Field verification of a certain practice type and location
- Participation by landowners and residents
- Effectiveness of outreach and education events, as well as research initiate.

Resource Prioritization

For each plan goal, a map has been included to identify priority areas to best guide implementation. These are areas that have been identified specifically for that goal because those areas are either at risk for degradation of resources, have a high density of the resources impacted by the goal, and/or have high potential to protect the resources in that area. These are specific to each goal and the associated resources.

The plan also identifies priority lakes and streams, which are not goal-specific. These priority lakes and streams should be considered for all goals (if applicable). There are commonly used management strategies for maintaining well-protected resources in Northern Minnesota and can be found in the CWMPs for neighboring watershed. These strategies are described further in **Figure 4.2** and shown on the map in **Figure 4.3.**

Management Strategy	VIGILANCE	PROTECT	ENHANCE	RESTORE
	Very Protected >75% Protected (public land, public water, easements, SFIA, wetlands)	Good Quality, Protect More No trend or improving trend, <25% Disturbance, <75% Protected	At risk but not impaired. Needs Improvement. Nearly Impaired, Declining Trend, and/or >25% Disturbance	Impaired Needs restoration to meet state standards.
Resources	84 Lakes	17 Lakes <u>Priority:</u> Sand, Dewey, Long Chain, Little Sand, Island, McCormack	6 Lakes <u>Priority:</u> Beatrice, Sturgeon Chain	1 Lake Dark Lake *(impaired for sulfate)*
Strategy	Shoreline Projects	Shoreline Projects, Land Protection	Phosphorus Reduction, Shoreline Projects, Land Protection	Phosphorus Reduction, Shoreline Projects, Land Protection

Figure 4.2 Management strategies for priority lakes in the LFRW CWMP.

In total, there are 108 lakes in the watershed greater than 10 acres in size. 91 of them are over 75% protected. Of these 91, only Dark Lake is impaired, and six lakes have declining water quality trends. The other 84 lakes are protected with no indicators of being at risk. There are 17 lakes that are not over 75% protected (see **Appendix D** for more detailed selection process for all lakes in the watershed).

For streams, a simpler approach to prioritization was used, although the same categories are used. For streams, cisco/trout streams will be prioritized, as well as those with sediment concerns.

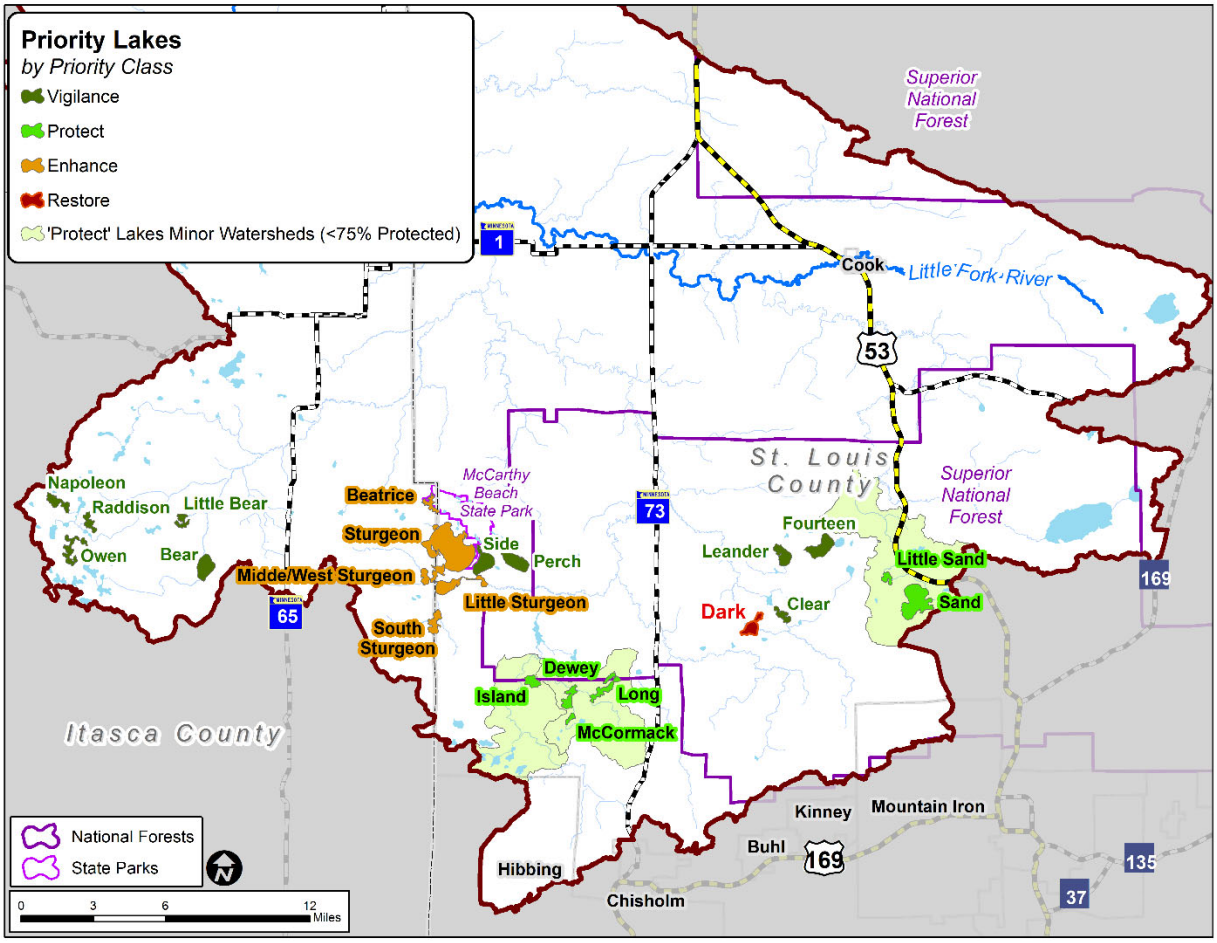


Figure 4.3 Priority lakes in the LFRW.

Goal: Agricultural Land Management

Description

Resources:

Water quality in the LFRW is considered good with few contaminants. Because of this, an emphasis on maintaining water quality and minimizing pollutants into surface and groundwater sources will be an emphasis for this goal. Maintaining water quality in the watershed is particularly important, as it is important for the economic and ecological health of the LFRW.

Surface waters are vulnerable to contamination from several sources within the watershed, including agricultural runoff, stormwater in cities such as Littlefork and Cook, and livestock operations. This goal will focus largely on implementing agricultural BMPs that reduce runoff from cropping acres and livestock operations **(Figure 4.4)**. Livestock operations will be important to achieving plan goals, as pasture lands have been increasing in the LFRW over the past decade, while the number of cropping acreage has decreased (MRCL, 2016 & 2021).

These agricultural BMPs should also have a positive impact on climate resilience: the 10-year goal would reduce carbon emissions by an estimated 156 tonnes of Carbon Dioxide ($CO_{2)}$ equivalent per year (Swan et al., 2020). They also provide nitrogen, phosphorus, and sediment benefits, described at the end of this section.

Issues Addressed

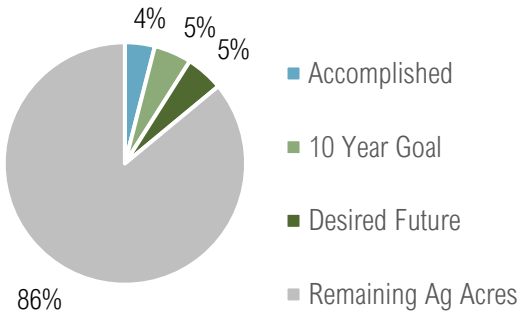
Nutrients ● Agricultural Runoff and Livestock Access

Goals

Already Accomplished	10-Year Goal	Desired Future
591 acres of agricultural BMPs (4% of all crop and pasture acres in the watershed)	**830 acres** of agricultural BMPs (5% of all crop and pasture acres in the watershed)	**1,653 acres** of agricultural BMPs (10% of all crop and pasture acres in the watershed)

Telling the Story

Implementing this goal will move the needle from 4% of crop and pasture acres in the watershed having BMPs to 9%. Acres of BMPs is the way to measure goal progress, but the real outcome planning partners are looking to achieve is improved soil health and reduced erosion and runoff. Planning partners also aim to meet the Lake of the Woods Total Maximum Daily Load (TMDL) reduction for the LFRW: 58,470 lbs phosphorus/year.



Agricultural Land Targeting Map

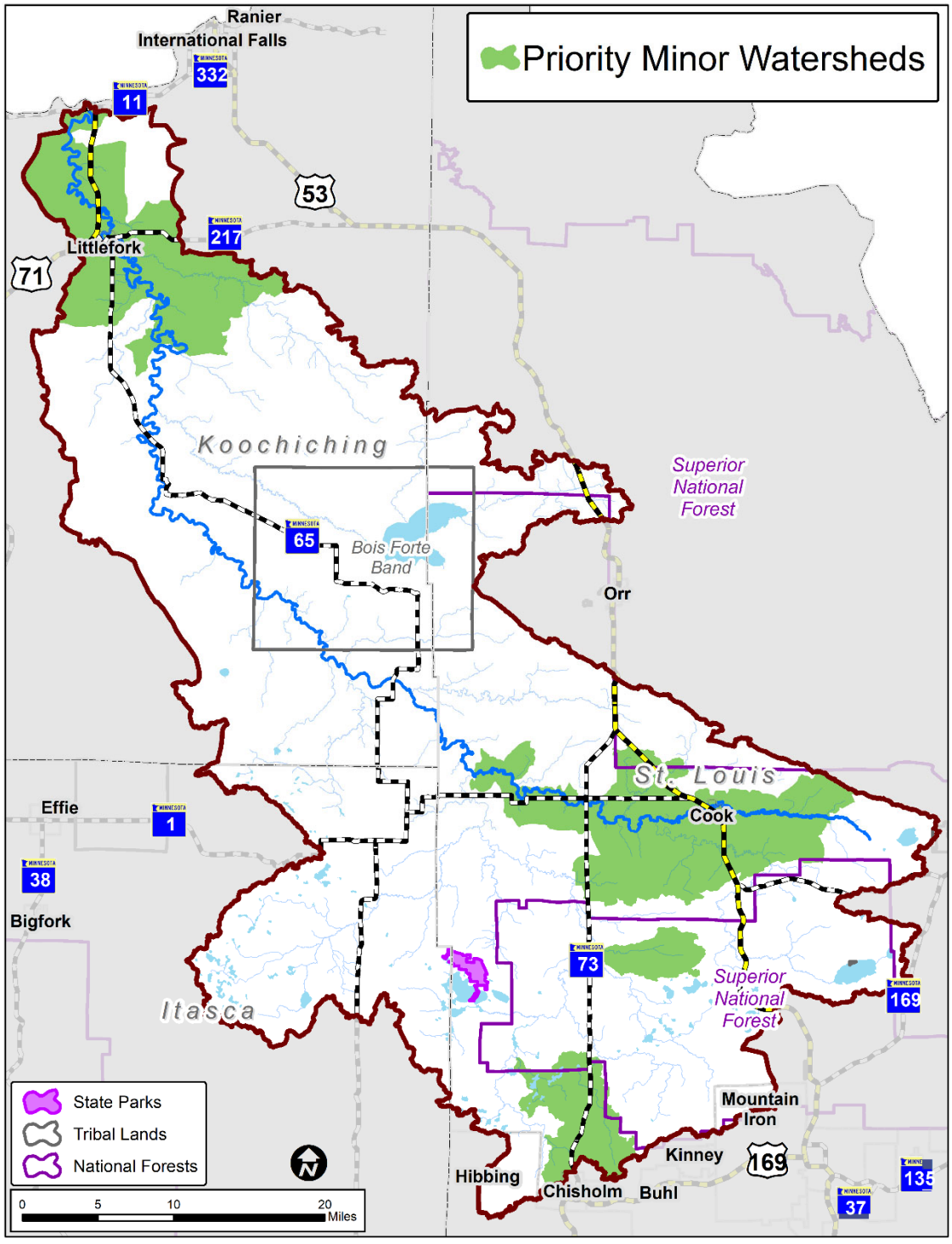


Figure 4.4. Targeting map for agricultural practices.

Agricultural Land Management Actions

Action	Program	10-year Outcome	Priority Areas	Lead(s), Supporting	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	Output for goal tracking	Funding	Total 10-year cost
Agricultural BMPs *Cover crops, reduced tillage, nutrient management, buffer strips, etc.*		830 acres treated *together with "Livestock BMPs" action*	Cultivated cropland (Figure 4.4)	**SWCDs, NRCS,** MDA	●	●	●	●	●	☑	Base & WBIF	$62,250
Livestock BMPs *Rotational grazing, alternative water systems, access control, nutrient management, stream crossings and fencing, livestock exclusion fencing, pasture management, waste management practices, etc.*		830 acres treated *together with "Agricultural BMPs" action*	Pasture/Hay Lands (Figure 4.4)	**SWCDs, NRCS**	●	●	●	●	●	☑	Base & WBIF	$103,750
Agricultural Water Quality Certification *Enroll farms.*		5 farms	Agricultural Lands (Figure 4.4)	**MDA,** SWCDs, NRCS	●	●	●	●	●	☒	Other	$10,000
Outreach & Education *Outreach to private landowners, outreach to smaller land owners, workshops, youth education, identify marginal agricultural lands, etc.*		One workshop per year	Watershed-wide	**Counties, SWCDs**	●	●	●	●	●	☒	Base & WBIF	$166,667

Total BASE and WBIF Funding	$332,667
Total OTHER Funding	$10,000

Goal: Hydrologic Connectivity & Storage

Description

Resources:

Roads that bisect peatlands disrupt natural horizontal water flow, causing waterlogging on the upstream side and drying on the downstream side. These hydrologic shifts lead to changes in vegetation structure and species composition, including increased tree mortality or stunted growth upstream and drier, denser canopy conditions downstream (Willier et al. 2002).

Minimizing the impact of transportation infrastructure will help maintain wetlands and peatlands, which provide unique opportunities to store water on the landscape in the LFRW (**Figure 4.5**). Peatland restoration projects and culvert replacements to reverse the impacts of drainage projects across the LFRW could help increase storage on the landscape and help maintain or decrease discharge levels within the watershed despite expected increases in precipitation. Building resilience on the landscape to protect the communities, as well as the economic and recreational resources of the LFRW will be central to this goal.

Additionally, protecting peatlands provides expanded habitat for terrestrial and aquatic communities that are unique to the LFRW. Wild rice, a culturally significant resource to indigenous people and others in the watershed, can also be better protected through this goal.

Issues Addressed

Flooding ● Wetland and Peatland Health ● Altered Hydrology

Goals

Already Accomplished	10-Year Goal	Desired Future
Maintain (fix, re-size, replace, etc.) culverts	**6 projects** to enhance stream connectivity & **Maintain wetlands and peatlands**	**No net change in discharge**

Telling the Story

The hydrology in the vast natural peatlands and wetlands in the LFRW have been altered by ditching, roads, and human influence. Restoring the hydrology back to its natural state enhances this unique resource for climate resiliency, storage, and habitat.

