



2023 Annual Report
for the
Clearwater River Watershed District

Clearwater River Watershed District

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Annandale, MN 55302

www.crw.org



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Acronyms

BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BWSR	MN Board of Water & Soil Resources cfs cubic feet per second
CFU/100 mL	colony forming units per 100 milliliters
Chl-a	Chlorophyll-a
CREP	Conservation Reserve Enhancement Program
CRWD	Clearwater River Watershed District
CWP	Clean Water Partnership District Clearwater River Watershed District
DO	Dissolved Oxygen
EPA	Environmental Protection Agency
lbs	Pounds
MDNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
µg/L	micrograms per liter
mg/L	milligrams per liter
NCHF	North Central Hardwood Forest
OP	Ortho-Phosphorus
RIM	Reinvest in Minnesota
SOD	Sediment Oxygen Demand
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TSS	Total Suspended Solids
WMP	Watershed Management Plan

Executive Summary

This report was prepared for the Clearwater River Watershed District (CRWD) to provide a progress report of Watershed Management Plan (WMP) Implementation activities in the District. The report summarizes 2022 hydrologic, hydraulic and water quality monitoring data and provides an analysis of progress towards goals in the context of the District's watershed management activities.

In 2021, the CRWD's next generation Comprehensive Watershed Plan was accepted by Board of Water and Soil Resources and adopted by the Board of Managers. This Plan encompasses the years 2021-2030.

In 2023 the District accomplished the following:

- Continued work with the Clear Lake Association and the US Fish and Wildlife Service and residents on the restoration of Clear Lake in Meeker County.
- Contracted with Carp Solutions to begin a comprehensive study to direct and inform cost effective methods for rough fish management to improve water quality and habitat in District lakes and streams.
- Coordinated with the Clearwater Lake Property Owners to support aggressive control of a newly detected starry stonewort infestation. This included funding a survey of the channel between Pleasant Lake and Clearwater Lake.
- Continued coordination with Clearwater Lake Property Owner's Association, residents on Grass Lake, the DNR and Stearns and Wright Counties to manage bogs in Clearwater and Grass Lake.
- Once again fielded a high call volume about hydrology, flooding, drought, dam operation, bogs and shoreline erosion during another consecutive year where the District went from flood conditions to drought conditions in a matter of a month.
- Continued to monitor water quality, hydrology, and hydraulics to track water quality trends and the effectiveness of existing management strategies. These actions help to improve efficiency of implementation of projects.
- Continued work on policy book revisions.
- Made progress updating the financial tracking to better partition administrative expenses and provide clarity and transparency around investments/ spending.
- Participated in the WRAPS project for the Upper Mississippi River.
- Conducted annual project inspections and conducted major maintenance on the Kingston Wetland Sedimentation Basin.
- Continued education and outreach efforts including:
 - 3 CAC meetings and one joint CAC/ Board meeting.
 - Welcomed at least one CAC member at each Board meeting.
 - Conducted a watershed tour in May.
 - Held an AIS forum.

- Staff attending Summer COLA Meetings to give updates and answer questions.
- Funded water quality science class in Kimball School District
- Hosted a rain garden workshop.

Significant hydrologic, hydraulic, and water quality findings in this report include the following:

Significant hydrologic, hydraulic, and water quality findings in this report include the following:

