

# Cullen Chain of Lakes Implementation Plan



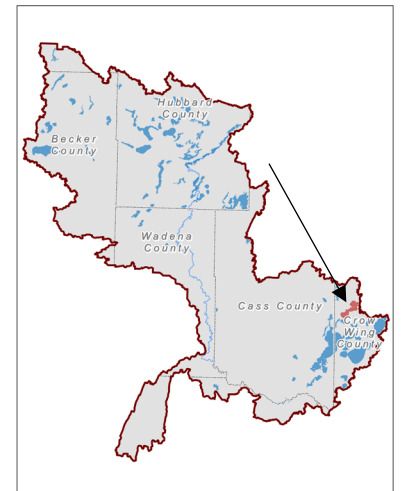
In 2023-2024, Cass, Crow Wing, Becker, Hubbard, Todd, and Wadena counties and SWCDs partnered to develop a One Watershed, One Plan for the Crow Wing River Watershed. During the planning process, the committees established to

develop the plan met with stakeholders, prioritized resource issues within the watershed, developed goals to address these issues, and identified pathways and programs to achieve these goals. The Crow Wing River One Watershed, One Plan was approved by the state in January 2025.

In this series of Lake Implementation Plans, more specific implementation goals for lakes within the watershed were developed to facilitate outreach and projects.

Lakes within the Watershed have been identified as "Restore", "Enhance", or "Protect" depending on the current water quality status of the lake as listed below. This plan does not address Aquatic Invasive Species (AIS) because Counties already have their own AIS Plans.

**This is Cullen Chain of Lakes' implementation plan. The Cullen Chain of Lakes was categorized as a "Protect" lake during the watershed plan process, indicating a need to protect the current water quality in the lake by implementing protective practices.**



## Management Focus

### Restore

*The lake is on the Impaired Waters List for excess nutrients. Reduce phosphorus loading through stormwater and agricultural best management practices.*

### Enhance

*The lake has a declining water quality trend. Reduce phosphorus loading through stormwater and agricultural best management practices.*

### Protect

*The lake has good water quality. Protect current water quality by protecting the surrounding land and implementing protective practices.*

# Why Does it Matter?



## Property Values

### What is your lake home worth?

Studies on Minnesota lakes show that lake property values are directly tied to water quality. For a three-foot decrease in water clarity, prices were reduced up to \$594 per shoreline foot. For a three-foot increase in clarity, prices increased up to \$423 per shoreline foot. This change in value can be a significant financial loss or gain to an individual property owner as well as a community.



## Fishing & Recreation

### Do you enjoy fishing and swimming?

Minnesota's native gamefish, such as walleyes, need clear water to see their prey, aquatic plants to hide and spawn in, and shade to keep cool. Keeping native plants in the lake and trees along the shoreline provide shade, spawning habitat, and protection for the game fish we love to catch. These plants and trees also help stop runoff and keep the lake clear for swimming and recreational activities.



## Habitat

### Do you enjoy watching loons, bald eagles, turtles, butterflies, songbirds, and other wildlife at the lake?

These animals depend on shoreline plants for nesting and cover, trees and forests for their homes, and native plants and flowers for pollinating. Keeping some of your yard natural enhances the habitat for these animals, ensuring their survival.

## Be a good neighbor; take care of your lake!







# Plan Goals and Current Status

Below you will find important information about current lake status, goals for stewardship, and ordinances/rules that may be important considerations for future building projects. The circled numbers correspond with the graphic on the previous page, and the specific actions on the following page.

1

## Phosphorus Loading

The long-term goal is to reduce phosphorous loading into Cullen Chain of Lakes by implementing best management practices.