Photo from Willier et al. 2022.

Hydrologic Connectivity and Storage Targeting Map

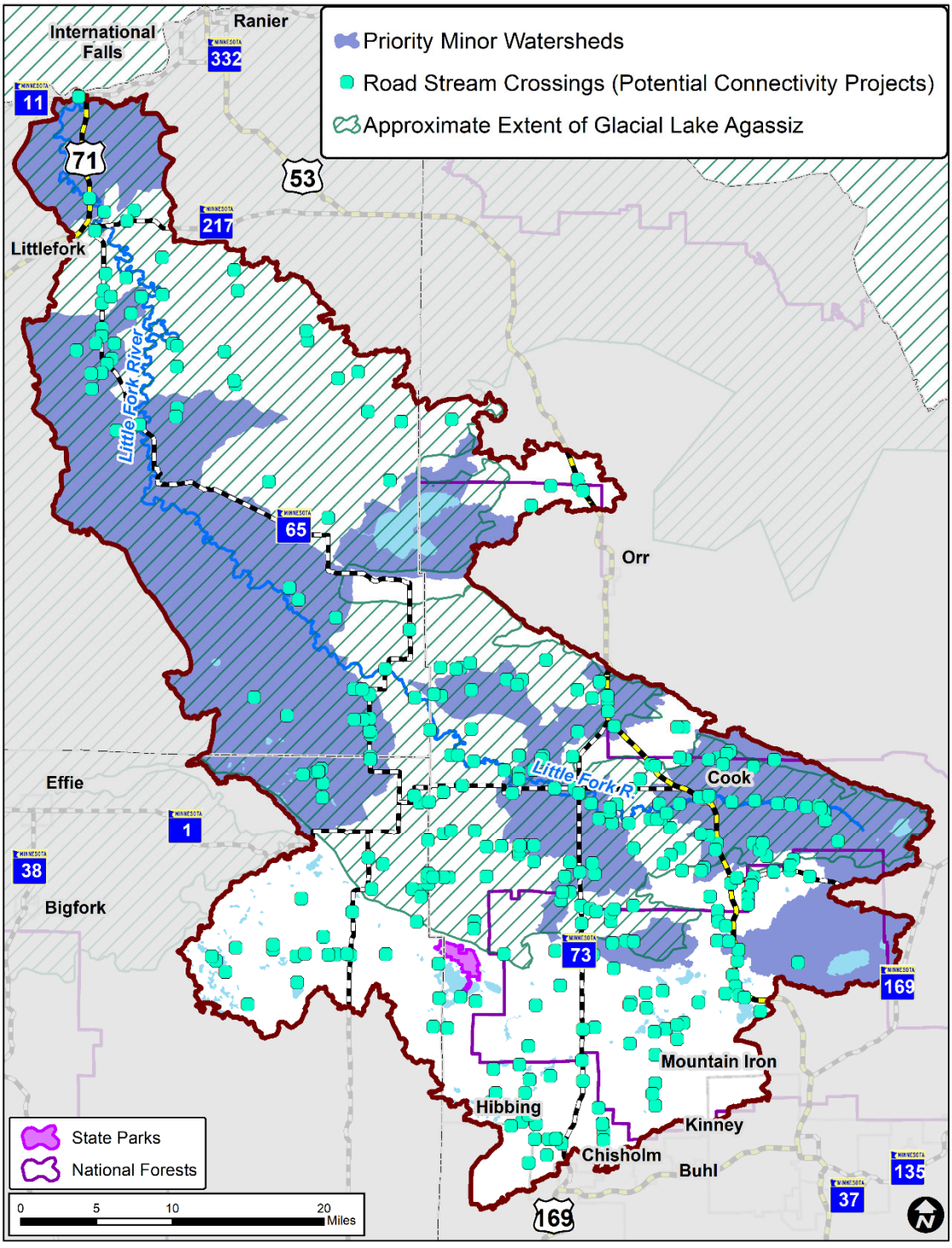


Figure 4.5. Targeting map for hydraulic connectivity and storage.

Hydrologic Connectivity & Storage Actions

Action	Program	10-year Outcome	Priority Areas	Lead(s), Supporting	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	Output for goal tracking	Funding	Total 10-year Cost
Enhance Stream Connectivity *Enhance connectivity for fish and sediment passage.*		6 projects	Watershed-wide	**DNR, Counties,** SWCDs, MnDOT				●	●	☑	Other	$1,200,000
Wetland Conservation Act (WCA)* *Continued enforcement of WCA; any projects to replace wetlands impacted under the WCA per MN Rules 8240 is ineligible for WBIF.*		Implement Program	Watershed-wide	**BWSR, SWCDs, Counties, Municipalities,** DNR	●	●	●	●	●	☑	Base	$683,418
Enhance Peatland & Wetland Connectivity *Culvert replacements and related practices (e.g., flow management) to restore hydrology through peatlands, forests, and wetlands.*		5 culvert replacements /projects	Watershed-wide	**Counties, DNR,** SWCDs, Minnesota Department of Transportation (MnDOT)				●	●	☒	WBIF, Other	$2,500,000
Wild Rice Protection *Sulfate monitoring, invasive species management, water level management.*		Increased protection of wild rice	Lakes and streams with wild rice	**SWCDs, Counties,** BWSR	●	●	●	●	●	☒	Base & Other	$50,000
Culvert Inventory for Forest Roads *Inventory for areas where hydrology is bisected by forest roads and can be restored. Also, identify and prioritize stream/road crossing in riparian areas.*		Complete inventory	Figure 4.5	**SWCDs, Counties,** DNR			●	●	●	☒	WBIF	$50,000
Wetland Banking *Encourage wetland banking.*		Maintain access to wetland bank service area	Watershed-wide	**Counties, SWCDs, BWSR**	●	●	●	●	●	☒	Base & WBIF*	$10,000
Flood Study and Plan *Feasibility study and risk assessment for designing flood damage reduction for Cook.*		1 study	City of Cook	**Cook**			●	●		☒	Base & WBIF Other	$50,000
Coordinate with Road Authorities *On road, ditch, and culvert replacement projects, ATV club, consolidate highway department data, culvert inventory.*		Biennial trainings	Watershed-wide	**DNR, SWCDs, Counties**		●		●		☒	Base	$5,000
Outreach & Education *Education on wetlands, wetland banking, peatlands, water storage.*		One outreach event(s) per year	Watershed-wide	**SWCDs, Counties**	●	●	●	●	●	☒	Base & WBIF	$166,667

Total BASE and WBIF Funding	$2,065,085
Total OTHER Funding	$2,650,000

Goal: Erosion Management

Description

Resources:

STREAMS

Alteration to both lakes along shorelines and streams along streambanks causes reduced stability and a subsequent reduction in water quality, as nutrients and sediment are more easily able to pollute waterways with instability. Stable shorelines with native vegetation instead prevent erosion by holding soil in place and provide a buffer from sediment and nutrient runoff. This is of particular importance to the LFRW, which has high rates of gully erosion, causing five turbidity impairments across the watershed. This goal will focus on improvements to erosion management and targeting the turbidity impairments to improve water quality and reduce sediment losses (**Figure 4.6**).

The impacts of erosion are not just local. The Little Fork River is a disproportional contributor of sediment and phosphorous to the Rainy River and Lake of the Woods (Baker et al., 2025). Because of this, reducing erosion will have both a strong local impact and afar. In 2021, a Lake of the Woods (LOW) Excess Nutrients TMDL was completed as a part of Minnesota's effort to reduce phosphorus loads flowing into Canada. The LFRW represents about 30% of the tributary load originating in the US (MPCA, 2020), due in part to the high erosion rates in the LFRW. Reducing this erosion will help make significant progress towards meeting the LOW TMDL.

Issues Addressed

Lakeshore Alteration ● Eroding Gullies and Streambanks

Goals

Already Accomplished	10-Year Goal	Desired Future
673 feet of riparian enhancement	**1 feasibility study** for sediment reduction & **2,000 feet** of shoreland stabilization	Projects and project locations identified to reduce sediment in the Little Fork River

Telling the Story

Implementing this goal involves completing a feasibility study to address the impairment in the Little Fork River. Sediment plays a major role in the story of this watershed: addressing it through riparian enhancement will help address this issue. The photo to the right shows the Little Fork River confluence with the Rainy River.

MPCA Drone Team

Erosion Management Targeting Map

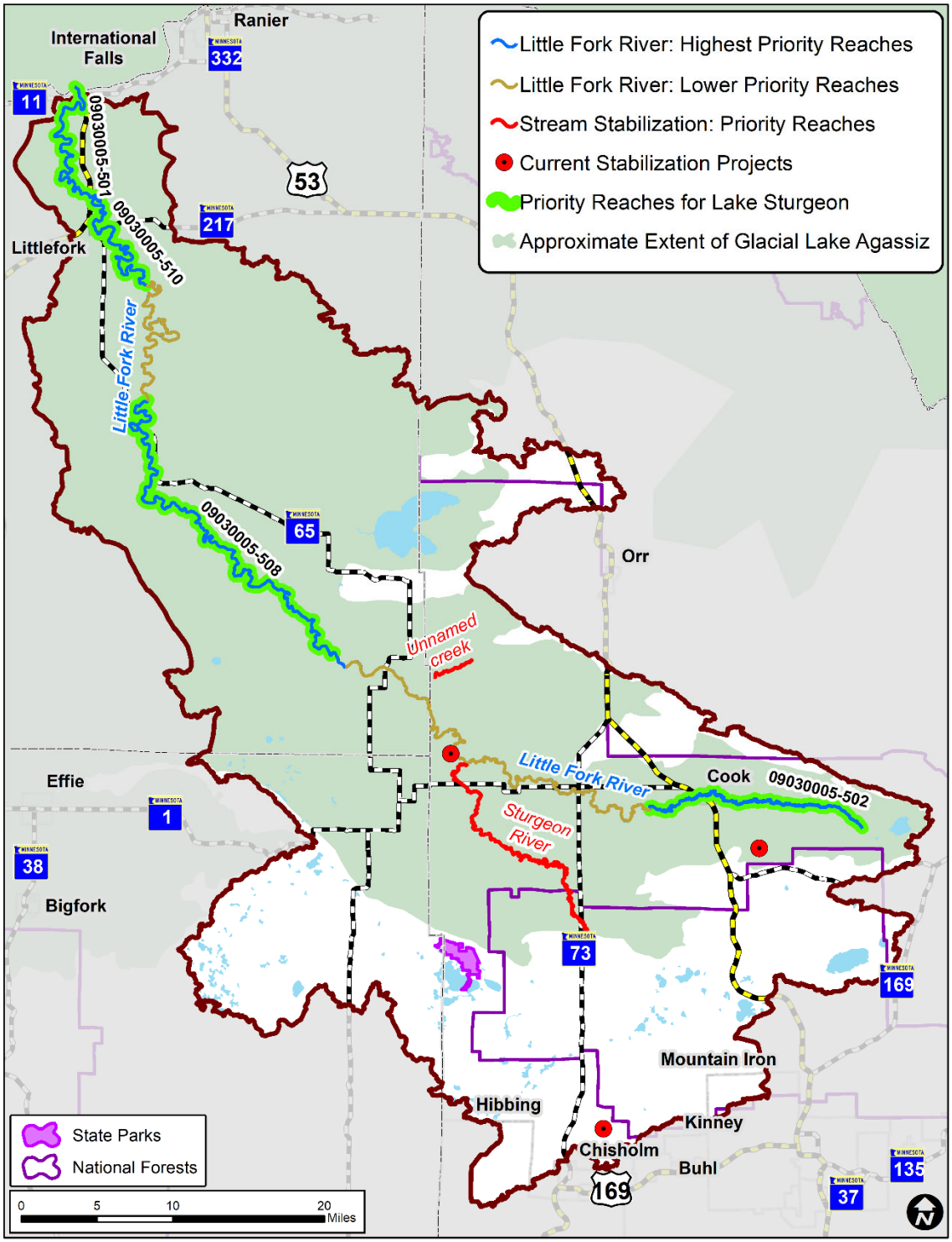


Figure 4.6. Targeting map for erosion management.

Erosion Management Actions

Action	Program	10-year Outcome	Priority Areas	Lead(s), Partners	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	Output for goal tracking	Funding	Total 10-year Cost
Sediment Reduction Feasibility Study *Feasibility of known sites to understand what projects to implement and where to reduce turbidity in the Little Fork River.*		1 study	Figure 4.6	**Counties, DNR,** SWCDs				●	●	☑	Base & WBIF	$50,000
Shoreland Stabilization *Stabilize streambanks and shorelines, drainage, and gullies, natural vegetation, BMPs, in-channel stabilization, aquatic vegetation, tree planting including considerations for EAB and ELB, riparian shading, grade control.*		2,000 feet of enhancement	Figure 4.3, Figure 4.6	**SWCDs, Counties, NRCS, Cities,** DNR		●	●	●	●	☑	Base & WBIF	$1,000,000
Shoreline Ordinance *Continue to implement ordinances and increase funding; update ordinances as needed, see detailed comparison between counties in Section 5. Update as needed.*		Counties and City Ordinances	Watershed-Wide	**Counties, Cities,** SWCDs, Townships, Associations	●	●	●	●	●	☒	Base & WBIF	$683,418
Buffer Law *Perennial vegetative buffers of up to 50 feet along lakes, rivers, and streams and buffers of 16.5 feet along public ditches.*		100% compliance	Watershed-wide	**Counties, SWCDs,** BWSR, Cities	●	●	●	●	●	☒	Base	$683,418
Stream Channel Restoration *Explore feasibility study and restoration of the Nett Lake outlet.*		Feasibility study	Nett Lake	**Bois Forte, BWSR, SWCDs**				●	●	☒	Base, WBIF & Other	$500,000
AIS Prevention & Management *Monitoring, inspection, treatment of Aquatic Invasive Species (AIS), outreach.*		Implement AIS Plans	Watershed-Wide	**Counties, SWCDs, DNR, 1854 Treaty Authority, Tribes**	●	●	●	●	●	☒	Base & Other	$172,268
Water Quality Monitoring *TSS, transparency, fish, water quality, macroinvertebrates in streams, modeling.*		Data to track improvement, WRAPS	Priority Areas	**SWCDs, MPCA,** DNR		●	●	●	●	☒	Other	$50,000
Data Collection *Use LiDAR analysis and field verification to prioritize subwatersheds/gullies contributing sediment to the Little Fork River.*		Data set	Watershed-Wide	**SWCDs, MPCA,** DNR	●	●				☒	Base & WBIF	$50,000
Outreach & Education *Erosion prevention outreach events for landowners and renters etc. aimed at protecting and maintaining shorelines / streambanks, recognition and promotion of landowner protected areas, youth outreach.*		One outreach event per year	Watershed-wide	**SWCDs, Counties, DNR, MPCA, Cities**	●	●	●	●	●	☒	Base & WBIF	$166,667

Total BASE and WBIF Funding	$2,733,503
Total OTHER Funding	$622,268

Goal: Forest Management

Description

Resources:

FORESTS WETLANDS

Forest land is of both economic and recreational importance for residents of the LFRW. Additionally, forests provide habitat for wildlife. Generating resiliency in these forests provide a wide range of benefits, including helping mitigate a changing climate, invasive species, and wildfires. Preparing forest stewardship plans while prioritizing invasive species management will all help in maintaining forest health for future climate resiliency. This goal will also work towards voluntary protection of lands in easements and Sustainable Forest Incentive Act (SFIA). Much of the watershed is already well protected: over half of the minor watersheds are over 75% protected. Continuing to protect land minimizes changes of future development, conserves natural landscapes, and provides buffers in riparian areas to minimize runoff into surface waters (**Figure 4.7**).