1. Precipitation in May, June and November was significantly below 30 year Normals; as were annual levels.
2. The water surface level at Grass Lake dam remained above the cutoff elevation (at which we close the outlet to Pleasant Lake) between 4/14 and 5/16 2023. The peak elevation measured was 993.74 measured on May 2, 2023 (1929 Datum).
3. Except for Swartout, most annual average surface water quality TP averages remained at the low end of what has been measured in these lakes since the 1980's.
4. Swartout and Clear Lake, as with other shallow lakes around the state, were plagued with significant algae blooms.
5. Algae concentrations in Albion, Clear, Betsy, Henshaw, Louisa, Marie and Swartout were towards the low end of those measured since the 1980's but were elevated higher than observed in recent years leading to more nuisance algae blooms overall in the District. As the result, Secchi depths were towards the low end of what has been observed in District Lakes with the exception of Pleasant lake which observed markedly higher clarity in 2023 than observed previously.
6. Stream monitoring resulted in a fewer measurements in 2023 due to the dry conditions. Numerical average TP levels were higher as the result, while TSS measurements were lower than generally measured. Soluble phosphorus values comprised most of the TP measured at most sites with the exception of Clear Lake South and Warner Creek.
7. The highest in stream TP was measured at Clear Lake North, with average TP at 600 ug/L and SRP over 500 ug/L.
8. In stream dissolved oxygen concentrations in Theil Creek, Warner Creek and at CR 29.0 in the Clearwater River upstream of Kingston remained above the DO standard of 5mg/ L at each monitoring event. The dissolved oxygen at CD 20 near Highway 55 was above the standard save for one event.

Information on the status of existing CRWD projects and water quality in the District can be found online at <http://www.crw.org/>

1.1 MISSION STATEMENT

The District's mission is to promote, preserve and protect water and natural resources within the boundaries of the District in order to maintain property values, recreation opportunities, and quality of life.

1.2 DISTRICT HISTORY

The area encompassed by the CRWD is rich in soil and water resources. The presence of those resources has encouraged the growth of two economic mainstays in this Central Minnesota territory – farming and tourism. Around these basics have grown the communities that support their needs. As population and industry grow, those priceless resources, which we often take for granted, may deteriorate.

In the 1960s and early 1970s, those who fished and enjoyed the waters of the Clearwater River Chain of Lakes began to experience a decrease in the clarity of those waters, an increase in the number of rough fish (bullheads and carp), and an increase in the growth of algae on the surface of the water. Property owners sought new tests from scientists interested in water quality. Those tests revealed that the nutrient content of the water had increased substantially since 1946. In fact, the level of phosphorus coming into Clearwater Lake was at a rate almost double the rate considered damaging.

The lakes through which the Clearwater River flowed were aging much too quickly. That process, which is a natural phenomenon called "eutrophication," was being helped along at an alarming rate via pollution entering the river system from cities, farmland, private property, and industry.

Further reports concluded that the rate of phosphorus input could be reduced by as much as 50% if the cities of Watkins, Kimball, and Annandale, and the Modern Craftsmen's Milk Association of Watkins installed on-land waste treatment systems instead of discharging sewage and industrial effluents into the Clearwater River and Warner Creek. In addition, if the phosphorus input from all non-point sources (such as septic tanks, agricultural wastes, storm water runoff, and soil erosion) could be significantly reduced, water quality in the watershed could be restored to an acceptable level.

After a lengthy series of meetings and legal research, those concerned concluded that only a watershed district, with its powers of enforcement and its abilities to assess and to obtain federal and state funding, could tackle the pollution problem in the Chain of Lakes. The CRWD was the culmination of years of hard work and the beginning of many more years of work aimed at undoing some of the damage done over a long period of time to one of our most important resources – our lakes and streams.

The CRWD was established as a unit of local government on April 9, 1975, through citizen petition by order of the Minnesota Water Resources Board, acting under authority of Chapter

112, MSA (the Minnesota Watershed Act). Though the original thrust of the CRWD and its five member Board of Managers was the improvement of water quality in the Clearwater River Chain of Lakes, its scope has grown into a complete program of water management within its boundaries.

1.3 DISTRICT INFORMATION

Physical Address	93 Oak Ave S, Suite 5 Annandale, MN 55302
Mailing Address	3235 Fernbrook Ln N Plymouth, MN 55447
Website	www.crwd.org
Email, Phone	admin@crwd.org , (320)274-3935
Office Hours	By appointment in office, by phone during business hours
Board Meeting Schedule	Regular meetings are held monthly on the 3 rd Wednesday at 6:00pm at the District’s office in Annandale, MN. Special meetings are called on an as-needed basis. Due to COVID-19, meetings are also available via Zoom. The link to join meetings is posted on the District website.