- Phosphorus loading focus: **Mix**
- Annual phosphorous load: **2,479 lbs (total)**
- 10 Year Reduction goal: **30 lbs (combined)**

2

## Shoreline Ordinances/Rules

There are rules in the watershed to follow when building within 1,000 feet of a lake:

- Minimum Building Setback: **75 (Middle and Lower)/100 (Upper) feet**
- Maximum Impervious Surface: **Stormwater plan required if over 15%**
- Minimum Water Frontage Lot Width: **100 (Middle and Lower) /150 (Upper) ft**
- Minimum Lot Area: **30,000 (Middle and Lower) /40,000 (Upper) square feet**

3

## Shoreline Restoration

Maintain and enhance riparian vegetation on shoreline with disturbed areas through outreach and collaboration with private landowners.

- 1 shoreline restoration project per year on Cullen Chain of Lakes

4

## Land Protection

Protect forest land habitat and improve water quality through increased land protection in the watershed (see Map 2).

- Potential Acres to Protect: **4,673 Acres**
- Protection goal: **184 Acres**

## What can we do?

The table below outlines select goals developed during the watershed planning process, the implementation actions to help achieve those goals, and where those actions should be prioritized. See maps on the next two pages to see priority areas for these projects. Cost share is available for all projects listed below for landowners.

Acronyms: SWCD = Soil and Water Conservation District | DNR = Department of Natural Resources | MPCA = Minnesota Pollution Control Agency |

Goal	Implementation Action	Minimum 10-year goal	Annual Goal	Where	Who (lead in bold)	
<b>Phosphorous Reduction (30 lbs)</b>	Stormwater management including rain garden installation to capture rainfall	10 projects	1 projects/yr	Map 1	<b>Cities, County, SWCD</b> , Lake Associations	1
	Follow rules and ordinances when constructing building projects	Every building project	Every building project	Map 1	<b>County</b> , Cities, SWCD, Township	2
	Water quality monitoring	Trend analysis	5 water samples/yr	Middle of Lake	<b>Lake Associations</b> , SWCD, MPCA	
<b>Shoreline Restoration</b>	Shoreline buffers with native plants to limit shoreline erosion and provide habitat.	10 projects	1 shoreline restoration/yr	Map 1	<b>DNR, SWCD, County</b> , Lake Associations, Private Consultants	3
<b>Land Protection</b>	Permanently protect land with conservation easements.	184 acres	92 acres protected every 5 years	Map 2	<b>SWCD</b> , Minnesota Land Trust	4