With over 50% of the watershed owned by federal, state, or local government, identifying key areas for managing forests is particularly important. The Little Fork Landscape Stewardship Plan (LSP) has already set goals and prioritized key areas for implementation of forest management plans and areas for protection (**Figure 4.7**). These parcels have been identified based on forest type and land ownership. However, only parcels greater than 20 acres in size qualify for a Forest Stewardship Plan in the LFRW. The LGUs will need to explore options for managing forest parcels smaller than 20 acres in size. Utilizing these efforts to prioritize key forested lands will help achieve the goals of this plan, as well as the LSP.

Issues Addressed

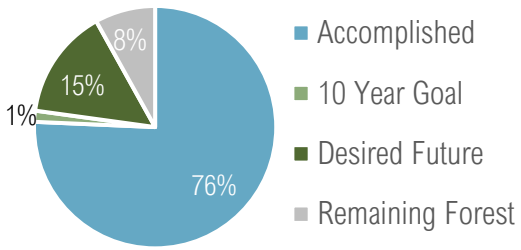
Forest Health ● Forest and Recreation Infrastructure

Goals

Already Accomplished	10-Year Goal	Desired Future
Plans: **36,428 acres**	Plans: **10,000 acres**	Plans: **99,391 acres**
Protect: **509,851 acres**	Protect: **1,000 acres**	Protect: **19,592 acres**
	10% & 5% of LSP long-term goals, respectively	100% of LSP long-term goals

Telling the Story

Implementing this goal will move the needle from 76% of watershed acres protected to 77%. The Desired Future Condition is to get to 92%, as described in the LSP.



Forest Management Targeting Map

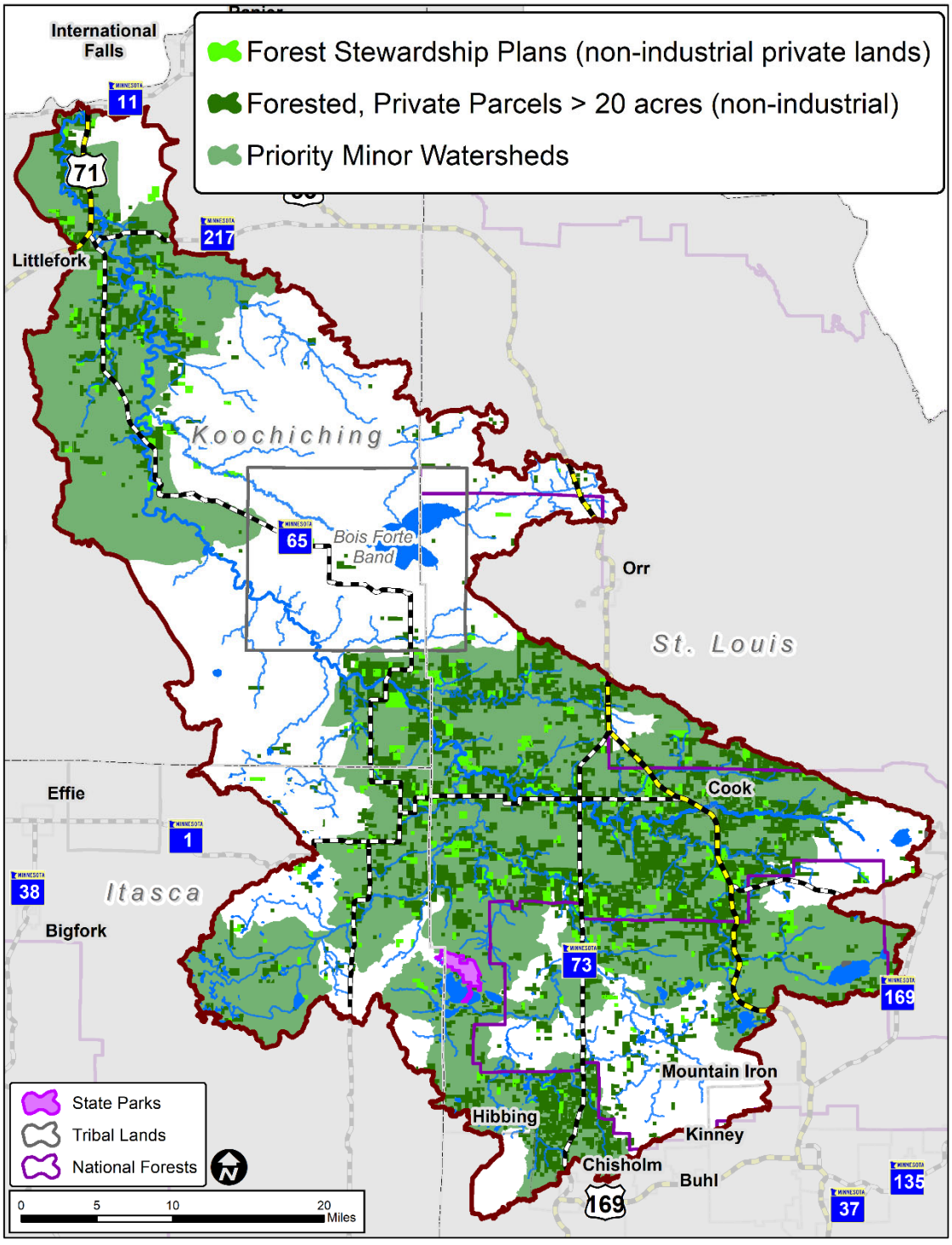


Figure 4.7. Targeting map for forest management plans.

Forest Management Actions

Action	Program	10-year Outcome	Priority Areas	Lead(s), Partners	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	Output for goal tracking	Funding	Total 10-year Cost
Forest Stewardship Plans *Management plans on private parcels, small parcel management including riparian areas.*		75 plans written; 10,000 acres of plans	Figure 4.7	**SWCDs,** DNR, Consultants, BWSR, Cities	●	●	●	●	●	☑	Base & WBIF	$60,000
Noxious Weeds & Terrestrial Invasive Species Management *Coordinate invasive species management/monitoring activities on private land, Noxious Weed Program.*		Maintain current programs	Watershed-wide	**SWCDs, DNR, Counties,** NRCS, Cities	●	●	●	●	●	☒	Base & WBIF	$10,000
Coordination of Forest Management *Coordination amongst private, local, state, and federal entities.*		Enhanced Coordination	Watershed-wide	**SWCDs, Counties, DNR**	●	●	●	●	●	☒	Base	$1,000
Forest Health Management *Technical assistance and cost-share for practices related to water quality, such as Forest Stand Improvement, tree planting, Climate Assisted Migration, prescribed burning, EAB and ELB risk planning and mitigation, wildfire response, coordinate harvesting for forest age diversity, implementation of Minnesota Forest Resources Council (MFRC) site level BMPs.*		1,000 acres	Watershed-wide	**SWCDs, NRCS, Counties, Cities, DNR, Northern Landscape Committee**	●	●	●	●	●	☒	Base, & WBIF & Other	$600,000
Forest and Land Conservation *SFIA, conservation easements, Reinvest in Minnesota (RIM) easements on priority private uplands, riparian, and shorelands, wild rice protection.*		1,000 acres	Figure 4.7	**SWCDs**, BWSR, DNR, Cities	●	●	●	●	●	☑	Other	$1,050,000
Small Parcel Management *Development of a local program for parcels smaller than 20 acres.*		Develop program, manage 100 acres	Watershed-Wide	**SWCDs. DNR, Consultants, Counties, BWSR**		●	●	●	●	☒	WBIF & Other	$10,000
Outreach & Education *Local foresters, workshops, tourism, stewardship programs, invasive species identification. Outreach to existing Forest Stewardship Plan holders.*		One outreach event per year	Watershed-wide	**SWCDs, DNR,** NRCS, BWSR, Counties, Cities	●	●	●	●	●	☒	Base	$166,667

Total BASE and WBIF Funding	$542,667
Total OTHER Funding	$1,355,000

Goal: Drinking Water Protection

Description

Resources:

GROUNDWATER

Maintaining clean drinking water is a priority for the LFRW: with over 2,750 wells in the MDH well index, most residents in the LFRW rely on private drinking water sources (**Figure 4.8**). Many of these can be vulnerable to contamination. Residents also have Subsurface Sewage Treatment Systems (SSTS) or septic systems, many of which could be aging or failing. By testing existing and sealing unused wells, as well as replacing failing septic systems, the risks of contaminated private drinking water can be significantly reducing risk. Wellhead protection plans, educational events, private well testing, will be important in reaching private landowners to protect drinking water watershed-wide and in high priority areas (**Figure 4.8**).

Drinking water quality is generally considered good in the LFRW: less than 1% of samples tested for nitrates indicate human activity as the cause for groundwater contamination, and no wells are above the standard of 10 mg/L (MDH, 2025). Only 4% of the 330 arsenic samples are evaluated above the standard of 10 µg/L. Although nitrate and arsenic levels are low, protection and vigilance are needed for this important resource.

The LFRW has several surface waters that depend on groundwater to sustain them (MDH, 2026). Therefore, groundwater management for both quality and quantity are important to maintain the health of these resources.

Issues Addressed

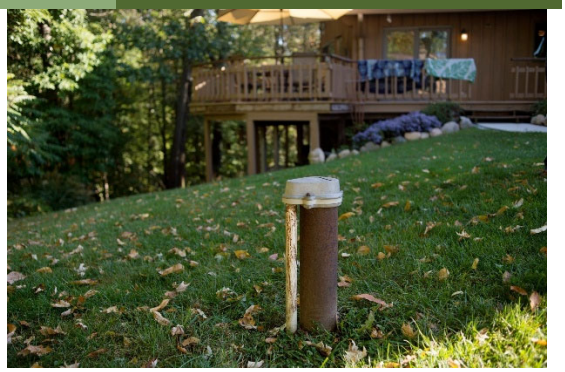
Groundwater

Goals

Already Accomplished	10-Year Goal	Desired Future
10 wells sealed and **40 septic systems** replaced	**10 wells** sealed and **100 septic systems** replaced	**All priority wells** sealed and **All failing septic systems** replaced

Telling the Story

Implementing this goal will increase the number of sealed wells in the watershed from 10 to 20 and increase the replaced failing septic systems from 40 to 140. While the goal measures these two values, these two actions in total can help to maintain water quality in drinking wells for the thousands of residents of the LFRW that rely on wells as their primary drinking water source.



Drinking Water Protection Targeting Map

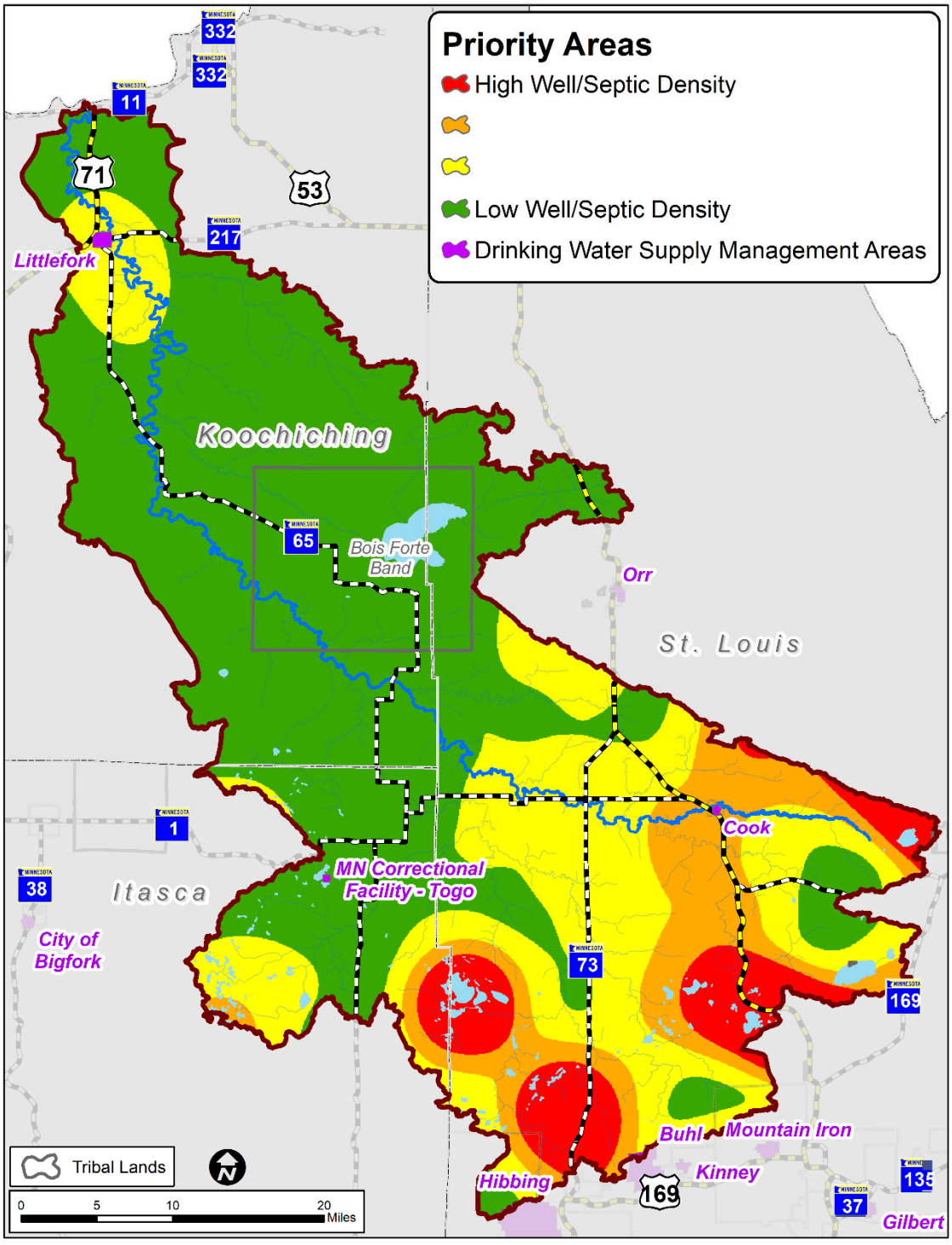


Figure 4.8. Targeting map for drinking water protection.