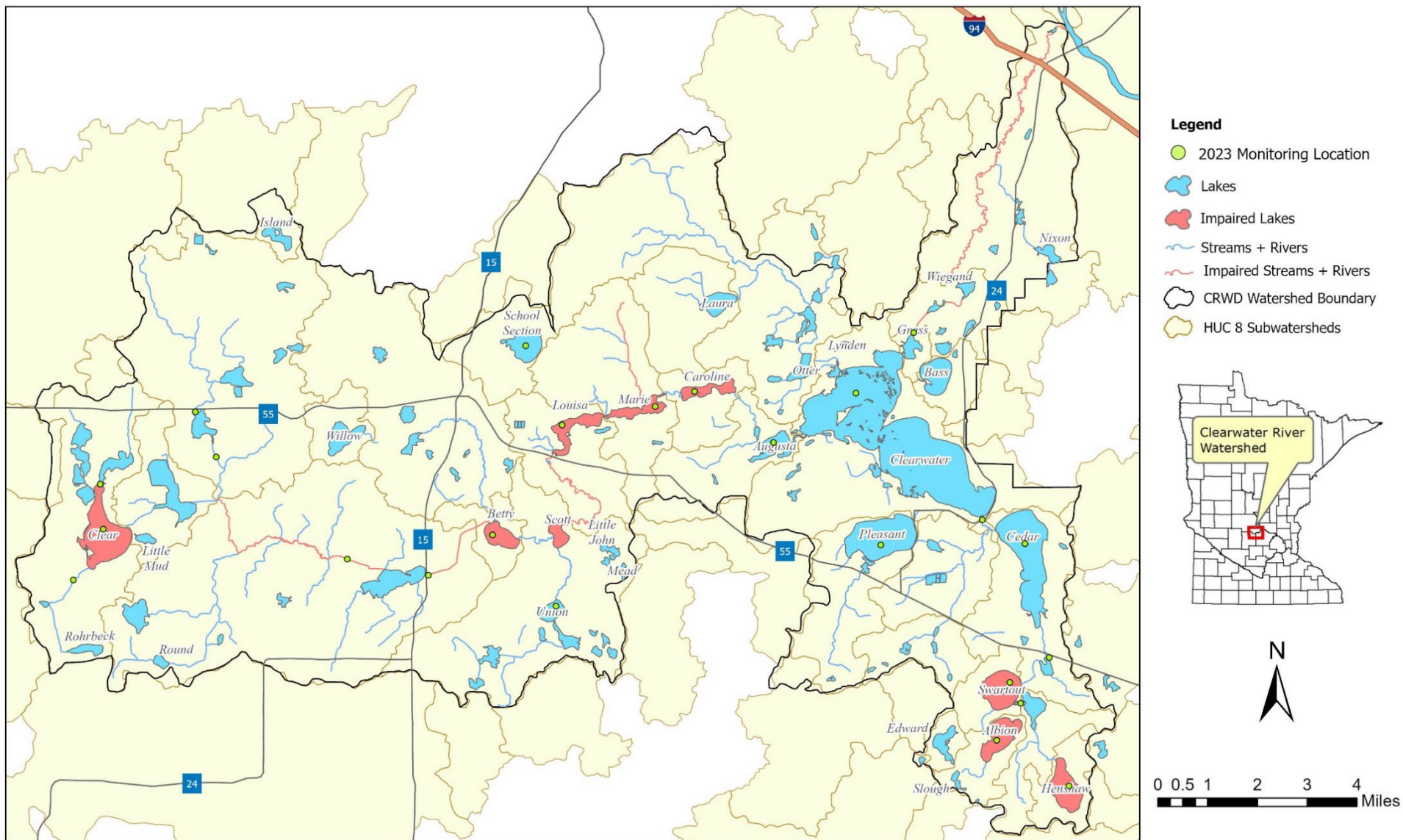
The current Board members and staff are listed on the District’s website.

