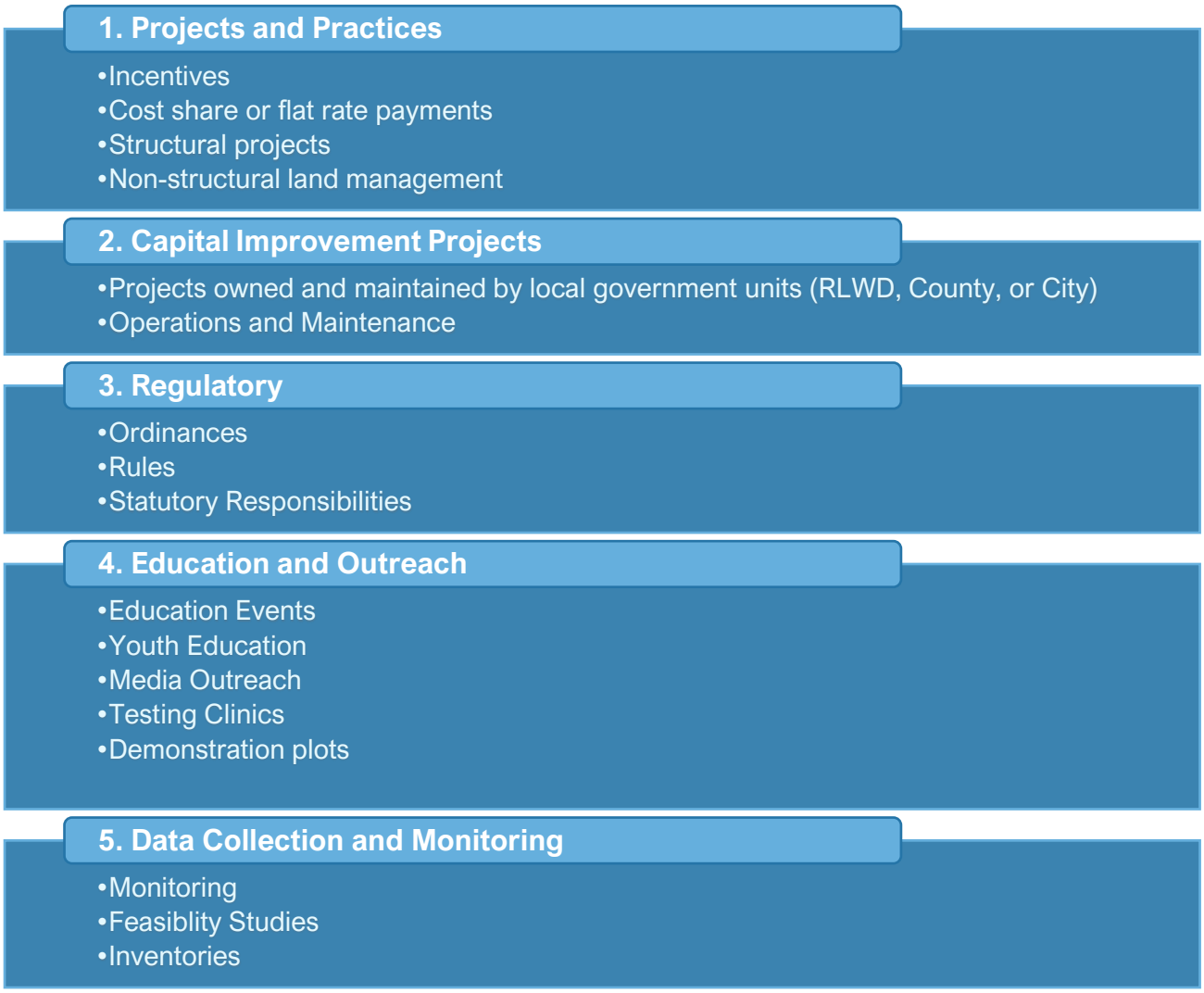
SECTION 6. IMPLEMENTATION PROGRAMS

Implementation programs are the funding mechanism to implement actions in the targeted implementation schedule. This plan establishes common implementation programs within the plan area and describes them conceptually in this section. There are five main programs: Projects and Practices, Capital Improvement Projects, Regulatory, Education and Outreach, and Data Collection and Monitoring (Figure 6.1).

Figure 6.1 Implementation Programs for the Red Lake River CWMP



CRP planted by the Marshall SWCD

Projects and Practices Program

Funding to implement a variety of structural, non-structural, land protection, and drinking water protection practices are included in the Projects and Practices Program. This implementation includes Cost Share Programs, Land Protection Programs, Land Retirement Programs, and Low-Interest Loans. These programs are typically administered by the Soil and Water Conservation Districts (SWCDs). Practices funded through these programs apply to most of the goals established by this plan.

Applicable Plan Goals:

- Upland Erosion and Nutrients
- Soil Health
- Flooding
- Groundwater
- Bacteria
- Stormwater
- Streambank Stabilization
- Riparian Management
- Drainage Management
- Land Protection

Cost-Share Programs

The purpose of cost-share programs is to financially assist landowners with the cost of installing a project that provides natural resource benefits. Implementing soil health practices such as cover crops and reduced tillage, or no-till are applicable examples that meet plan goals. Cost-share programs can also be used for structural practices. Installing structural water and sediment control basins, grade stabilizations, and streambank and shoreline protection projects are examples that contribute towards goals of this plan.

After project installation, regular on-site inspections and maintenance will 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. According to BWSR's Grants Administration Manual (GAM), BWSR's recommended inspection plans for a conservation practice with a minimum effective life of 10 years, includes inspections at the ends of years 1, 3, and 9 after the certified completion.