## Contacts

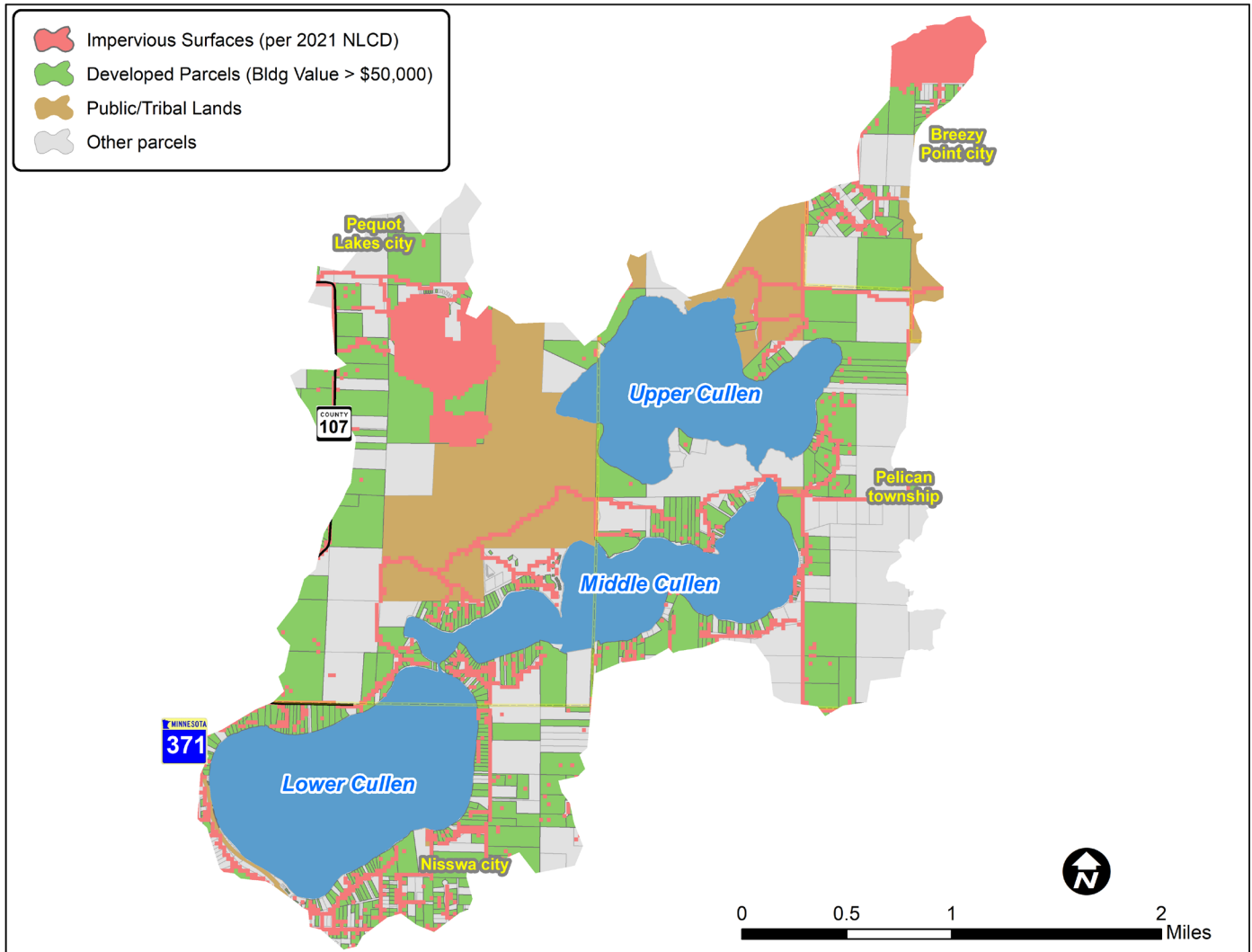
Crow Wing SWCD 218-828-6197 <a href="https://www.cwswcd.org/">https://www.cwswcd.org/</a>	Crow Wing County 218-824-1067 <a href="https://www.crowwing.gov/241/Water-Quality-and-Water-Plan">https://www.crowwing.gov/241/Water-Quality-and-Water-Plan</a>	Minnesota Land Trust 877-MLT-Land <a href="https://mnland.org/">https://mnland.org/</a>	DNR Forests <a href="https://www.dnr.state.mn.us/foreststewardship/plan-writers.html">https://www.dnr.state.mn.us/foreststewardship/plan-writers.html</a>
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## Map 1. Phosphorus Reduction Best Management Practices