Drinking Water Protection Actions

Action	Program	10-year Outcome	Priority Areas	Lead(s)	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	Output for goal tracking	Funding	Total 10-year cost
Seal Abandoned Wells *Through cost share programs and outreach to increase watershed participation.*		Seal 10 unused wells	Figure 4.8	**MDH, SWCDs, Counties,** NRCS	●	●	●	●	●	☑	Base & WBIF	$10,000
Well Screening *Testing clinics for private wells for potential contaminants (e.g, nitrate, bacteria, arsenic, manganese, lead, chloride), cost shares.*		Biannual well testing clinic	Figure 4.8	**Counties, MDA, SWCDs,** MDH	●	●	●	●	●	☒	Base & WBIF	$10,000
SSTS *Cost share and low interest loans to replace noncomplying systems, grey water systems, training, RV dumping stations.*		Replace 100 Septic Systems	Watershed-Wide, Focus Lakes and Streams	**Counties, SWCDs, MDH, MPCA**	●	●	●	●	●	☑	WBIF & Other	$2,500,000
SSTS Ordinance *Enforce SSTS ordinances for greater compliance, increase effective administration of ordinances.*		All Counties	Watershed-Wide	**Counties, MPCA,** SWCDs	●	●	●	●	●	☒	Base & WBIF	$683,418
Solid Waste Management Improvement Projects *Implementation of projects for landfill management.*		2 projects implemented	Watershed-wide	**Counties, MPCA**		●		●		☒	Base	$100,000
Data Collection *Inventory active and abandoned wells in the watershed, complete county geologic atlas.*		Completed inventories	Watershed-wide	**Counties, MPCA**	●	●	●	●	●	☒	Base & WBIF	$50,000
Outreach & Education *Septic system maintenance, wellhead protection, solid waste, household hazardous waste, outreach on surface water drinking safety, septic system maintenance in relation to private drinking wells, focus on arsenic.*		One workshop per year	Watershed-wide	**Counties, SWCDs, MDH**	●	●	●	●	●	☒	Base & WBIF	$166,667

Total BASE and WBIF Funding	$1,520,085
Total OTHER Funding	$2,000,000

Goal: Stormwater Management

Description

Resources:

STORMWATER

Developed spaces create impervious surface which increases runoff into waterways that can impact water quality. Runoff can include water quality contaminants, such as nutrients, sediment, and chlorides. Stormwater management through careful planning and BMPs can reduce the risk of stormwater runoff to surface water. In the LFRW, managing stormwater in developed areas such as Littlefork and Cook (and Hibbing, mostly in the St. Louis River Watershed) are a priority, as each has significant impervious surfaces such as pavement and buildings, which increase the amount of stormwater that end up in surface waters. Managing stormwater closely with the road authorities will be important to reduce the volume of runoff on both public and private roads. Aligning long-term road construction plans between counties provide opportunities for projects.

A concern in the LFRW is roadways causing drainage issues (**Figure 4.9**). Problematic areas in Littlefork are of particular concern and cause yearly flooding and stormwater washouts. Management plans for these specific issues should be evaluated and implemented. Additionally, flooding in Cook, which impacted the commercially important River Street in 2018 and 2024, is an area of concern that should be assessed and improved.

Stormwater management can also help increase groundwater reserves by reducing runoff and increasing recharge and infiltration. Stormwater practices including stormwater treatment ponds, rain gardens, and permeable pavement all help reduce runoff and increase infiltration.

Issues Addressed

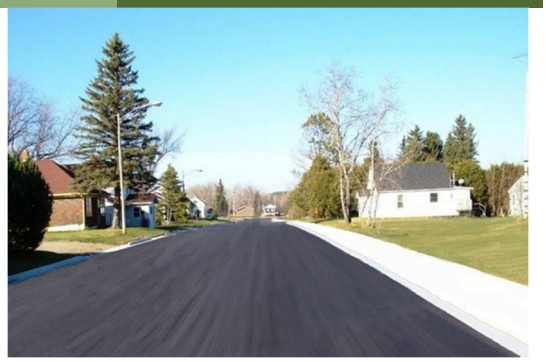
Stormwater Runoff ● Nutrients ● Flooding

Goals

Already Accomplished	10-Year Goal	Desired Future
0 plans for stormwater management	**Cook and Littlefork** stormwater plans **4 stormwater** projects	All communities have stormwater management plans and prioritized project list

Telling the Story

By implementing this goal, both major cities in the LFRW will have stormwater plans. This, in turn, will help reduce water quality concerns associated with urban areas, such as water quality contaminants. It will also address all priority stormwater and flooding concerns, important for ensuring a resilient watershed.



Stormwater Management Targeting Map

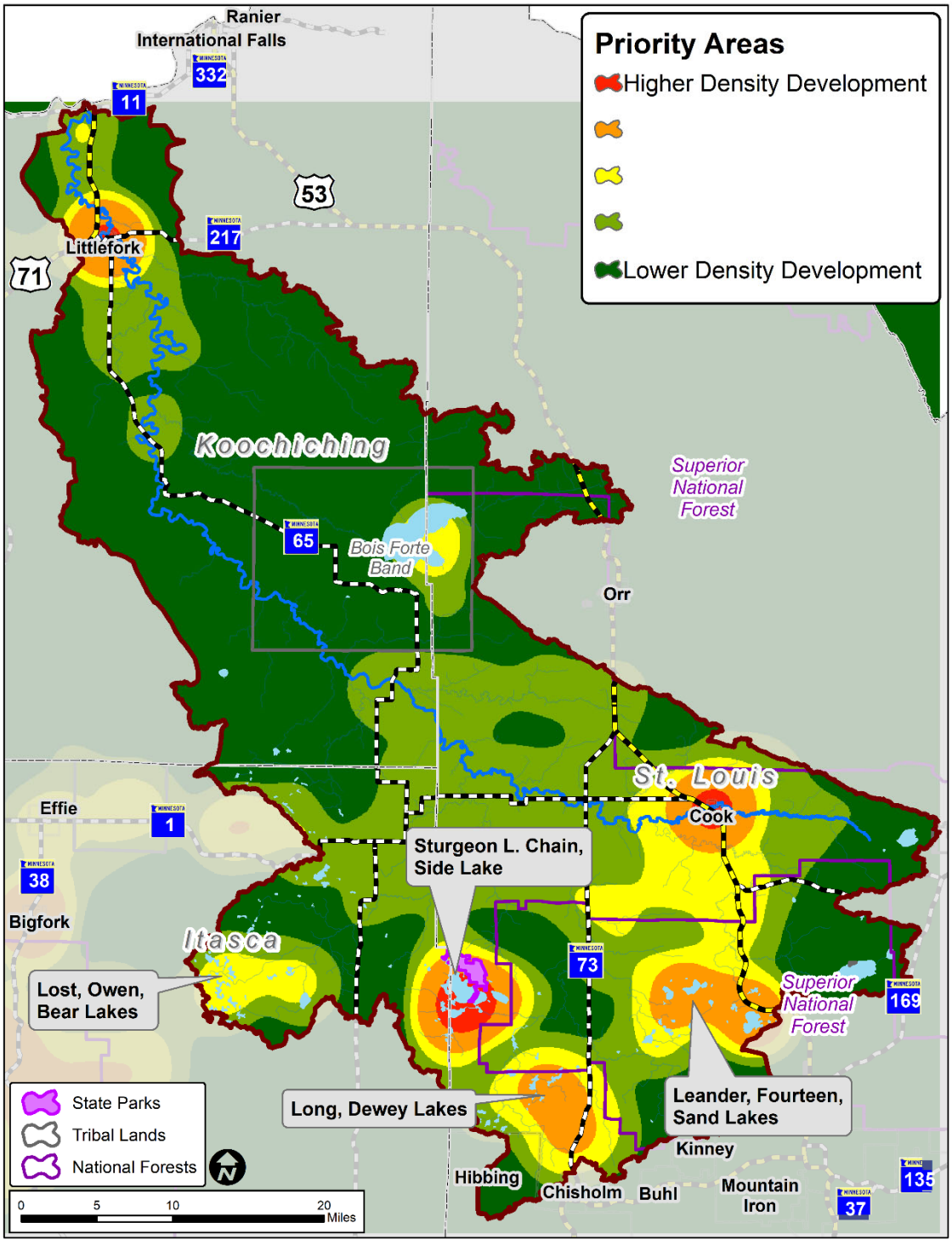


Figure 4.9. Targeting map for stormwater practices.

Stormwater Management Actions

Action	Program	10-year Outcome	Priority Areas	Lead(s)	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	Output for goal tracking	Funding	Total 10-year cost
Stormwater Management Plans *Stormwater management plans for cities and concentrated development, Side Lake.*		2 stormwater plans	Littlefork and Cook, Municipalities; Figure 4.9	**Cities, Counties, SWCDs**		●	●	●	●	☑	Base & WBIF	$200,000
Municipal & Road Stormwater Projects *Stormwater plan projects, stormwater treatment, retention basins, biofiltration, smart road projects, street sweeping, etc.*		4 stormwater projects	Municipalities, Roads, Concentrated Development	**Cities, Counties, SWCDs, MnDOT**				●	●	☑	Base, WBIF & Other	$800,000
Stormwater Permits *Provide technical assistance for stormwater design.*		Assistance provided for 10 designs	Littlefork and Cook, Counties	**MPCA, Cities, Counties**		●	●	●	●	☒	Base	$100,000
Chloride Management *Smart salting, salt storage facility BMP, education, demonstrations, chloride alternatives.*		Assist cities with plans and cost share for salt use	Littlefork and Cook, Counties	**Cities, Counties,** SWCDs	●	●	●	●	●	☒	Base & WBIF	$100,000
Non-Municipal Stormwater Projects *Implementation of landowner stormwater BMPs e.g., raingardens, home drainage and low interest loans, sewer lateral projects, gutter downspouts, small parcel stormwater, etc.*		50 projects	Littlefork and Cook, Figure 4.9	**Counties, SWCDs, Cities, MPCA**	●	●	●	●	●	☒	Base & WBIF	$250,000
Emergency Response Plans *Reviewing and updating emergency response plans (as needed) for hazardous spills, railroad corridors, fires suppressants, etc.*		Implement County Emergency Response Plans	Watershed-wide	**County, HSEM, MPCA**	●	●	●	●	●	☒	Base	$683,418
Outreach & Education *Outreach to private landowners, smart salting, workshops, youth education, etc. Relationship building within small non-municipal separate storm sewer system (MS4) communities.*		One workshop per year	Watershed-wide	**County, SWCD**	●	●	●	●	●	☒	Base & WBIF	$166,667

Total BASE and WBIF Funding	$1,700,085
Total OTHER Funding	$600,000

Overall Benefits

With current funding available plus the new watershed-based funding that will be available upon completion of this plan, planning partners aim to achieve the following overall improvements in the watershed.

Table 5.2. Overall benefits from implementing this 10-year plan. Water quality benefits were calculated using MPCA BMP effects estimator tool planner. Climate resiliency benefits were calculated using United States Department of Agriculture's (USDA) COMET-Planner.

 **Water Quality Benefits**	**Phosphorus**: the pounds of phosphorus reduced by implementing all plan goals. **Sediment**: the tons of phosphorus reduced by implementing all plan goals. **Nitrogen**: the pounds of nitrogen reduced by implementing all plan goals.	**Phosphorus:** 152 pounds/year; equivalent to **76,000 pounds of algae** **Sediment:** 86 tons/year, equivalent to **Over 8 dump trucks of sediment** **Nitrogen:** 928 lbs/year; equivalent to **232 bags of nitrogen fertilizer**
 **Habitat Benefits**	**Habitat**: acres of forest protected by implementing all plan goals.	**1,000 acres; equivalent to:** **the area covered by 756 football fields**
 **Climate Resiliency Benefits**	**Carbon**: the amount of carbon storage protected by protecting 1,000 acres of forest.	**70,033 tons; equivalent to:** **Removing 59,900 gas vehicles driven for one year**

Section 5.
Implementation Programs

The Implementation Program section of the plan describes the programs that will be used for implementing this plan. There are four main categories: Planned Landscape Management ("Manage It"), Constructed Environmental Enhancements ("Fix It"), Protected Lands Maintenance ("Keep It"), and Data Collection and Outreach ("Know It"). These programs balance differently in different watersheds based on the needs of that specific watershed. For this watershed, the "Keep It" program is lighter because of the higher percentage of public land. The "Manage It" and "Fix It" have more of the focus (**Figure 5.1**). All programs are balanced on "Know It", which is collecting and distributing information and essential for implementation of the other three categories.

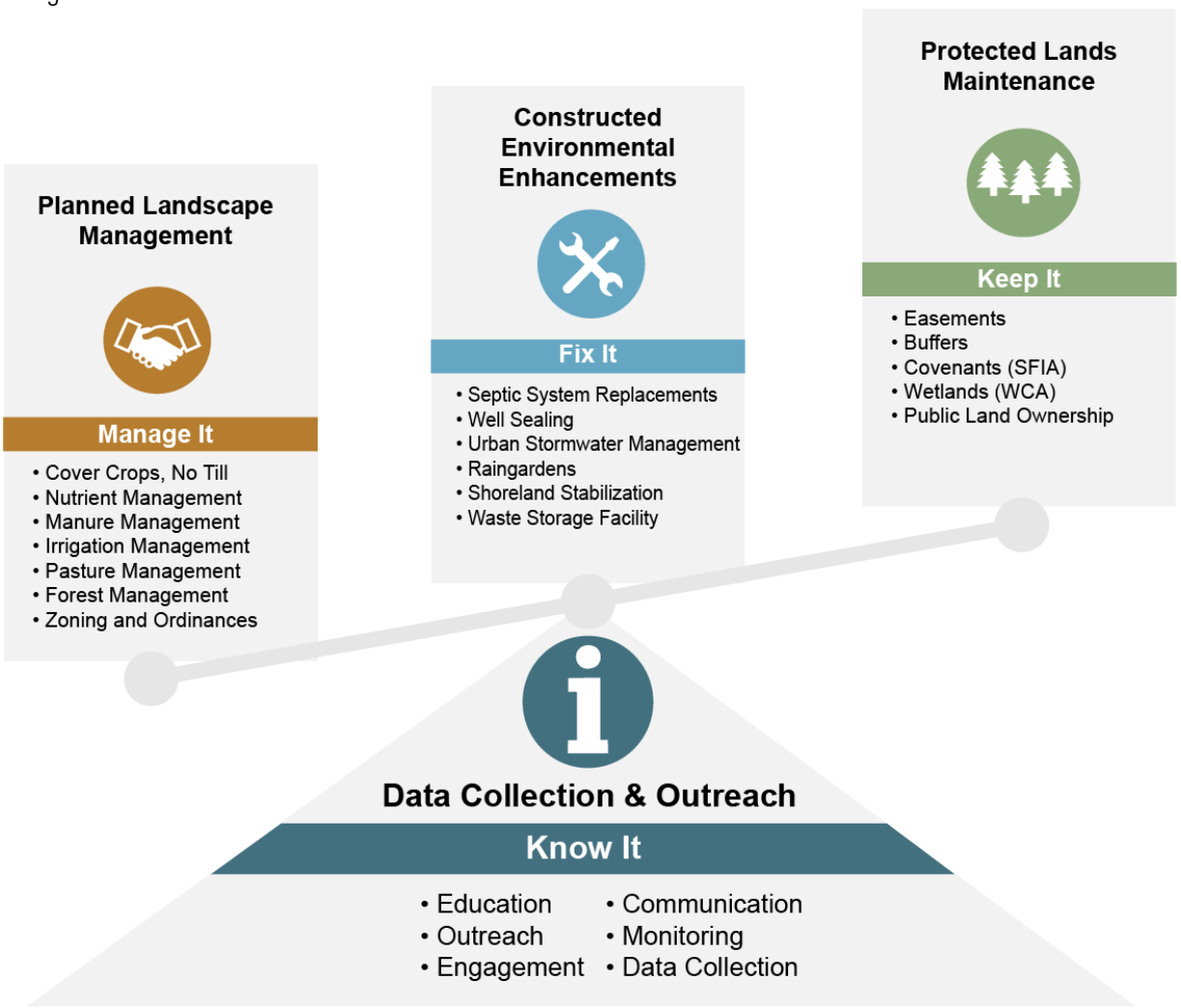


Figure 5.1 Implementation programs for the LFRW 1W1P planning and implementation process.