Land Protection Programs

Conservation Easements

Conservation easements are voluntary, legal agreements between a landowner and governmental or non-profit organization, whereby land use and development are limited on a property while conserving natural resources on the landscape. The easements are individually tailored agreements with an organization such as BWSR, DNR, the Minnesota Land Trust, or The Nature Conservancy (TNC).

Reinvest in Minnesota (RIM) Reserve Programs

BWSR's RIM program aims to improve water quality and flooding through habitat protection on private lands. RIM conservation easements protect, restore, and manage critical resources on economically marginal, flood-prone, environmentally sensitive, or highly erodible lands, while leaving land in private ownership. The Riparian Corridor of the Red Lake River is a priority area identified for implementation. RIM conservation easements are typically permanent, but BWSR has recently released a program with a 30-year option. Additional 30-year easement options would likely increase interest in the program in the Red Lake River watershed. The RIM program seeks to restore wetlands, grasslands, wildlife habitat complexes, and riparian buffers.

Land Acquisition

For areas with unique and important resources that meet state goals, the DNR, USFWS, counties, cities, townships, the RLWD, and other entities may purchase and manage the land. An example includes WMAs that are used for small game hunting and waterfowl migration.

Land Retirement Programs

Conservation Reserve Program (CRP)

CRP is a federally funded program administered by the USDA Farm Service Agency (FSA). CRP is a voluntary program that contracts with agricultural producers so that environmentally sensitive agricultural land is not farmed or ranched but instead is devoted to conservation benefits. CRP participants establish long-term, resource-conserving plant species to control soil erosion, improve water quality and develop wildlife habitat. In return, FSA provides participants with rental payments and cost-share assistance. Contract duration is 10-15 years. Additional incentives for enrolling land into CRP are provided through WBIF depending on funding and priorities.

Conservation Reserve Enhancement Program (CREP)

Minnesota CREP is a voluntary federal-state funded natural resource conservation program that uses a science based approach to target environmentally sensitive land. Landowners enroll in CRP for 15 years; the same land is enrolled into a state-funded perpetual conservation easement through RIM. Private ownership continues and the land is permanently restored and enhanced for conservation benefits.

Wetlands Reserve Program (WRP)

WRP is a federally funded, voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA Natural Resources Conservation Service (NRCS) provides technical and financial support to help landowners with their wetland restoration efforts. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection. Lands eligible for WRP are:

- wetlands farmed under natural conditions;
- farmed wetlands;
- converted cropland;
- farmed wetland pasture;
- certain lands that have the potential to become a wetland as a result of flooding;
- rangeland, pasture, or forest production lands where the hydrology has been significantly degraded and can be restored;
- riparian areas that link protected wetlands;
- lands adjacent to protected wetlands that contribute significantly to wetland functions and values; and
- wetlands previously restored under a local, state, or federal program that needs long-term protection.

Low-Interest Loans

Low-interest loans (AgBMP Loan Program) may be made available for projects that reduce existing water quality problems, septic system replacement, small community wastewater systems, agricultural BMPs, and other projects that meet eligibility criteria for funding.

Private Forest Management

There are many different options for managing forests on privately-owned lands. These can range from permanent protection to management plans described in this section.

Forest Stewardship Plans

Forest owners can manage their woods through Woodland Stewardship Plans in coordination with the Minnesota DNR's Forest Stewardship Program. Forest goals can be developed in coordination with trained foresters to create wildlife habitat, increase natural beauty, enhance environmental benefits, or harvest timber. Plans must be prepared by a DNR-approved plan writer, which may include SWCD staff and private foresters.

Forest 2C Designation

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

The Sustainable Forest Incentive Act (SFIA)

The SFIA provides annual incentive payments for the landowner recording 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).

Capital Improvements

A Capital Improvement Project (CIP) is a major non-recurring expenditure for the construction, repair, retrofit, or increased utility or function of physical facilities, infrastructure, or environmental features. CIPs are owned and maintained by LGUs such as the RLWD, County, or City. These projects are unlikely to get constructed without external funding (Level 3).

Applicable Plan Goals:

- Flooding
- Drainage Management
- Streambank Stabilization

- Riparian Management
- Upland Erosion and Nutrients
- Stormwater

Section 5 - Targeted Implementation shows proposed capital improvements within the plan area. Members of the Policy Committee or the Partnership's individual and representative Boards may discuss the means and methods for funding new CIPs with potential funding partners. CIPs completed through this plan will be operated and maintained by their owners for their lifespan.