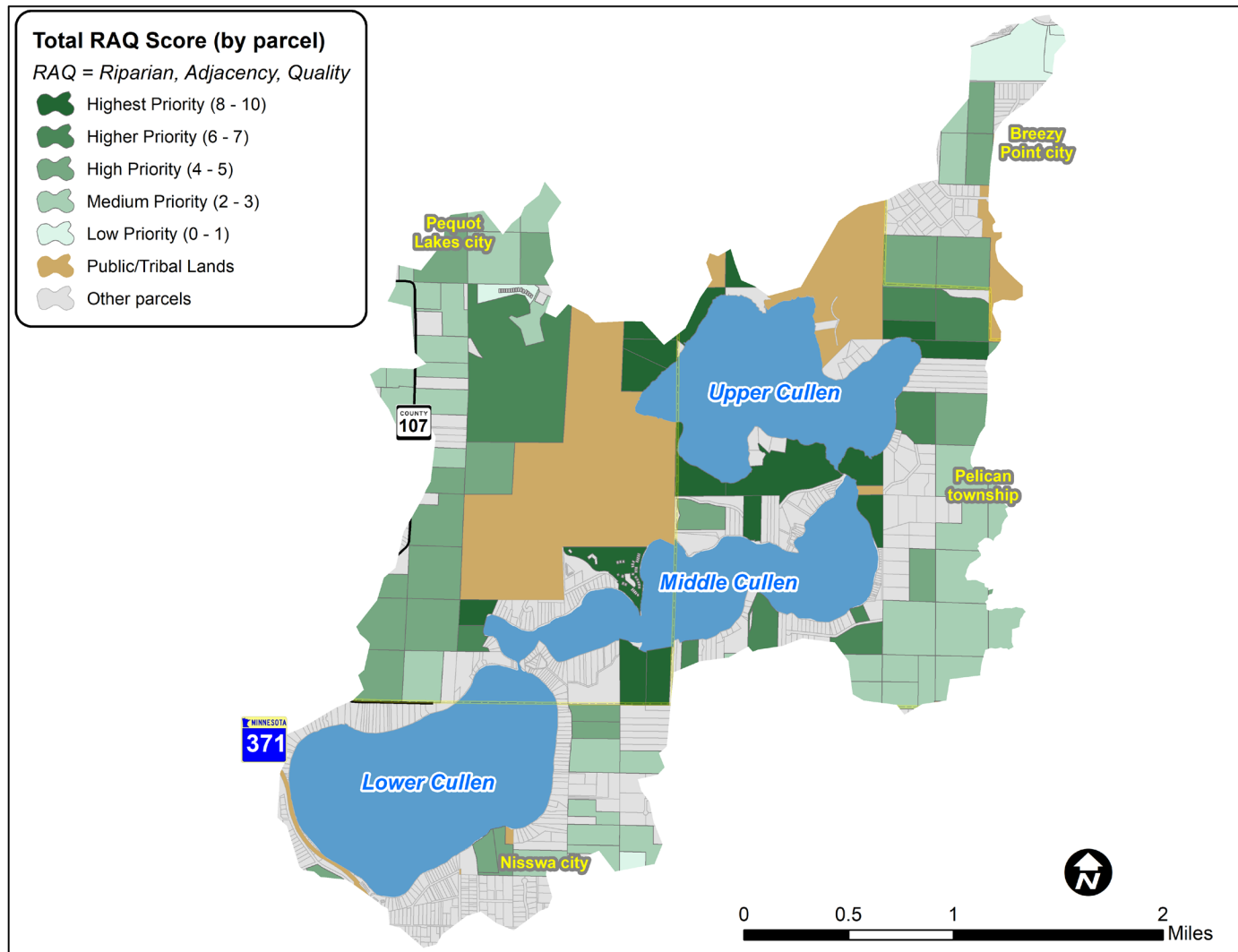
The land ownership within the immediate drainage area around Cullen Chain of Lakes is shown in the map below. Red areas are impervious surface, green areas are developed parcels, and tan areas are public or tribal lands. Projects will be targeted within developed parcels.

Prioritizing work on developed parcels with shoreland property has a large potential to reduce phosphorus to the lake, helping to improve water quality. The table on the previous page lays out details about which projects will be focused on shoreland parcels around Cullen Chain of Lakes. These include:

- Stormwater management, i.e. raingardens
- Following ordinances and rules during building construction
- Shoreline restoration projects focused on native plants



## Map 2. Land Protection Priorities



The map to the left can help identify areas with high land protection priorities. Each parcel is given a RAQ score, which prioritizes the land for its proximity to water bodies (Riparian) and public lands (Adjacency), as well as the resources present on the land (Quality), such as high biodiversity, wild rice, trout streams, etc.

Areas in dark green are the highest priority for permanent protection such as conservation easements or Sustainable Forest Incentive Act (SFIA) covenants in this area, and projects on these lands could generate the greatest improvement in water quality. Please contact the SWCD for land protection options.