Environmental Justice and Equity

Environmental justice surrounds the effort to ensure that the effects of pollution and climate variability do not disproportionally impact one group more than others. The MPCA has mapped areas throughout the state as either having a high percentage of people living in poverty, people of color, limited English proficiency, or tribal areas. These areas should be given special consideration to ensure the impact of environmental problems are not disproportionately impacting these populations, which has historically led to disparities in environmental conditions and public health.

Figure 5.2 highlights areas focusing on environmental justice in the LFRW. The MPCA and MDH have additional information available at the links below:

https://www.pca.state.mn.us/about-mpca/environmental-justice

https://www.health.state.mn.us/communities/equity

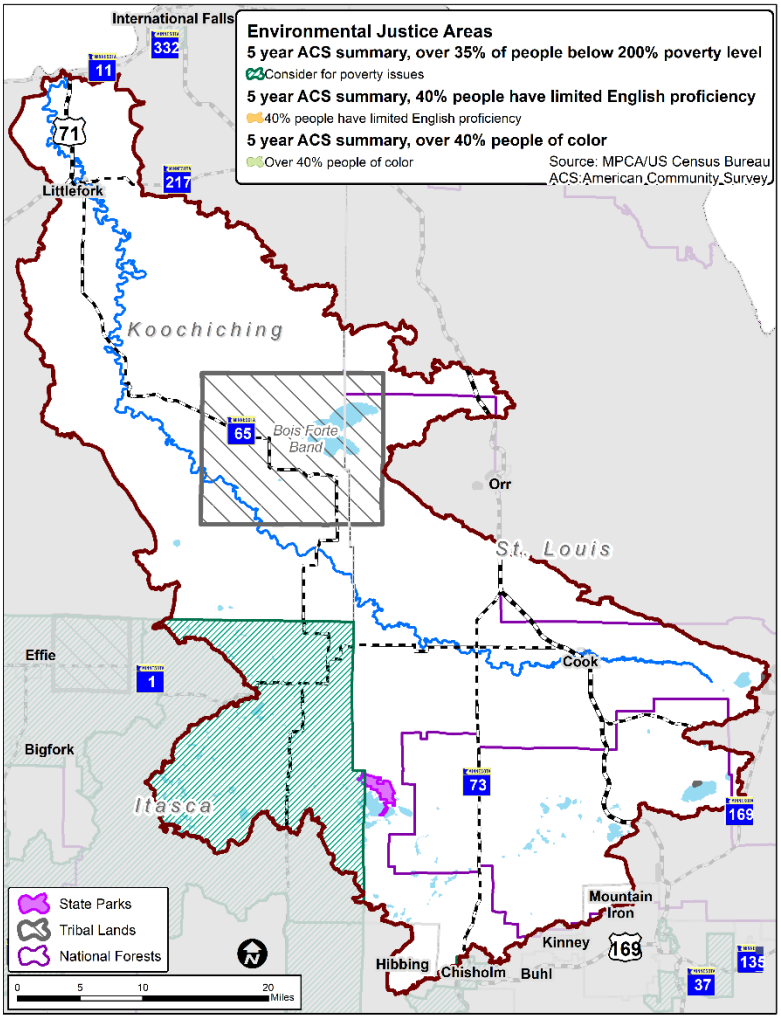


Figure 5.2 Environmental justice areas in the LFRW. There is one area where over 35% of people are below the 200% poverty level.

Manage It

"Manage It" programs involve continual management of the forested and agricultural lands. Examples of "Manage It" programs include forest stewardship plans, agricultural easements, and shoreline ordinances.

Implementation of this plan will involve programs that will be actively targeted to prioritized areas for management. Non-priority areas will be considered on an opportunity basis.

Financial Assistance Programs

Financial assistance programs are those in which the cost of implementing or installing a project is shared with the landowner. They provide payment to encourage landowners to implement practices. Implementing agricultural or livestock BMPs, forest management, or SSTS replacement are applicable examples that meet plan goals.

Private Forest Management

Forest Stewardship Plans

Forest owners can manage their land through Woodland Stewardship Plans through coordination with the DNR's Forest Stewardship Program. Forest goals can be developed in coordination with foresters to create wildlife habitat, increase natural beauty, enhance environmental benefits, or harvest timber. Use of voluntary site-level guidelines is encouraged. Plans will be prepared by a DNR-approved plan writer, which may include SWCD staff, private foresters, or DNR foresters.

Forest 2C Designation

Landowners with DNR-registered Woodland Stewardship Plans are then eligible for 2C Classification, which is a state tax classification that provides a reduced tax rate to forested property of 20 acres or more. This is an annual program administered by the counties.

Cost-share for Woodland Owners

The DNR operates a cost-share program that provides financial assistance to owners of private woodlands for several forest management practices. Typical projects are between 3 to 20 acres and can help achieve many goals, such as maintaining habitat, promoting biodiversity, or preventing wildfires.

Forest Management Guidelines

The Minnesota Forest Resources Council (MFRC) publishes voluntary site-level Forest Management Guidelines (FMGs) for both private and public lands. The FMGs provide recommendations for timber harvesting and land management to minimize impacts on water quality, habitat, and soil quality.

USDA Programs

The USDA oversees several voluntary conservation programs. These programs include the Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program, Emergency Conservation Program,

Environmental Quality Incentives Program (EQIP), Emergency Forest Restoration Program, Farmable Wetlands Program, Grassland Reserve Program, and the Source Water Protection Program.

Regulatory Programs

The counties will meet once a year to discuss ordinances. Activities will be tracked by the counties. Efforts will be made to compile information watershed-wide. Watershed partners will explore ways to better integrate this plan into comprehensive land use plans. All three counties zoning rules provide overarching regulation on land use and building, which are further discussed in the following pages. More information on ordinances can be found in **Appendix E**.

Aggregate Management

The MPCA oversees air permits, hazardous waste licenses, stormwater and wastewater management, and storage tanks (https://www.pca.state.mn.us/regulations/aggregate-sand-and-gravel). The DNR suggests LGUs consider using existing land use ordinances to create mining districts that include BMPs for developing and redeveloping mining operations and associated water use. This could help build or retain the economic benefits of mining while minimizing long-term impacts on water quality and habitat. Additionally, there may be opportunities within the watershed to reclaim abandoned aggregate pits to protect water quality and enhance habitat value.

- Regulations: Minnesota Statutes 298.75, 394.25

Bluffland Protection

Blufflands are managed under several state programs, including programs for shoreland management and Wild and Scenic Rivers. Minimum structure setbacks from bluffs and related development standards apply to land in shoreland for this watershed. The Statewide shoreland program includes land within 1,000 feet of any public water body, 300 feet of any public water river or stream, or the landward extent of their floodplains.

Construction Soil Erosion

Temporary construction erosion control is the practice of preventing or reducing the movement of sediment from a site during construction. All construction projects should follow construction BMPs, but projects disturbing one acre or more of land will require a National Pollutant Discharge Elimination System (NPDES) Permit from the MPCA.

- Regulations: Minnesota Rules, Chapter 7090.

Groundwater Use

The DNR administers groundwater appropriation permits for all users who withdraw more than 10,000 gallons of water per day or 1 million gallons per year. SWCDs, counties, and municipalities cooperate with the state and are offered the opportunity to comment on landowners' permit applications.

- Regulations: Minnesota Statute 103G for appropriation; 103H, 1989 Groundwater Act

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. Climate adaptation also plays a part in hazard management. These requirements direct the state to administer cost-sharing. Hazard Mitigation Plans/Emergency

Management Plans are deployed in all three counties as well as Federal Emergency Management Agency (FEMA) hazard mitigation programs. To stay eligible for federal funding, the development of a local government plan is required.

- Regulations: Minnesota Statute, Chapter 12
- Koochiching County Multi-Hazard Mitigation Plan (updated 2021)
- Itasca County Multi-Hazard Mitigation Plan (updated 2020)
- St. Louis County Multi-Hazard Mitigation Plan (updated 2020)

Invasive Species

Aquatic and terrestrial invasive species can cause ecological and economic damage to water resources, forests, and human health. The DNR has regulatory authority over aquatic plants and animals as well as terrestrial animals. For aquatic species, permits are required by the public for transporting lake water and invasive species and for treating invasive species. All three counties and SWCDs administer AIS programs. Terrestrial invasive species are managed by a County-wide initiative within all three counties.

- Regulations: Minnesota Statute 84D

Noxious Weed Law

Noxious weeds affect the natural, native balance of ecological functions. The Noxious Weed Law in Minnesota is administered by the Minnesota Department of Agriculture (MDA) through SWCDs (St. Louis County is responsible in their county). The State maintains noxious weed lists of those species to eradicate, control, and restrict.

- Regulations: Minnesota Statutes 18.75-18.91

Public Drainage Systems: Establishment, Improvement, Re-routing, Repairs, and Impoundments

Minnesota Drainage Law enables multiple landowners to collectively construct, improve, and repair drainage systems across property boundaries and governmental boundaries. These drainage systems can be open ditches and/or subsurface tile. Drainage systems have their own laws and requirements that LGUs must uphold.

- Regulations: Minnesota Statute 103E

Public Waters

Public waters include lakes, watercourses, and wetlands over which DNR has regulatory jurisdiction. Minnesota Statute 103G.005, Subd.15 defines a public water. The DNR maintains the Public Waters Inventory, which is a map that can be viewed to see if a water is public. If a watercourse or basin is a public water, no work may be done on it without a permit.

- Regulations: Minnesota Statute 103G

Shoreland Management

Minnesota has shoreland management rules that are administered by the DNR. LGUs are required to have land use controls that protect shorelands along lakes and rivers, and they can adopt stricter ordinances than the state's requirements, if desired (**Table 5.1**). DNR published an Innovative Shoreland Standards Showcase

website that may be helpful to local governments as they implement this plan: https://www.dnr.state.mn.us/waters/watermgmt_section/shoreland/innovative-standards.html.

- Regulations: Minnesota Statute 103F and Minnesota Rules 6120.2500-3900

Table 5.1 Comparison of Lake Shoreline Ordinances in Koochiching, Itasca, and St. Louis counties. The two values for Koochiching represent sewered / unsewered requirements. For Itasca County, specific requirements may depend on acreage.

	General Development	Recreational Development	Natural Environment
Definition (DNR)	Generally large, deep lakes with high levels and mixes of existing development. These lakes often are extensively used for recreation and are heavily developed around the shore.	Generally medium-sized lakes characterized by moderate levels of recreational use and existing development. Development consists mainly of seasonal and year-round residences and recreationally oriented commercial uses.	Generally small, shallow lakes. They often have adjacent lands with substantial constraints for development such as wetlands and unsuitable soils. These lakes usually do not have much existing development or recreational use.
Minimum Water Frontage and Lot Width (Single lot)	**Itasca:** 150 ft. **Koochiching:** 100 ft./75 ft. **St. Louis:** 100 ft.	**Itasca:** 200 ft. **Koochiching:** 150 ft./75ft. **St. Louis:** 150 ft.	**Itasca:** 200 ft. or 300 ft. **Koochiching:** 200 ft./125 ft. **St. Louis:** 200 ft.
Minimum Lot Area (Single home)	**Itasca:** 0.75 acres **Koochiching:** 0.46/0.34 acres **St. Louis:** 0.5 acres	**Itasca:** 1.5 or 2 acres **Koochiching:** 0.92/0.46 acres **St. Louis:** 1 acre	**Itasca:** 2 to 3 acres **Koochiching:** 0.92/1.84 acres **St. Louis:** 2.5 acres
Minimum Setback from Ordinary High-Water Level	**Itasca:** 75 ft. **Koochiching:** 75 ft./50 ft. **St. Louis:** 75 ft.	**Itasca:** 100 ft. **Koochiching:** 100 ft./75 ft. **St. Louis:** 100 ft.	**Itasca:** 100 ft. or 200 ft. **Koochiching:** 150 ft./150 ft. **St. Louis:** 150 ft.

For streams, the Little Fork River has standards of a minimum lot width to be between 75-750 feet for riparian lots. The lower end represents single, sewered lots. Remote, multi-unit lots represent the higher end. Minimum riparian lot size is 2.5 acres for platted and 5.0 for non-platted. The full ordinance for the Little Fork River can be found here: https://www.co.koochiching.mn.us/DocumentCenter/View/168/Littlefork-Rat-Root-River-Shoreline-Management-Ordinance-PDF.

In Itasca County, the minimum riparian lot width is 150, 200, and 300 feet for tributary, forested, and remote river classes, respectively.

Minimum Lot Sizes and Dwelling Density

Minimum lot sizes and dwelling densities for subdividing parcels also varies per county. Larger tracts of land (20-40 acres) could be protected by forest stewardship, while smaller lot sizes (one acre or less) have the potential for future subdivision for development.

SSTS

SSTS programs are required by Minnesota State Statute to protect public health and environment. Counties are required to have an ordinance that regulates and enforces SSTSs at the county level. Cities and townships may administer their own programs but it must be as strict as their county's ordinance. Low-interest loans and low-income grants are available through the SWCD or county. All counties have a SSTS Ordinance.

- Regulations: Minnesota Statutes 115.55 and 115.56; Minnesota Rules Chapters 7080, 7081, 7082, and 7083

Waste Management

Solid Waste Management in Minnesota is managed at the county level and includes programs related to mixed municipal solid waste, industrial waste, and non-landfill programs such as recycling to include paper, plastics, metal, tires, electronics, appliances, and other recyclable items. Koochiching County is part of the Northeast Minnesota Regional Solid Waste Management Plan (10-year plan), combining the individual County and Western Lake Superior Sanitary District solid waste management plans required by the MPCA into one regional solid waste management plan. Itasca and St. Louis Counties have Solid Waste Management Plans (10-year plans). As part of these plans, each county that is part of the Northeast Minnesota Regional Solid Waste Management Plan sponsors the Regional Household Hazardous Waste (HHW) program that receives some state funding to implement.