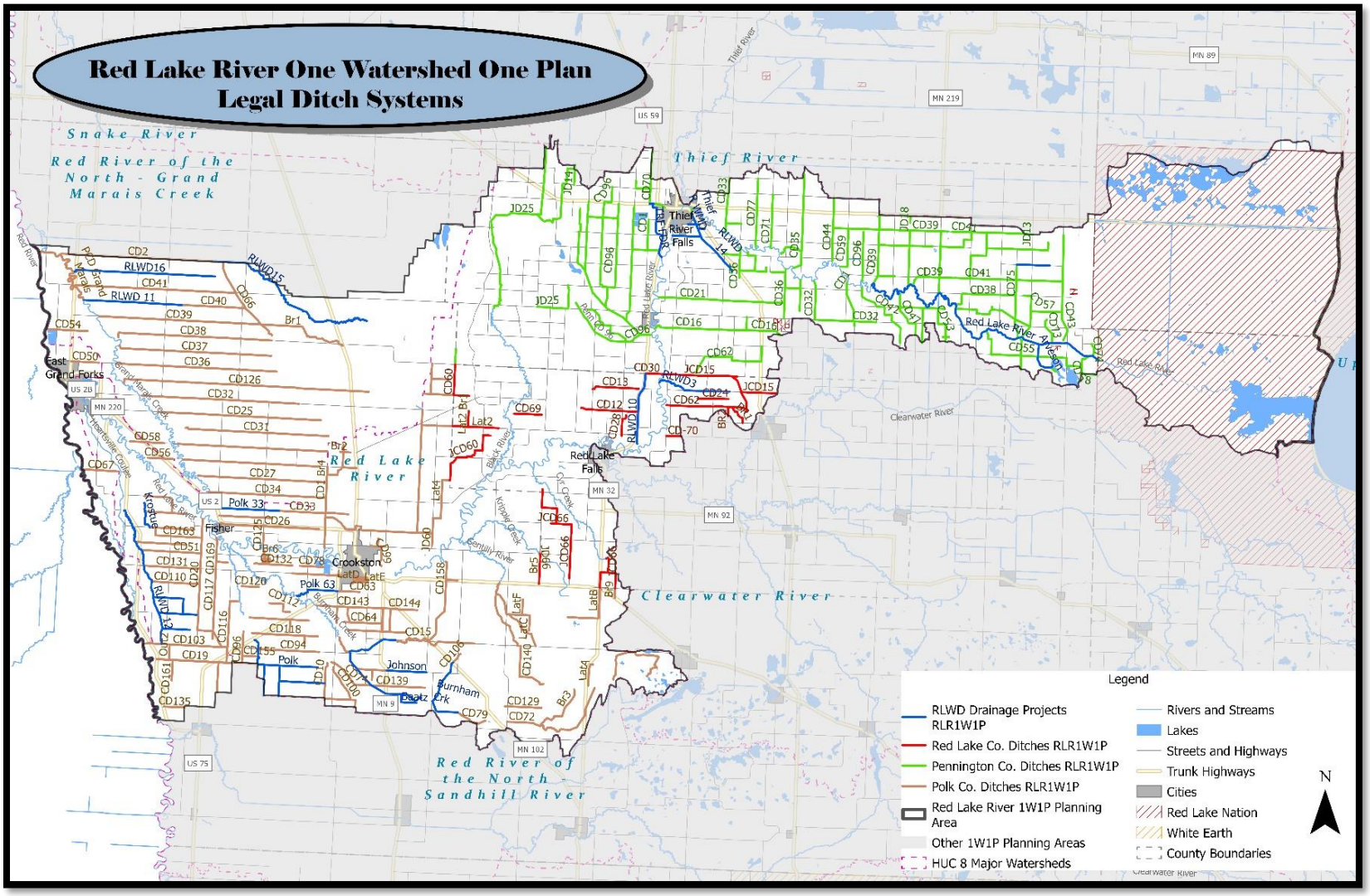
As highlighted throughout this plan, public drainage systems are prevalent throughout much of the plan area. Drainage authorities help coordinate implementing the targeted implementation schedule to make progress towards measurable goals, including sediment delivery, altered hydrology and flood damage reduction, and ditch stability. Based on this engagement, drainage authorities could access implementation funds to adopt drainage actions in the targeted implementation schedule (Section 5 – Targeted Implementation) during 103D and 103E processes and procedures when the opportunity arises within the planning area.

Operations and Maintenance Program

Entities within the plan area are engaged in the inspection, operation, and maintenance of CIPs, stormwater infrastructure, public works, facilities, natural and artificial watercourses, and legal drainage systems. Operation and maintenance of natural watercourses, legal drainage systems, impoundments, and small dams will continue under the regular operations and maintenance plans of the entities that have jurisdiction over these systems. These details, along with records including notes and photos, should be included with each project's Operations and Maintenance Plan. According to BWSR's GAM, BWSR's recommended inspection plans for CIPs funded through BWSR grants includes inspections at the ends of years 1, 8, 17, and 24 after the certified completion. Ditch projects and Watershed District projects funded by other sources are not subject to the GAM. Please see Figure 6-2 for a map of legal drainage system authorities within the Red Lake River Watershed.

Black River Impoundment Photo - RLWD

Figure 6-2: Legal drainage system authorities in the Red Lake River Watershed



Regulatory Program

Many plan issues can be addressed in part through the administration of statutory responsibilities and local ordinances. In many cases, local ordinances have been adopted to conform to (or exceed) the standards and requirements of state statutes. The responsibility for implementing these programs will remain with the respective counties or appointed LGUs. The RLWD has rule-making authority per Minnesota Statute 103D.341 and permitting authority per 103D.345. Current rules were adopted in 2015 and could periodically change throughout the life of this plan. The RLWD Rules are available in **Appendix J.** To review current rules, please see the RLWD website (http://www.redlakewatershed.org/).

Counties and the watershed district will meet approximately once a year to discuss ordinances and counties will notify each other of any proposed ordinance amendments. These entities 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.

Applicable Plan Goals:

- Upland Erosion and Nutrients
- Soil Health
- Flooding
- Groundwater
- Bacteria
- Stormwater
- Streambank Stabilization
- Riparian Management
- Drainage Management
- Land Protection

Aggregate Management

Individual counties manage the development and extraction of aggregate resources through local zoning and ordinances. County governments will remain responsible for this process. The MPCA has regulatory authority at these facilities for industrial stormwater and wastewater. Aggregate extraction facilities must obtain a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit from the MPCA for stormwater and wastewater discharges.

Aquatic Invasive Species

Aquatic invasive species can cause ecological and economic damage to water resources. The DNR has regulatory authority over aquatic plants and animals. Permits are required by the public for transporting river water, invasive species and for treating invasive species. In Polk County, the County oversees aquatic invasive species programs, whereas in Pennington and Red Lake counties, the SWCDs fill that role.

Bluffland Protection

MN State Statute (Section 103F.201) requires that local municipalities and counties with shoreland within their jurisdictional boundaries manage development of shoreland areas using ordinances to reduce the negative impacts of development. Many counties specifically target bluffland areas due to their disproportionate impact on sediment erosion when the bluff becomes unstable. Buffland protection is part of county shoreland ordinances.

Buffers

The Riparian Protection and Water Quality Practices statute (Minnesota Statute 103F.48, commonly referred to as the Buffer Law) requires a 50-foot average continuous buffer of perennial vegetation with a 30-foot minimum width along all public waters and a 16.5-foot minimum width continuous buffer of perennial vegetation along all public drainage systems. Red Lake and Pennington counties administer the Buffer Law under specific local ordinances while Polk County administers the law through Section 25 of their zoning ordinance. Public drainage systems within the RLWD are administered by the RLWD through their Drainage Rule. In most situations, landowners have the option of working with their SWCD to determine if other alternative practices aimed at protecting water quality can be used in lieu of (or in combination with) a buffer.

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

Comprehensive or Land Use Plans

Counties and municipalities within the Red Lake River Watershed are responsible for land use planning, which is administered through local zoning ordinances. Comprehensive or land use plans have been adopted by the LGUs within the watershed. From a regulatory perspective, land and resource management may overlap with the local government entities listed below. Therefore, meeting goals and strategies of local planning may also involve other governmental or non-governmental entities. LGUs within the Red Lake River Watershed that have comprehensive and/or land use plans are provided in Table 6-1. Please note this is not intended to be all-inclusive.

- Regulations: Minnesota Statute 473

Table 6-1: Comprehensive Land Use and Water Management Plans adopted within the Red Lake River Watershed

Local Governmental Unit (LGU)	Comprehensive or Land Use Management Plan
Pennington County	Red Lake River Comprehensive Watershed Management Plan (2025)
Polk County	Polk County Sustainable Development Comprehensive Plan (1997/2008) Red Lake River Comprehensive Watershed Management Plan (2025)
Red Lake County	Red Lake River Comprehensive Watershed Management Plan (2025)
Red Lake Nation	Red Lake Band of Chippewa Indians Integrated Resource Management Plan (2011)
City of Crookston	Crookston Tomorrow Comprehensive Plan 2035 (2016)
City of East Grand Forks	City of East Grand Forks 2050 Land Use Plan (2021)
City of Thief River Falls	City of Thief River Falls 2040 Comprehensive Plan (2019)
Red Lake Watershed District	Red Lake Watershed District Comprehensive Plan (2006/2018) Red Lake River Comprehensive Watershed Management Plan (2025)

Construction Erosion Control

Temporary construction erosion control is the practice of preventing and/or reducing the movement of sediment from a site during construction. Projects disturbing one acre or more of land will require a National Pollutant Discharge Elimination System (NPDES) Permit from the MPCA. Polk County has regulations within its local zoning ordinance that address construction erosion control. The RLWD regulates construction erosion control through their Rules.

- Regulations: Minnesota Rules, Chapter 7090

Feedlots

Feedlot rules, regulations, and programs were established under MN Rules 7020 to govern the collection, transportation, storage, processing, and land application of animal manure and other livestock operation wastes. The program is administered through the MPCA, but local Counties may accept delegation of this authority. Pennington, Polk, and Red Lake counties have accepted this delegation and have delegated administration of the MPCA Feedlot Program to their respective SWCDs.

- Regulations: Minnesota Rules, Chapter 7020

Floodplain Management

Floodplain zoning regulations aim to minimize loss of life and property, disruption of commerce and governmental services, extraordinary public expenditure for public protection and relief, and interruption of transportation and communication. These regulations are intended to guide development in the floodplain in a way that is consistent with the magnitude of these threats. The DNR and FEMA are in the process of updating floodplain maps on a county basis. Current flood maps can be found on the DNR website at https://www.dnr.state.mn.us/waters/watermgmt_section/floodplain/access-flood-maps.html.

Floodplain zoning regulations are enforced through local ordinances by Pennington, Polk, and Red Lake counties, and RLWD Rules.

- Regulations: Minnesota Statutes 103F, 104, 394

Groundwater Protection Rule

The Minnesota Department of Agriculture (MDA) administers the Groundwater Protection Rule, which went into effect on June 24, 2019. The rule has two parts: Part 1 restricts the application of nitrogen fertilizer in the fall and on frozen soils; Part 2 responds to public water supply wells and elevated nitrate. Counties within the Red Lake River Watershed are excluded from Part 1 due to climatic conditions; public water supply wells within the watershed have not yet been identified as containing high nitrate levels, per Part 2.

- Regulations: Minnesota Statute 14.16

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

- Regulations: Minnesota Statute 12

Noxious Weed Law

Noxious weeds affect the natural, native balance of ecological functions. The Noxious Weed Law in Minnesota is administered by the MDA through SWCDs or counties. The State maintains noxious weed lists of those species to eradicate, control, restrict, and specially regulated plants. The most recent listing of noxious weeds in Minnesota can be obtained from the MDA at https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list. The Pennington, Red Lake, East and West Polk SWCDs organized Cooperative Weed Management Areas to inventory county noxious weeds and provide weed management outreach. Pennington and Red Lake SWCDs offer weed management cost share programs.