- Regulations: Minnesota Statutes 115.55; Minnesota Rules Chapters 7001, 7035, 7045, 7150, 7151, 9215, and 9220

Wellhead Protection

The purpose of the Wellhead Protection Program is to prevent contamination of public drinking water supplies by identifying water supply recharge areas and implementing management practices for potential pollution sources found within those areas. MDH is responsible for statewide administration. The program has since expanded to Source Water Protection to include supplies that rely on surface water. Wellhead Protection is mostly administered at the city level.

- Regulations: Minnesota Statutes, Chapter 103I; Minnesota Rules, Chapter 4720; Federal Safe Drinking Water Act, US Code, Title 42, Chapter 6A, Subchapter XII, Part E, Section 300j-13; Minnesota Rules, Chapter 4725

Well Construction Standards

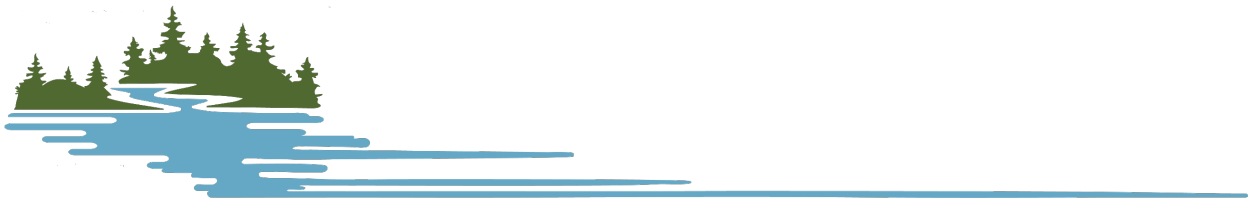
Well construction standards are an MDH Program.

- Regulations: Minnesota Well Code/ Minnesota Rules Chapter 4725

Comprehensive Plans

County comprehensive plans are required to implement land use regulatory ordinances and provide the framework of the ordinance requirements. Current comprehensive land use plans in the LFRW include:

- City of Cook Comprehensive Plan (2015)
- Itasca County Comprehensive Land Use Plan (Amended 2013)
- Koochiching County Comprehensive Land Use Plan (2001)
- Koochiching County Local Water Management Plan (2018)



- Littlefork Comprehensive Plan (forthcoming)
- Littlefork Landscape Stewardship Plan (forthcoming)
- St. Louis County Comprehensive Water Management Plan (Amended 2015)

Keep It

"Keep It" programs involve permanent landscape protection, such as SFIA, conservation easements, aquatic management areas, and other easements.

Implementation of this plan will involve programs that will be actively targeted to prioritized areas for protection. Non-priority areas will be considered on an opportunity basis.

Conservation Easements

Conservation easements are voluntary, legal agreements between a landowner and governmental or nonprofit organization, whereby land use and development are limited on a property while conserving natural values of that landscape. RIM has many options for easements including habitat, forestry, and grasslands. The easements are individually tailored agreements with organizations such as BWSR, DNR, Minnesota Land Trust, or The Nature Conservancy (TNC).

Sustainable Forest Incentive Act

The Sustainable Forest Incentive Act (SFIA) provides annual incentive payments for a landowner that enters a covenant taking away some of the rights of the land (development and farming, for example). Private landowners can receive a payment for each acre of qualifying forest land they enroll in SFIA. In return, they follow the covenant for a set period: either 8, 20, or 50 years. Data on current enrollees shows that landowners who start with an 8-year covenant commonly move up to a 50-year covenant (DNR), which is why this program is considered under "Keep It."

Wetlands

Wetlands are protected by the Minnesota WCA. The overall goal of the act is no net loss of wetlands. Draining, filling, and in some cases excavating in wetlands is prohibited unless (a) the drain, fill, or excavation activity is exempt from requiring replacement or (b) wetlands are replaced by restoring or creating wetland areas of at least equal public value. Replacement can be buying credits or creating/restoring a wetland (usually credits are encouraged over an on-site replacement). Counties enforce the WCA, while SWCDs work with landowners to restore wetlands.

- Regulations: Minnesota Rules, part 8420.0105

Buffers

In 2015, Minnesota enacted legislation requiring buffers of perennial vegetation of an average of 50 feet with a minimum of 30 feet on public waters and 16.5 feet for public drainage systems. This program is regulated by

BWSR and implemented at the county level. Each county has an ordinance for buffer management, and SWCDs conduct buffer compliance checks.

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

Land Acquisition

For areas with unique and important resources that meet state goals, the DNR, United States Fish and Wildlife Service (USFWS), counties, cities, townships, and other entities may purchase and manage the land. Examples include Aquatic Management Areas that are used for fish spawning habitat and Wildlife Management Areas (WMAs) that are used for small game hunting and waterfowl migration.

Fix It

"Fix It" programs are constructed environmental enhancements. These programs include enhancements and installations on the landscape such as septic system upgrades, riparian enhancement, and well sealings.

Low Interest Loans

Low-interest loans may be made available for septic system replacement, small community wastewater treatment systems, agricultural BMPs, and other projects that meet eligibility criteria for funding.

Cost-share Programs

Cost-share programs can also be used for structural practices. Implementing fencing and water sources for grazing cattle away from streams, shoreline enhancements on lakeshore, and well sealing are examples that meet the goals of this plan. Implementation of this plan will involve cost-share programs that will be actively targeted to prioritized areas for projects. Non-priority areas will be considered on an opportunity basis.

Capital Improvements

Capital improvements are large projects that require significant investment and have a longer lifespan than cost-share programs. These types of projects and activities often require feasibility studies before design and construction can proceed. Capital improvement projects often involve collaboration amongst multiple public and private organizations or governmental departments and are often good candidates for state or federal grant funding. Urban stormwater control projects are an example of capital improvement projects within the plan boundary.

Operation and Maintenance

After BWSR-funded projects are installed, the BWSR Grants Administration Manual requires regular on-site inspections and maintenance to ensure the project's continued function and success. These details, along with records, including notes and photos, should be included with each project's Operations and Maintenance Plan. BWSR's recommended inspection plans for capital improvement projects with a minimum effective life of 25 years, according to the Grants Administration Manual, includes inspection after years 1, 8, 17, and 24.

Know It

"Know It" programs are the backbone of the plan and instrumental for achieving the plan's goals. These programs include inventories, educational events, and monitoring, all of which are essential for understanding the watershed.

Data Collection and Analysis

Data collection, inventory, and monitoring are crucial for determining where projects are needed, investigating problems, and tracking progress towards the measurable goals of this plan. Current data collection and monitoring efforts are described, along with data gaps that have actions for implementation.

Current Data Collection and Monitoring Efforts

Currently, a wide variety of monitoring is carried out on multiple government and local organization levels (**Table 5.2, Figure 5.3**).

These existing data helped determine the current conditions of surface water, groundwater, and habitat in this plan and developed a starting point for measuring progress toward goals moving forward. Because these are already established programs, they don't cost additional funds during plan implementation.

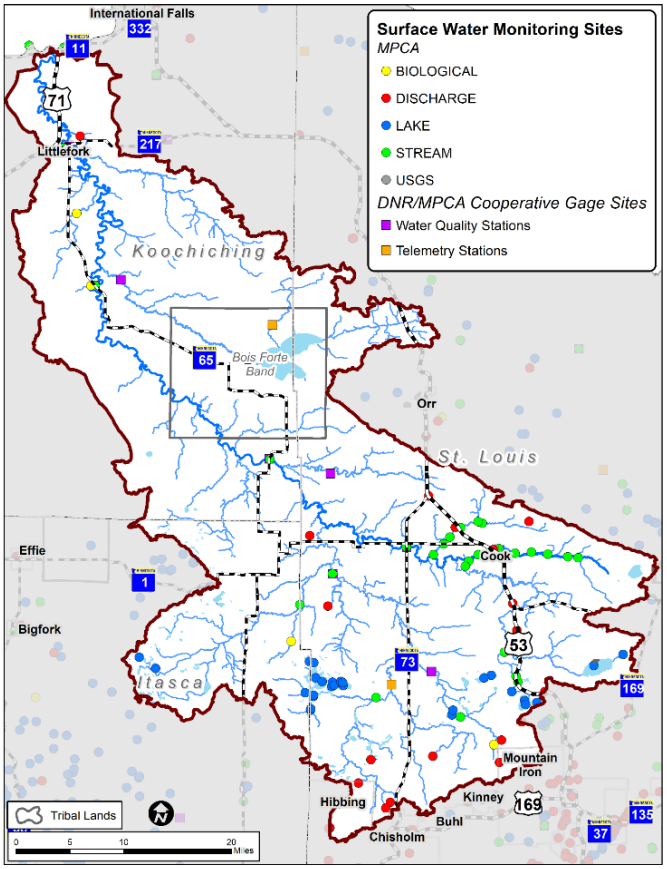


Figure 5.3 MPCA water monitoring locations in the LFRW.

Table 5.2 Summary of ongoing water quality and quantity monitoring programs. RS= rivers and streams, L= lakes, W= wetlands, GW= groundwater.

Parameters	MPCA	DNR	MDH	MDA	Counties & SWCDs	USFS
Nutrients	RS, L, W	RS, L	RS, L, W	RS, GW	GW	L
Suspended Solids	RS, L, W	RS	GW	RS	RS	
Productivity	RS, L	RS				
Pesticides			RS, L, GW	RS, L, W, GW		
Bacteria	RS, L		GW		RS	L
Biology	RS, L, W	RS, L				L
Water level/ Flow	RS, L	RS, L	GW		L, RS	
Algal Toxins	L					L
Invasive Species		RS, L			L, RS	L
Fish Contaminants	RS	L				L
Chlorides	RS, L, W	RS	RS, L, GW			
Sulfates	RS, L, W	RS, L	RS, L, GW			

Below is a summary of current monitoring and data collection, organized by resource.

River Monitoring

Credit: Whitney Sims

As part of the Intensive Watershed Approach, the MPCA conducts intensive stream monitoring in each major watershed on a 10-year cycle. Water chemistry and biological parameters are collected, and results are assessed against water quality standards. The LFRW last completed its monitoring in 2018.

The MPCA Watershed Pollutant Load Monitoring Network (WPLMN) provides funding to local partners to assist with intensive water quality monitoring at long-term sites. Monitoring at these sites can be used to track progress towards reduction of phosphorus, sediment, nitrogen, and water outflow during plan implementation (**Figure 5.3**).

During the MPCA's intensive monitoring cycle, the rivers in the watershed are tested for biological parameters. The DNR monitors fish and MPCA monitors macroinvertebrates (**Figure 5.3**). Any biological impairments are assigned a stressor that is likely causing the reduction in diversity. Stressors include loss of habitat, loss of connectivity, sediment, dissolved oxygen, and altered hydrology.

To track pollutant reductions from plan implementation actions and point source improvements, it would be beneficial to continue monitoring sites in focus streams. Monitoring could include water chemistry, littoral zone studies that assess habitat quality, and more.

Lake Monitoring

As part of the Watershed Approach, the MPCA conducts intensive lake monitoring in each major watershed on a 10-year cycle. Water chemistry is collected and results are assessed against water quality standards. The LFRW last completed mointoring in 2018. To track pollutant reductions from plan implementation actions and point source improvements, it would be beneficial to continue monitoring sites in focus lakes.

Forest Management

There are multiple levels of forest management in the watershed. The counties each have forestry plans, there are also Minnesota Forest Resource Council regional landscape plans, and watershed-based landscape stewardship plans. The USDA Forest Service manages the Superior National Forest in the watershed.

Groundwater Monitoring

The DNR monitors groundwater availability and ecological impacts through the Cooperative Groundwater Monitoring network. The MDA monitors groundwater for agricultural chemicals and fertilizer contamination. The MDH monitors wells and drinking water supplies for public health, including bacteria, nitrates, and arsenic.

Wetland Monitoring

Wetlands in the watershed are protected by the WCA. All counties monitor and enforce WCA. Federal wetland regulations apply where applicable.

Outreach and Project Development

Public participation and engagement are essential for successfully implementing this plan. The implementation of actions in this plan is voluntary and require willing landowner and stakeholder participation.

Landowners have varying levels of understanding of conservation practices, programs, and funding opportunities available. Many times, the first step towards adopting conservation practices is outreach. Outreach can be conducted in a variety of ways, including social media, workshops, and mailers. It will be targeted to landowners in priority areas to help target conservation practices in those areas to reach plan goals. Outreach can also be identifying and educating decision-makers who support implementation work, such as commissions, state officials, or other local government officials. Examples of outreach include Envirothon, Outdoor Education Days, climatology monitoring, household hazardous waste collections, and buckthorn removal.

The second step is knowledge exchange, including site visits, technical assistance, peer-to-peer networks, and demonstration plots. Sometimes the outreach and knowledge exchange can take years before landowners adopt the practices. Once the landowner is interested in adopting practices, incentives and cost-share programs can help them get started.

Achieving Plan Goals

Plan progress towards goals will be tracked by watershed partners throughout the implementation process. The Steering Committee will develop ranking criteria to develop projects during work planning, with the assumption that projects identified in this plan will be prioritized for funding.

There will be different levels of measuring progress for this plan. Projects will be tracked during implementation with the system chosen by the watershed. This will include but is not limited to:

- Tracking: gathering and compiling data on practices, miles, and other quantitative goals.
- Reflecting: comparing work activities completed to those in the plan.
- Evaluation: monitoring to see changes on the landscape or in water quality.
- Sharing: maintain support through communication about local implementation geared towards stakeholders and the citizens of the watershed.

Section 6.
Plan Administration

The Plan Administration section describes the process for plan implementation, how plan partners will collaborate, how funding will be shared between partners, and which partners will execute different administrative processes during plan implementation. This section provides an outline of how the 10-year implementation process will occur, however these guidelines can be amended to best reach plan goals during the implementation process.

Formal Agreements

The LFRW Partnership is a collaboration between Koochiching County, Koochiching SWCD, Itasca County, Itasca SWCD, St. Louis County, North St. Louis SWCD, and the municipalities of Littlefork and Cook (**Figure 6.1**). These entities previously entered a MOA for purposes of drafting this plan (**Appendix A**). Upon plan approval, these entities will enter into a formal agreement to implement this plan.

There are other local partners that will be important collaborators during implementation. This includes the Bois Forte Band of Chippewa. The plan's intention is not to place undue burden on Tribal government or Band members, but to enter into cooperative working relationships and agreements so plan goals can be achieved on Tribal lands and waters only if they serve and meet Tribal goals and regulations. As such, the Bois Forte Band of Chippewa will be important local collaborators outside of the formal agreement.

Decision-Making and Staffing

Plan implementation in the LFRW will require increased capacity of plan partners, including potentially increased staffing, funding, and coordination from current levels. Successful implementation will require generating interest and increasing partnerships within the watershed.