- Regulations: Minnesota Statute 18

Public Drainage Systems

MN Statue Chapter 103E grants drainage authority to counties and watershed districts to establish, construct, and in perpetuity maintain public drainage systems. County and watershed district boards serve as the drainage authorities for public drainage systems. The RLWD has a system of rules and regulations for water management within the district, and a list of actions that require a permit to proceed with work in any public drainage system in the RLWD (**Appendix J**).

- Regulations: Minnesota Statute 103E

Shoreland Management

The Minnesota Legislature has delegated responsibility to LGUs to regulate the subdivision, use, and development of shorelands along public waters to preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of shorelands, and provide for the wise use of waters and related land resources. This statute is administered and enforced as a local zoning ordinance for Polk County and as a shoreland ordinance in Pennington and Red Lake counties.

The Pennington and Red Lake SWCDs administer the shoreland ordinance in their respective counties.

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

Solid Waste Management

Minnesota's Waste Management Act has been in place since 1980 and establishes criteria for managing all types of solid waste, including mixed municipal solid waste, construction and demolition waste, and industrial waste. To receive annual grant funding to assist in implementing waste management programs, each county must have an MPCA-approved Solid Waste Management Plan. All Counties in the plan area have approved plans. Counties can also adopt Solid Waste Ordinances to use as a supplement in enforcing MPCA Rules. Polk County administers theirs through a zoning ordinance, and Pennington and Red Lake counties administer theirs through a solid waste ordinance.

- Regulations: Minnesota Statutes 115A, 400

Subsurface Sewage Treatment Systems

The Subsurface Sewage Treatment System (SSTS) Program is administered by the MPCA to protect public health and environment. SSTS Ordinances are adopted and enforced at the county level to meet state requirements. Pennington and Red Lake counties administer Minnesota Rules Chapters 7080 through 7083 for SSTSs through a local ordinance while Polk County administers theirs through the zoning ordinance. The Pennington SWCD administers the SSTS Ordinance for the county.

- Regulations: Minnesota Rules, Chapters 7080 through 7083

Well Code

The MDH administers the well code, which includes well construction standards to protect groundwater resources and requirements to seal unused wells.

- Regulations: Minnesota Rules 4725

Wellhead Protection

Minnesota Department of Health (MDH) administers the state wellhead protection rule that sets standards for wellhead protection planning. Municipalities within the watersheds have completed wellhead protection plans (WPP). A map identifying completed wellhead protection plans can be found at: https://mdh.maps.arcgis.com/apps/View/index.html?appid=5051b7d910234421b0728c40a1433baa.

- Regulations: Minnesota Rules, Chapter 4720.5100 – 4720.5590

Wetland Conservation Act

The Minnesota Legislature passed the Wetland Conservation Act (WCA) of 1991 to achieve no net loss of, increase the quantity, quality, and biological diversity of, and avoid direct or indirect impacts to Minnesota's wetlands. LGUs are responsible for administering, regulating, and educating landowners on WCA. The SWCDs serve as the WCA LGUs for Pennington, Polk, and Red Lake counties.

- Regulations: Minnesota Rules, Chapter 8420

Education and Outreach Program

The Education and Outreach Program funds actions to increase engagement and understanding about natural resource management in the watershed. The program is operated through local sharing of services. Expectations are that a common set of template education and outreach materials will be developed for use across the watersheds but delivered by the staff within each county and/or planning region. Engaging landowners is critical for understanding issues impacting residents and viable solutions. Activities designed for engaging landowners include the items listed below. These activities will continue to be built upon as part of the Education and Outreach Program.

- Soil demonstration plots
- Field days
- Well testing clinics
- Community education workshops (e.g., Soil health Café Chats and weed management workshops).
- Media Outreach (e.g., social media, newsletters)

This program also builds upon current efforts to engage area youth in natural resource management. The activities listed below are examples of how LGUs in the plan area engage younger residents on the importance of the natural landscape and the environmental issues that impact it.

- Northwest Minnesota Water Festival
- River Watch
- Outdoor Education Day
- River of Dreams
- Arbor Day Trees
- Envirothon
- FFA, 4-H
- County Fairs
- Poster contests
- Sponsor Conservation Camps
- Science Fair Judging

In addition, this program will continue to support general public education and outreach. This may include media campaigns, creation of newsletters and surveys, coordination of volunteer activities, and public meetings and trainings to raise awareness and gain a better understanding of the consequences of individual decisions on water management.

Outreach may also occur virtually. Many local government staff use social media (e.g., Facebook, Instagram, and YouTube) to inform the public on local resource issues and upcoming events they may be interested in. Email, website updates, and other releases are also a priority for communicating water quality, quantity, and conservation issues with local citizens. These platforms serve to communicate information easily and effectively.

Data Collection and Monitoring Program

The Data Collection and Monitoring Program funds actions that close data gaps to allow for tailored, science-based implementation strategies. The program also funds ongoing efforts aimed at the development and assembly of data and information. Ongoing surface water monitoring programs are led by local, state, and federal agencies which combine efforts to collect a large amount of environmental data within the Red Lake River watershed.

Water quality in rivers and streams is monitored using specialized equipment and laboratory analysis. Stage and flow levels are monitored along the Red Lake River and its tributaries. SWCDs monitor groundwater levels. The State conducts biological (aquatic and terrestrial) monitoring. Compliance monitoring is also important for the protection of natural resources. Figure 6-3 provides additional information regarding monitoring sites.

The MPCA's Watershed Pollutant Load Monitoring Network (WPLMN) provides continuous monitoring of water quality conditions, with four WPLMN sites in the Red Lake River Watershed:

- Red Lake River at Fisher, MN (E63078001; USGS ID 05080000; MPCA ID S000-031)
- Red Lake River at High Landing near Goodridge, MN (E63007001; USGS ID 05075000; MPCA ID S002-077)
- Red Lake River at Red Lake Falls, MN (H63025001; USGS ID 05076650; MPCA ID S003-172)
- Red River at Grand Forks, ND, Walking Bridge (W61046002)

The DNR Cooperative Stream Gaging (CSG) database is a shared repository of monitoring data between the DNR, MPCA, United States Geological Survey (USGS),

and National Weather Service (NWS). Four additional monitoring sites from the CSG database include:

- Red Lake River at Crookston, MN (USGS ID 05079000; DNR ID 63057001)
- Red Lake River nr Red Lake, MN (USGS ID 05074500; MPCA ID S000-064, DNR ID 62021001)
- Red Lake River at Thief River Falls, Zeh St W (DNR ID 63023001)
- Red River of the North at Grand Forks, ND (USGS ID 05082500; MPCA ID S002-113; DNR ID 61046001)

The RLWD has been collecting water quality samples in the Red Lake River Watershed for its long-term monitoring program since 1980. Newer sites that were monitored for the Red Lake River Watershed Restoration and Protection Project were added to the RLWD long-term monitoring program. The monitoring program collects data from the significant waterways within the watershed, including multiple reaches of the Red Lake River and its significant tributaries.

Field measurements of dissolved oxygen, temperature, turbidity, specific conductivity, pH, and stage are collected during each site visit (if there is water). Four rounds of samples are also collected at and analyzed for TP, OP, TSS, total dissolved solids, TKN, ammonia nitrogen, nitrates + nitrites, and E. coli at most of the sites. For the past few years, biochemical oxygen demand (BOD) analysis and chemical oxygen demand (COD) have been added for the sites that are located on reaches that have had low dissolved oxygen levels. Sampling months are alternated each year with the goal of collecting at least 5 samples per calendar month within a 10-year period. Within the Red Lake River Watershed planning area, the RLWD monitors:

- Red Lake River at the Louis Murray Bridge in East Grand Forks (S002-963)
- Red Lake River at Woodland Ave. in Crookston (S002-080)
- Red Lake River at CSAH 13 near Red Lake Falls (S003-172)
- Red Lake River at Greenwood Street in Thief River Falls (S006-225)
- Red Lake River at the Smiley (CSAH 7) Bridge, east of Thief River Falls (S007-063)
- Red Lake River at Highlanding (S002-077)
- Red Lake River at CSAH 27 (S007-234)
- Heartsville Coulee at 210th St. SW (S007-061)
- Burnham Creek at 320th Ave SW (S007-058)
- Burnham Creek at 210th Ave SW (Polk County Road 48, S007-644)
- Gentilly River at CSAH 11 (S004-058)
- Kripple Creek at 180th Ave SW (S004-835)
- Black River at CSAH 18 (S002-132)

- Little Black River at Red Lake County Road 102 (S008-111)
- Browns Creek at Red Lake County Road 101 (S007-609)
- Cyr Creek at Red Lake County Road 110 (S004-818)
- Grand Marais Creek at Polk County Road 35 (130th St. NW, S008-903)
- Grand Marais Creek at 110th St. NW (S008-902)
- Polk County Ditch 2 at Polk County Road 62 (S004-131)

The Red Lake County and Pennington County SWCDs have long-term monitoring programs in which monthly samples and field measurements are collected at strategic sites. The SWCD long-term monitoring program sites within the Red Lake River subwatershed include:

- Red Lake River at Red Lake County Road 3 near Huot (S002-976)
- Red Lake River at Pennington County Road 3 near St. Hilaire (S003-942)
- Red Lake River at 1st Street in Thief River Falls (S002-076)
- County Ditch 1 R/S (TRF Westside Project Outlet) at CR7 (S016-617)
- Red Lake River at 250th Ave NE ("Kratka Bridge," S003-947)
- Red Lake River at 420th Ave SE ("East Line," S003-944)
- Black River at CSAH 18 (S002-132)
- Black River at 140th St. SW ("Black River South," S003-943)
- Black River at 120th St. NW ("Black River North," S003-948)

Local monitoring staff will monitor contributions from the Thief River and Clearwater River major sub-watersheds that flow into the Red Lake River. Pour-point monitoring sites include:

- Clearwater River at the Klondike Bridge
- Thief River at the Golf Course Bridge and near the USGS gage

River Watch is a volunteer monitoring program that gives high school students the opportunity to collect water quality data. This data is collected using the same methods that are used by professionals and is stored in the EQuIS database along with all other data that is collected within the watershed. Students in East Grand Forks (Sacred Heart High School), Fisher, Crookston, Red Lake Falls, and Thief River Falls have participated in the program. The Thief River Falls River Watch program is active periodically, but is currently inactive. Reviving this program and keeping it active is a recommended goal.

The Red Lake River Monitoring sites that are co-located with USGS gauging stations have been intensively monitored for other projects, including the Major Watershed Pollutant Load Monitoring Network (WPLMN). Frequent sampling may continue for the MPCA's WPLMN. The International Water Institute has worked with the MPCA to conduct that sampling.

A few additional data collection efforts and adjustments that could be considered for future monitoring efforts. LGUs could establish Regional Assessment Location monitoring sites on the Red Lake River and its most significant tributaries. Additional intensive sampling during runoff events will help shed light upon the causes of water quality problems in the watershed.