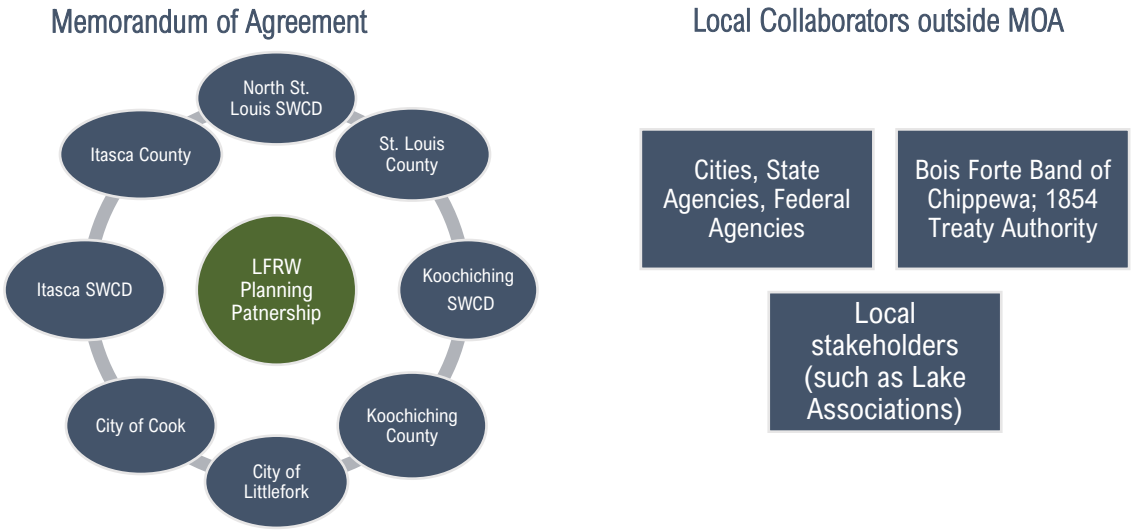


Figure 6.1 MOA organization for the LFRW.

The decision-making process and staffing for implementing the LFRW CWMP will be conducted based on this section of the plan. The probable roles and functions related to plan implementation are outlined in Figure 6.2, however the roles of each committee can shift and change during implementation to best meet the needs of the LFRW Partnership. Fiscal and administrative duties for plan implementation will be assigned to an LGU through a Policy Committee decision as outlined in the formal agreement. Responsibilities for work planning and serving as the central fiscal agent will be revisited by the various Committees.

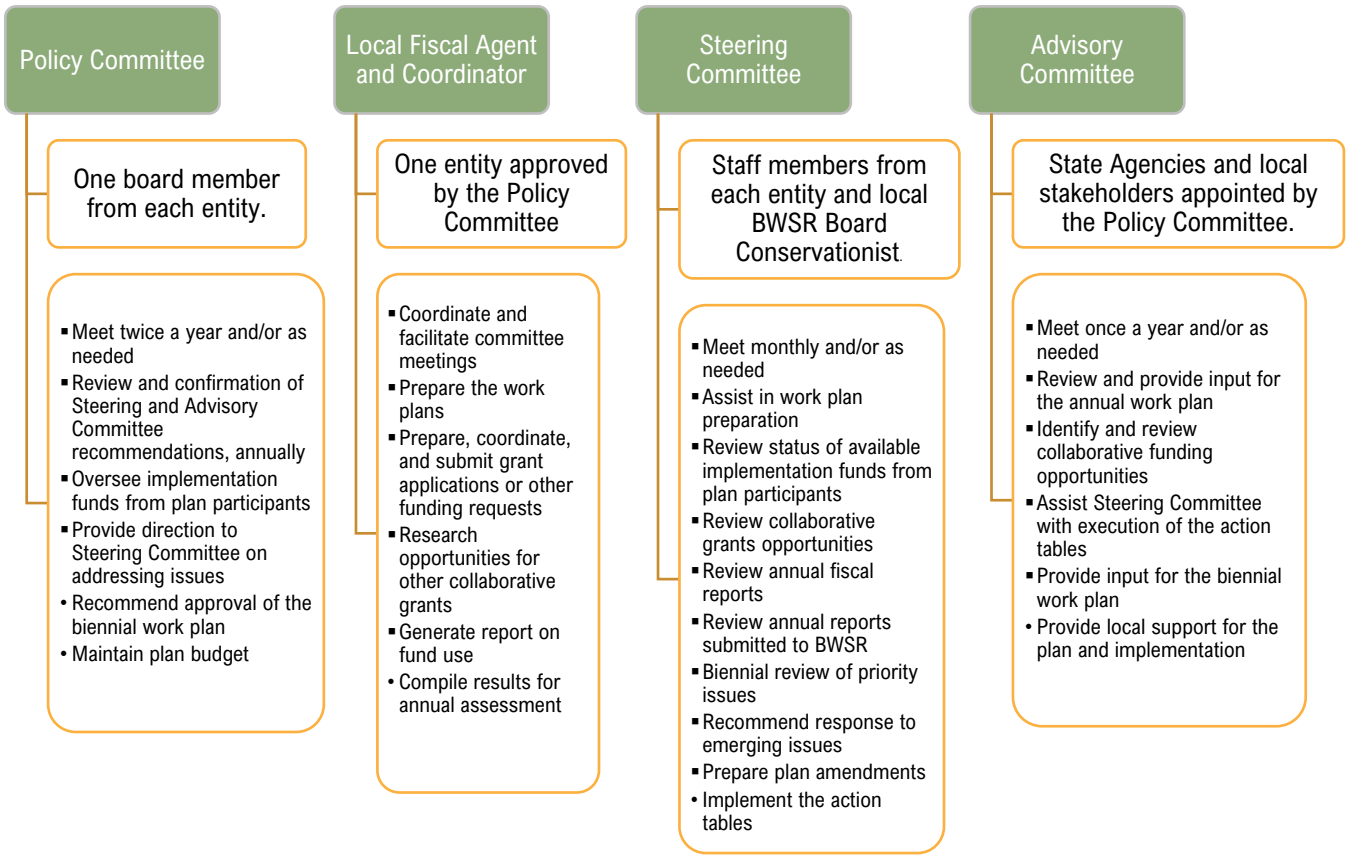


Figure 6.2 Roles for LFRW implementation. The LGUs will be collectively referred to as the LFRW Partnership.

Collaboration

Collaboration between Planning Partners

The LFRW Partnership acknowledges the need for collaboration between planning partners to successfully implement the plan. Successful collaboration will generate consistent implementation of actions watershed-wide, increased chances of project funding, as well as resource efficiencies gained.

Collaboration already exists between the LGUs in the LFRW. Key existing collaborations include TSA8, TSA3, as well as the MFRC Northern Landscape Committee. Additionally, the counties and SWCDs collaborate on implementing the AIS Program, including monitoring, inspections, and outreach. Moving forward, the

Partnership will continue to pursue opportunities between LGUs to gain the benefits described above: resource efficiencies, increased funding opportunities, technical assistance, and streamlined implementation. The LFRW Partnership will also review similarities and differences in local regulatory administration to identify local successes and identify changes needed in the future to make progress towards goals outlined in this plan.

Collaboration with Other Units of Government

The LFRW Partnership will continue to coordinate and cooperate with other governmental units at all levels. Coordination with state agencies will continue as their cooperation is essential for plan implementation and many have been participants in the planning process on the Advisory Committee (and will continue to do so on the implementation timeline).

Inter-agency cooperation will also be essential with other LGUs, cities, and Counties, particularly as many programs are best implemented through collaborative methods. Examples of collaborative programs in the watershed include the Conservation Contracts (SWCD/BWSR), Wellhead Protection for Community Water Supply DWSMAs (Minnesota Rural Water Association (MRWA)) and MDH, and Forest Stewardship Program (DNR) and WRAPS (MPCA). The USFS works with counties on forest management (good neighbor authority). This watershed has already undertaken a large collaboration to complete the United States Geological Survey (USGS) sediment study, which included the USGS, MPCA, SWCDs, and the University of Minnesota.

Collaboration with Others

Support from local groups and citizens as well as partnerships will be a primary driver of success for the outcomes of the plan. Many of the plan's actions focus on voluntary practices and engaging with stakeholders/landowners, therefore collaborations with landowners in the watershed are essential for successful plan implementation. Many actions in the plan require working directly with landowners and providing cost share and technical assistance for implementation. Lake associations will be key to implementing shoreline projects. Many of the existing partnerships in the LFRW have been integral to plan development and are committed to furthering promotion of these collaborations. Potential partners for collaboration include (but are not limited to) Ducks Unlimited, sporting clubs, Koochiching Economic Development Authority, Superior National Forest, Minnesota Forest Resources Council, lake and river associations, private businesses, individuals, and other foundations.

Funding

The LFRW Partnership will pursue funding opportunities to implement the actions described in the plan. Current county, SWCD, and city budgets make up baseline funding and will not be enough to implement the actions described in this plan. Successful plan implementation will require reliable non-competitive Watershed-Based Implementation Funding in addition to competitive state, federal, and private grants. The LFRW Partnership acknowledges that additional staffing may be necessary to complete plan goals and action tables. LGUs in the LFRW will be responsible for hiring additional staff as needed.

Base funding is based on the annual revenue and expenditures of the SWCDs and Counties apportioned to the percentage of each jurisdictional area in the LFRW plan area. The current level of funding by each LGU is expected to remain consistent during the 10-year life of this plan. It includes local funds such as county

allocations for SWCDs, state funds such as conservation delivery grants, and other grants. The base funding is estimated to be $500,000 per year.

Upon completion of this plan, the LFRW Partnership is eligible to receive WBIF. This is non-competitive, allocation-based funding from Minnesota's Clean Water Fund (Clean Water Land and Legacy Amendment). The estimate for WBIF in this watershed is $613,183 per year at the time this plan was written.

Overall cost of implementing the plan is summarized in **Table 6.1**. To successfully implement the actions in this plan, time and expenses will be incurred for plan administration and for technical and engineering assistance which is not included within the action tables in Section 4. Because of this, it is anticipated that an additional $275,000 will be needed per year beyond base, WBIF, and other dollars to implement actions in the plan.

Other funding needed to implement the plan consists of funding that is administered outside of the LFRW Partnership, including projects implemented by the 319 grant, Outdoor Heritage Fund, NRCS and other state agencies. There is likely to be more project funding occurring in the watershed above these totals, as it is difficult to document projects by all entities, including private landowners.

Table 6.1 Funding levels for the LFRW CWMP.

Funding Levels	Abbreviations	Description	10-Year Total
Baseline Funding	Base	• Current Baseline Funding	$5,000,000
Funding Needed to Fully Implement This Plan	Base + WBIF + Additional Funding	• Current Baseline Funding & • 2025-2026 WBIF Allocation & • *An additional funding of $275,000/year needed*	$13,900,000
Other	Other	• Other Funding (i.e. Lessard Sams, DNR, NRCS, SFIA, USFS, USFWS, LSOHF, MPCA, etc.)	$7,237,268

Total funding that is directed specifically towards actions in the action tables can be summarized by implementation program type as previously described in Section 5. Much of the WBIF funding is going towards "Manage" (56%) and "Fix It" (23%) programs. The "Keep It" program (10%) has a small percentage of the budget as much of the watershed is already protected. Overall, 11% of implementation dollars are being used for outreach, monitoring, feasibility studies, and data collection ("Know It" program)

Figure 6.3 shows the breakdown of Base and WBIF funds towards the different goals for the plan.

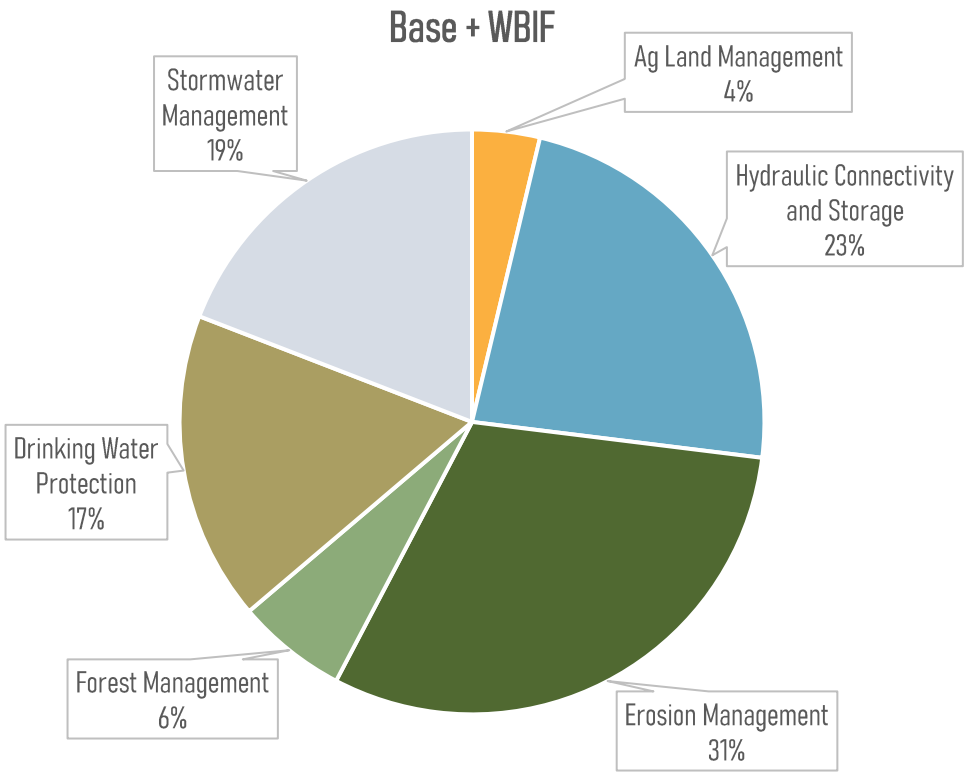


Figure 6.3 Breakdown of percentage off base and WBIF funding by goal.

Table 6.2 lists commonly used programs and grants for executing implementation programs described by this plan and used within the action tables. The funding grants and programs are cross-referenced to plan implementation programs, showing potential sources of revenue for implementation. Programs will be coordinated uniformly throughout the watershed when possible.

Table 6.2 Funding sources available for plan implementation.