The collection of continuous dissolved oxygen data is essential, at most sites, for the collection of dissolved oxygen measurements prior to 9:00 AM. The MPCA requires a record of pre-9:00 AM dissolved oxygen readings in order to declare that the waterway contains enough dissolved oxygen to fully support aquatic life. Dissolved oxygen logging equipment can collect regular dissolved oxygen measurements (e.g. every 30 minutes) while deployed in a waterway.

Equipment is deployed for a maximum of two weeks at a time before it is retrieved for data retrieval, cleaning, and re-calibration. Prior to the next State water quality assessment of the Red Lake River, continuous dissolved oxygen monitoring should be conducted to fully assess the capacity of key reaches in the watershed to support aquatic life. Priority should be given to reaches and sites that are too remotely located from LGU offices for pre-9:00 AM measurements.

Bolstered data collection efforts at key sites would aid with pre/post project evaluation:

1. RLWD Ditch 15 (Brandt Channel) at Highway 75 (S004-132) for evaluation of the effects of the Brandt Impoundment and outlet restoration project.
2. Polk County Ditch 2 at Polk County Road 62 (S004-131) to evaluate the effects of the Brandt Impoundment, Euclid Impoundment, Brandt Outlet Channel Restoration Project, and the Ditch 15 project.
3. Grand Marais Creek at Polk County Road 35 (130th St. NW, S008-903) to evaluate the effects of the Grand Marais Creek Outlet Restoration Project.
4. Burnham Creek at Polk County Road 48 (210th Ave SW, S007-644) to evaluate the effects of erosion control and channel restoration efforts along the upper reaches of the Burnham Creek watershed.

Robust water chemistry data collection at long-term stream gaging sites improves the quality of water quality models (SWAT, HSPF) by providing a record of measured water quality that can be compared to the simulated conditions during the model calibration process. Key monitoring sites where more frequent data collection would aid future model calibration efforts include:

1. Red Lake River at 252nd St. SW in Fisher (S000-031)
2. Red Lake River at Woodland Ave. in Crookston (S002-080)
3. Red Lake River at the Smiley (CSAH 7) Bridge, east of Thief River Falls (S007-063)

4. Burnham Creek at 320th Ave SW (S007-058)
5. Gentilly River at CSAH 11 (S004-058)
6. Kripple Creek at 180th Ave SW (S004-835)
7. Black River at CSAH 18 (S002-132)
8. Cyr Creek at Red Lake County Road 110 (S004-818)

Long-term monitoring programs can evolve to include different or additional sites that have a strategic value that is equal to or greater than existing long-term monitoring sites. Sites that should be added to long-term monitoring efforts include:

1. The Red Lake River at 252nd Street SW in Fisher (S000-031) is a strategic location in the watershed because it is the furthest downstream USGS gaging stations. Samples are currently being collected frequently at the site for the WPLMN. If that program ever ends, local monitoring efforts should ensure that data collection at the site continues. If there is a need for additional parameters (like total organic carbon) beyond those that are being collected for the WPLMN, the site could be added to a local water monitoring program immediately.
2. The Little Black River, upstream of the dam, is strategic because it is the furthest downstream monitoring site prior to the dam. High E. coli concentrations were found at the site during investigative sampling conducted throughout the Black River watershed for the Red Lake River WRAP. It would also be a good site for monitoring water quality in a reach that is disconnected from the rest of the Black River by an impoundment. Data from the Little Black River would aid water quality model calibration.
3. The Red Lake River at CSAH 11 (S000-042) has been monitored by the Crookston River Watch program, but lab samples have only rarely been collected at the site. Because of the way that the Red Lake River is sectioned into assessment units, it is the only monitoring site on an 11.77 mile reach of the Red Lake River (09020303-506).
4. Pennington County Ditch 96 has been monitored by several short-term monitoring efforts. Being a ditch system without perennial flow, it hasn't been included in a long-term monitoring program. Now that water quality issues have been identified in the ditch, long- term monitoring is recommended.
5. Judicial Ditch 60 is another ditch system without perennial flow. Long-term stage/flow and water quality monitoring are recommended until the reach is removed from the 303(d) List of Impaired Waters.
6. Polk County Ditch 1 is a ditch with intermittent flow, but serious erosion problems. This channel should be a high priority for a stabilization project. Gather pre-project and post- project data from the Polk County Road 61 (S007-059).

7. Because of the erosion control, channel stabilization, and channel restoration work being conducted in the upper reaches of the Burnham Creek watershed, additional monitoring should take place there. Historically, monitoring activity has been focused on the lower end of the watershed.

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

Other ongoing monitoring programs include public water supplier monitoring, MPCA's Ambient Groundwater Monitoring Program, the DNR high-capacity permitting program, and the DNR Observation Well Network (monitored by SWCDs). These programs have provided valuable information but are not yet extensive enough to fully assess the state of groundwater in the region.