Agency	Program/Fund Name	Type of Assistance	Form of Assistance				
BWSR	Clean Water Fund	Financial	Grant	•	•		•
BWSR	Natural Resources Block Grant	Financial	Grant		•		
State of Minnesota	SWCD Aid	Financial	Appropriation		•		•
BWSR	Erosion Control & Management Program	Financial	Grant		•		•
DNR	Conservation Partners Legacy	Financial	Grant				
DNR	Aquatic Invasive Species Control	Financial/ Technical	Grant		•		
DNR	Forest Stewardship Program	Technical	Cost Share		•		

Agency	Program/Fund Name	Type of Assistance	Form of Assistance				
DNR	Aquatic Management Area, Wildlife Management Area	Financial	Fee Title Acquisition			•	
DNR	ReLeaf Community Forestry					•	
DNR	Prioritize Stream Restoration Projects Scoring Worksheet				•		
DNR/Revenue	Sustainable Forest Incentive Act	Financial	Incentive payment			•	
MPCA	Clean Water Partnership and Section 319 Grant Program	Financial	Grant	•			
MPCA	State-Revolving Fund	Financial	Grant	•			
MPCA	Climate Resilience Stormwater			•	•		
MPCA	Surface Water Assessment Grant	Financial	Grant				•
MDH	Source Water Protection Grant	Financial	Grant	•	•		
MDA	Nitrate Testing	Technical	Monitoring				•
MDA	Agricultural BMP Loan Program	Financial	Loan	•	•		
LSOHC	Outdoor Heritage Funds	Financial	Grant			•	
LCCMR	Environmental Trust Fund	Financial	Grant	•			
Legislature	Bonding	Financial	Bond	•			
FSA	Conservation Reserve Program	Financial	Cost Share		•		
NRCS	Conservation Innovation Grant	Financial	Grant	•			
NRCS	Environmental Quality Incentives Program (EQIP)	Financial	Cost Share	•	•		
USGS	Stream Gaging Network	Technical	Monitoring				•
USACE	Planning Assistance	Technical	Planning		•		
EPA	State Revolving Fund	Financial	Loan	•			
EPA	319	Financial	Grant	•	•		•
USFWS	Fish Passage Grants	Financial	Grant		•		
NFWF	General grants	Financial	Grant		•		
N/A	MFRC	Financial/ Technical	Easement/Cost Share			•	
N/A	Ducks Unlimited	Financial	Easement/Cost Share	•			
N/A	Koochiching Economic Development Authority	Financial	Easement			•	

Local Funding

Funding from local property tax or in-kind services of any personnel funding from the local tax base is considered local funding. This excludes general operating funds from BWSR, fees for operating services and grants, or partnership agreements with other conservation organizations or the federal government.

Local funds will be used for programs focused on local issues where opportunities for federal or state funds are lacking due to a program's outcomes not aligning with federal or state objectives. These funds will also be used for grant matching where statutory authority already exists. Some examples include:

Water Planning Authority for Special Projects (Minnesota Statute 103B.355):

- Counties have the authority to levy funds for priority projects and assist SWCDs with program implementation.

Road Authorities:

- Counties can provide limited local funding to assist with the local share of road retention.

State Funding

The Nonpoint Priority Funding Plan was created by state agencies that work to protect and restore Minnesota's important water resources. This Plan set high-level state priorities that align programs and actions that reduce nonpoint source pollution across the state. The high-level priority criteria include:

- Restoring waters that are closest to meeting state water quality standards
- Protecting high-quality unimpaired waters at the greatest risk of becoming impaired
- Restoring and protecting water resources for public use and public health, including drinking water

State funding includes funds from State tax base for state cost-share and regulatory purposes. This funding excludes general operating funds obtained from BWSR, counties, fees for service and grants, or partnership agreements with the federal government or other conservation organizations.

Collaborative Grants

The fiscal agent will apply for collaborative grants on behalf of the LFRW Partnership, which may be competitive or non-competitive. This assumes that future base support for implementation will be provided to the Partnership as one or more non-competitive implementation watershed-based funding allocations. Where the purpose of an initiative aligns with the objectives of various state, local, non-profit, or private programs, these dollars will be used to help fund the implementation programs described by this plan. Funding sources that are currently available at the time of developing this plan are listed in **Table 6.2.**

Federal Funding

Federal funding includes all funds derived from the federal tax base. This includes programs such as EQIP, administered by NRCS. Federal funding does not include general operating funds obtained from BWSR, counties, fees for service and grants or partnership agreements with state government or other conservation organizations.

Federal agencies will be engaged following the approval of this plan and prior to implementation, to access federal resources for implementation. Opportunities may exist to leverage state dollars through some form of federal cost-share program. Where the purpose of an implementation program aligns with the objectives of various federal agencies, federal dollars will be used to help fund the implementation programs described by this plan.

Other Funding Sources

Foundations, nonprofit organizations, and private contributions (including landowners and corporate entities) will be sought for plan implementation activities. Local foundations may fund education, civic engagement, and other local priority efforts. There are conservation organizations active in the watershed, such as lake and river associations, and sporting clubs. These organizations acquire funding of their own and may have project dollars and technical assistance that can be leveraged. Major cooperators and funding sources are private landowners who typically contribute 25% of project costs and many donate land, services, or equipment for projects or programs.

Work Planning

This plan envisions collaborative implementation. Biennial work planning will be completed to align with the priority issues addressed, the availability of funds, and the roles and responsibilities for implementation. There will also be an annual review of the biennial work plan. This review will be comprehensive, including both WBIF reporting in eLINK and other funding (additional funding including SFIA, Section 319, USFS, etc.).

Local Work Plan

The LFRW Steering Committee will be responsible for completing a biennial work plan based on the action tables. The process for approval of work plans will be explained in the formal agreement between the partners and adopted bylaws. These biennial work plans will help to obtain BWSR WBIF, maintain collaborative progress towards completing the action tables, and reach the outcomes prescribed in the plan.

Funding Request

The LFRW Steering Committee will collaboratively develop, review, and submit a watershed-based funding request from this biennial work plan. The Partnership will approve of this request as per their formal agreement and bylaws prior to submittal to BWSR. The watershed-based funding request will be developed based on the priority projects outlined in the action tables and any adjustments made through self-assessments.

Assessment, Evaluation, and Reporting

Accomplishment Assessment

The Steering Committee will provide the Policy Committee with an annual update on the progress of the plan's implementation. A tracking system will be used to measure progress based on measurable goals and will serve as a platform for plan constituents and the public. Tracking these metrics will also make them available for supporting future work plan development, progress evaluation, and reporting.

Partnership Assessment

Biennially, the Steering Committee, with the help of the Advisory Committee, will review the plan goals and progress toward implementation, including fulfillment of committee roles, efficiencies in service delivery, LGU collaboration, and success in securing funding. During this review process, feedback will be solicited from the boards, Policy Committee, and other partners 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 plan's goals and to decide on the direction for grant submittals. Also, this feedback will be documented and incorporated into the mid-point evaluation (to be completed in 2030-2031). The LFRW Partnership intends to pursue watershed-based funding to meet goals and plan action tables.

Mid-point Evaluation

Beginning in 2027, this plan will be in effect for 10 years. Over the course of the plan's life cycle, progress toward reaching goals and completing actions may vary. New issues may emerge as the plan progresses, and/or new monitoring data, models, or research may become available. Therefore, in 2030-2031, a mid-point evaluation will be undertaken. This plan will determine if the current course of actions is sufficient to reach the goals of the plan, or if a change in actions is necessary to achieve the 10-year outcomes described.

Reporting

LGUs have several annual reporting requirements. Some of these reporting requirements will remain a responsibility of the LGUs. Reporting related to grants and programs developed collaboratively and administered under this plan will be reported by the plan's fiscal agent. In addition to annual reporting, the Steering Committee will also develop a biennial Watershed Report to present to the Policy Committee and the LFRW Partnership. This report will document progress toward reaching goals and completing the action tables and will describe any new emerging issues of priorities. The information needed to biennially update 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 plan as required by state law and policy. The Steering Committee will assist in developing the required reports and roles and responsibilities will be defined in the bylaws.

Plan Amendments

The CWMP is effective through 2037 per the BWSR order approving it. Activities described in this plan are voluntary, not prescriptive, and are meant to allow flexibility in implementation. Amendments to this Plan will follow the most current BWSR 1W1P Operating Procedures. This provision for flexibility includes changes to the activities.

During the time this plan is in effect, it is likely that new data giving a better understanding of watershed issues and solutions will be generated. Administrative authorities, state policies, and resource concerns may also change. New information, significant changes to the projects, programs, or funding in the plan, or the potential impact of emerging concerns and issues may require activities to be added to the plan. If revisions are required or requested, the Policy Committee will initiate a plan amendment process following their formal agreement bylaws.

References

Baker, A.C., Fitzpatrick, F.A., Soderman, S.S., Kennedy, M.J., Sterner, S.P., Anderson, J.P., Gran, K.B., Anderson, K.S., Stroom, K., Norvitch, P. and Blount, J.D., 2025. Near-channel erosion as a driver of watershed-scale sediment and phosphorus loading in a forested sub-watershed of Lake of the Woods. *Journal of Great Lakes Research*, p.102644.

Bois Forte Band of Chippewa, 2025. A Brief Summary of Bois Forte History. https://boisforte.com/about/history/. Accessed June 2025.

Center for Spatial Information Science and Systems (CSISS), 2025. CropScape – Cropland Data Layer. https://nassgeodata.gmu.edu/CropScape/. Accessed June 2025.

Department of the Interior United States Geological Survey (USGS). https://pubs.usgs.gov/ha/551/plate-1.pdf. Accessed June 2025.

Domingo, J.L. and Nadal, M., 2019. Human exposure to per-and polyfluoroalkyl substances (PFAS) through drinking water: A review of the recent scientific literature. *Environmental research*, *177*, p.108648.

Helgesen, Lindholm, and Ericson, 1976. Water Resources of the Little Fork River Watershed, Northeastern Minnesota.

Itasca County, 2012. Itasca County Comprehensive Water Management Plan, 2012-2017 Update. https://www.itascacountymn.gov/DocumentCenter/View/2870/Local-Water-Management-Plan

Itasca County, 2020. Itasca County Multi-Hazard Mitigation Plan.

Koochiching County, 2018. Koochiching County Comprehensive Local Water Management Plan.

Koochiching County, 2018. Koochiching County Comprehensive Water Management Plan, 2018-2028. https://koochichingswcd.org/wp-content/uploads/2018/03/2018-2028-kcclwmp.pdf

Koochiching County, 2021. Koochiching County Multi-Hazard Mitigation Plan

Koochiching County, Minnesota. Minnesota Department of Natural Resources, 1980. 95

Johnson-Bice, S.M., Gable, T.D., Windels, S.K. and Host, G.E., 2022. Relics of beavers past: time and population density drive scale-dependent patterns of ecosystem engineering. Ecography, 2022:. https://doi.org/10.1111/ecog.05814

LSOHC, 2011. Cumulative and Universal: ATV Impacts on the Landscape and Wildlife.

Maest, A., Prucha, R. and Wobus, C., 2020. Hydrologic and water quality modeling of the Pebble Mine Project pit lake and downstream environment after mine closure. *Minerals*, *10*(8), p.727.

Minnesota Department of Natural Resource (DNR), 2015. Watershed Report Card.

Minnesota Department of Natural Resource (DNR), 2017. Watershed Context Report.

Minnesota Department of Natural Resource (DNR), 2023. Evaluation of Hydrologic Change Technical Summary, Little Fork River Watershed.

Minnesota Department of Natural Resource (DNR), 2026a. Emerald Ash Borer. https://www.dnr.state.mn.us/treecare/forest_health/elb/index.html. Accessed January 2026.

Minnesota Department of Natural Resource (DNR), 2026b. Eastern Larch Bettle. https://www.dnr.state.mn.us/treecare/forest_health/elb/index.html. Accessed January 2026.

Minnesota Department of Natural Resources (DNR), 2015. Watershed Health Assessment Framework.

Minnesota Department of Natural Resources (DNR), 2017. Watershed Context Report.

Minnesota Department of Natural Resources (DNR), 2025. Minnesota Climate Trends. https://arcgis.dnr.state.mn.us/ewr/climatetrends Accessed June 2025

Minnesota Pollution Control Agency (MPCA), 2006. Construction and Demolition Debris Landfill Draft Rule Summary.

Minnesota Pollution Control Agency (MPCA), 2006. Effect of Historical Logging on Geomorphology, Hydrology, and Water Quality in the Little Fork River Watershed.

Minnesota Pollution Control Agency (MPCA), 2006. Effect of Historical Logging on Geomorphology, Hydrology, and Water Quality in the Little Fork River Watershed.

Minnesota Pollution Control Agency (MPCA), 2010. Water Quality Assessment of Select Lakes within the Little Fork River Watershed.

Minnesota Pollution Control Agency (MPCA), 2011. Little Fork River Watershed Monitoring and Assessment Report.

Minnesota Pollution Control Agency (MPCA), 2017a. Little Fork River Watershed Sediment Reduction Project (Total Maximum Daily Load).

Minnesota Pollution Control Agency (MPCA), 2017b. Little Fork River Watershed Restoration and Protection Strategy Report.

Minnesota Pollution Control Agency (MPCA), 2020. Final Lake of the Wood Watershed Total Maximum Daily Load Study.

Minnesota Pollution Control Agency (MPCA), 2021. Watershed Assessment and Trends Update.

Minnesota Pollution Control Agency (MPCA), 2024. Minnesota's 2024 Impaired Waters List. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.pca.state.mn.us%2Fsites%2Fdefault%2Ffiles%2Fwq-iw1-81.xlsx&wdOrigin=BROWSELINK

Minnesota Pollution Control Agency (MPCA), 2024. BMP effects estimator tool (BEET) planner. https://data.pca.state.mn.us/views/BMPeffectsestimatortoolBEETplanner/BEETPlanner-home?%3Aembed=y&%3AisGuestRedirectFromVizportal=y. Accessed March 2026.

MRCL, 2016. National Land Cover Dataset.

MRCL, 2021. National Land Cover Dataset.

Severson, L.S., H.D. Mooers, and T.J. Malterer. Inventory of peat resources,

St. Louis County, 2018. St. Louis County Comprehensive Water Management Plan, Update 2010-2020. https://files.dnr.state.mn.us/lands_minerals/northmet/water-approp/references/mn-comprehensive-water-mgmt-plan-2010-2020.pdf

St. Louis County, 2020. St. Louis County Multi-Hazard Mitigation Plan.

Swan, A., Williams, S. A., Brown, K., Chambers, A., Creque, J., Wick, J., & Paustian, K. (2020). COMET-Planner: Carbon and greenhouse gas evaluation for NRCS conservation practice planning.

United States Census Bureau (USCB), 2020a. Littlefork, Minnesota. https://test.data.census.gov/profile/Littlefork_city,_Koochiching_County,_Minnesota. Accessed June 2026.

United States Census Bureau (USCB), 2020b. Cook, Minnesota. https://censusreporter.org/profiles/06000US2713713006-cook-city-st-louis-county-mn/. Accessed June 2026.

United States Census Bureau (USCB), 2020c. St. Louis County, Minnesota. https://data.census.gov/profile/St._Louis_County,_Minnesota. Accessed June 2025.

United States Census Bureau (USCB), 2020d. Koochiching County, Minnesota. https://data.census.gov/profile/Koochiching_County,_Minnesota. Accessed June 2025.

United States Census Bureau (USCB), 2020e. Itasca County, Minnesota. https://data.census.gov/profile/Itasca_County,_Minnesota. Accessed June 2025.

United States Environmental Protection Agency (EPA), 2026. Per- and Polyfluoroalkyl Substances (FPAS). https://www.epa.gov/pfas . Accessed January 2026.

University Minnesota Duluth (UMD), 2020. Economic impact of ferrous and nonferrous mining on Minnesota and the Arrowhead region including Douglas, County, Wisconsin. University of Minnesota Duluth. Duluth, Minnesota.

Willier, C; Dennett, J.; Devito, K; Bater, C.; Nielsen, S.; 2022. The extent and magnitude of edge effects on woody vegetation in road-bisected treed peatlands in boreal Alberta, Canada. Ecohydrology, Vol 15; 10.1002/eco2455.