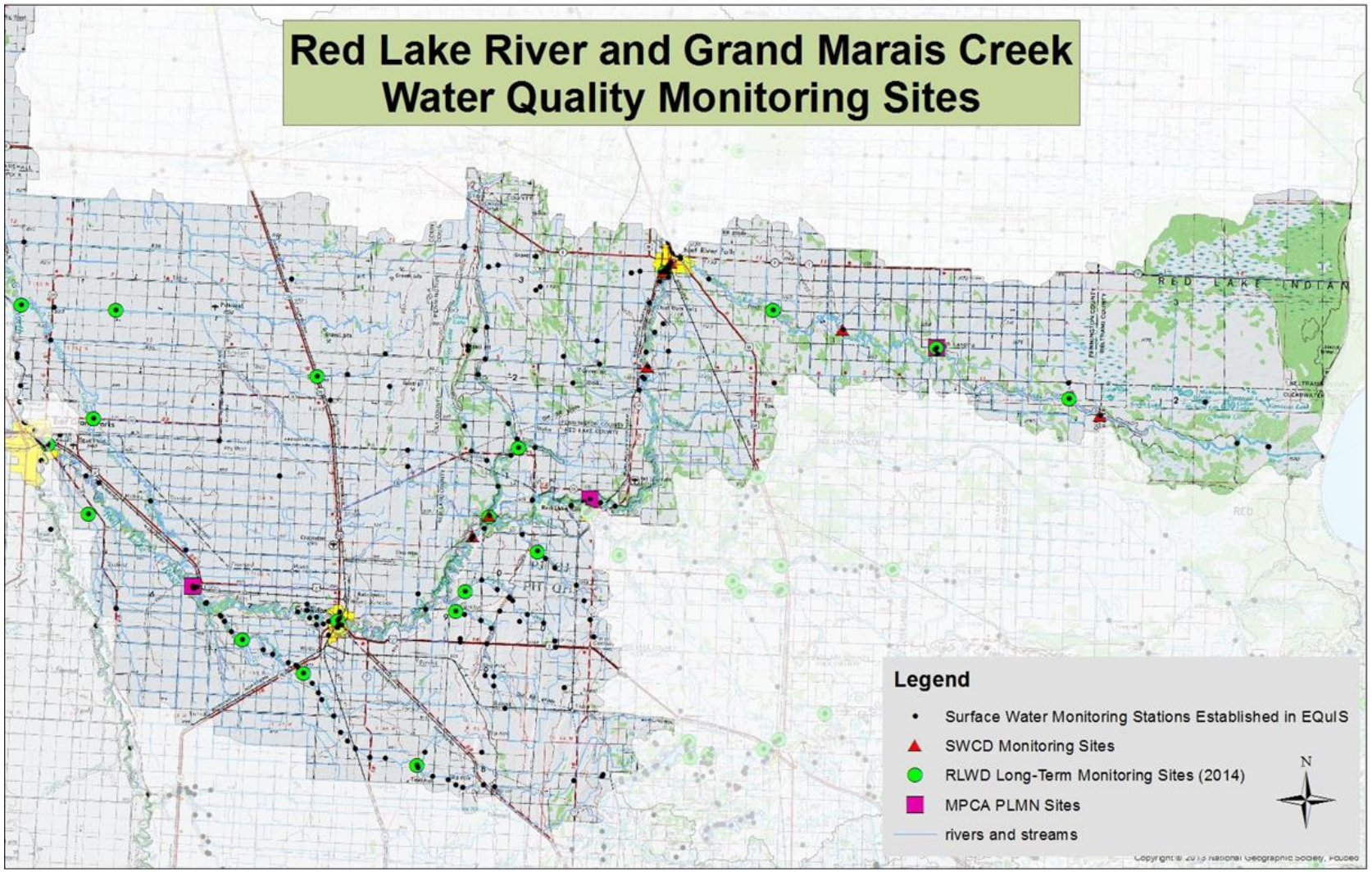


Figure 6-3 Monitoring sites in the Red Lake River and Grand Marais Creek Watershed

Achieving Plan Goals

This plan focuses both on restoration and protection activities. Table 6.2 below summarizes the different levels of measuring progress and how it will be implemented in this plan. Projects will be tracked during plan implementation using a system set up for the watershed.

Table 6-2: Description of how different activities will be measured during plan implementation

Level	Description	Timeframe	Red Lake River Application
Tracking	Gathering and compiling data about practices (Ex. acres, tons of sediment, linear feet of streambank).	Ongoing	Outputs in targeted implementation schedule (Section 5). Projects will be tracked with a system and reported in eLINK during implementation.
Reflecting	Comparing the work activities completed to the work activities in the plan to evaluate progress.	Annual or Biennial	Project tracking, eLINK Modeled benefits, PTMApp, Engineering Reports, Staff Capacity. Programs Implemented.
Evaluation	Comparing the resource results of associated projects, practices, or programs to the stated resource goals and outcomes in the plan.	Mid-point Evaluation	Analysis of loading at WPLMN sites, WRAPS Cycle 2.
Sharing	Maintain support for local work through communications about local watershed implementation geared toward the public and specific stakeholders.	Ongoing	Stakeholder and public engagement and support.

Resiliency

Many actions identified in section 5 provide multiple benefits to issues, including ecological resiliency. Partners will use current science and best management practices to increase resiliency to protect natural resources and social benefits. Ecological resilience includes landscape diversity, soil health practices, water retention, and fixing

past hydrological alterations. For example, soil health practices and restoring wetlands provide resilience to increasing precipitation trends.

This plan includes actions and programs that build both social and ecological resilience.

- Social resilience programs and actions:
    - Regulatory program
    - Education and Outreach program
    - Cost share for best management practices
    - Technical assistance to landowners
- Ecological resilience programs and actions:
    - Structural BMPs
    - Water storage projects
    - Ditch stabilization and maintenance
    - Forest management and protection
    - Soil Health practices
    - Wetland restoration
    - Stormwater retention
    - Streambank stabilization
    - Restoring floodplain connectivity

By managing the watershed holistically, the Red Lake River Watershed partners can work towards achieving the watershed plan goals.