1.4 MONITORING & REPORT OBJECTIVES

The Clearwater River Watershed District’s (CRWD’s) ongoing monitoring program– started in 1980- is critical to track long term water quality and hydrologic trends. This report summarizes data to evaluate progress towards water quality goals through program/ project implementation. This allows the CRWD to optimize costs and benefits of natural resource protection programs within the District. The 2024 monitoring plan is summarized in Appendix A, monitoring locations and impaired waters are summarized in Figure 1-1. The objectives of the Water Quality Monitoring and Watershed Management Plan Implementation Status program are:

1. Track progress towards water quality goals for impaired waters by:
 - a. Measuring water quality trends in lakes and streams and pollutant loads.
 - b. Tracking programs and projects implemented.
 - c. Evaluating water quality in the context of programs/ projects implemented.
2. Fill data gaps identified in the TMDLs.
3. Continue to provide baseline water quality data and calibration data sets to refine TMDL load reductions.
4. Track long-term trends in all CRWD waters monitored ensuring early detection of declining trends. The appendices summarize historical lake water quality data.
5. Provide recommendations for ongoing programs, projects and watershed management strategies based on data.

Figure 1-1: 2023 Water Quality Monitoring Locations in the CRWD



2.0 Financial Condition of the CRWD

The 2023 financial audit is still be compiled and will be added once it is complete.

3.0 Progress Towards Water Quality Goals

Status of CRWD Projects and Programs

The CRWD Watershed Management Plan (WMP) identifies the upper watershed (upstream of Lake Betsy) as the highest priority for implementing both capital projects and programmatic BMPs. Because of the flow-through nature of the Clearwater Chain of Lakes, water quality in upper watershed lakes like Clear Lake and Lake Betsy is the primary driver of water quality in downstream lakes like Clearwater Lake. Nutrient loads from upper watershed lakes and their tributary watersheds drive impairments in lakes further downstream. Clear Lake, Lake Betsy, and the tributary watersheds are targeted for intensive BMPs to not only improve water quality in those lakes, but to also reduce the load to downstream water bodies. All lakes will eventually be targeted, but the greatest impact will be achieved for the lowest cost by initially focusing the efforts on improvements in the upstream end of the District and working downstream.

3.1 PROCESS

The CRWD WMP is specific in its focus: implement the identified projects and programs in high priority geographical areas. The District makes annual adjustments to further focus and refine management activities. The Board and staff review this report, compare findings to the WMP, and then prioritize projects and programs. They typically select one-three projects and programs to focus on in the coming year. The annual planning is based on remaining programs and projects identified in the Plan, water quality monitoring findings as well as other opportunistic projects identified during the year. This on-going strategic planning keeps the CRWD focused and efficient.

3.2 YEARLY SUMMARY OF PROGRESS | STATUS OF PROJECTS AND PROGRAMS

The following section summarizes year by year strategy as well as programs and projects undertaken for the past 5 years. 2019-2020 were under the previous Management Plan, 2021-2023 are under the current Management Plan:

2019

- Secured funding for and constructed the \$2.8 million Nitrogen Mitigation System for the Clearwater Harbor, Hidden River Waste Water Treatment System forward including initiating the Project.
- Worked through staff transitions, changed office locations and Comprehensive Planning for the next 10 years.
- Continued to monitor water quality, hydrology, and hydraulics to track water quality trends and the effectiveness of existing management strategies. These actions help to improve efficiencies of implementation of projects.
- Completed maintenance on existing projects as noted in annual project inspections.
- Continued education and outreach efforts including an update of the Districts Web Site (in progress).

- Conducted the annual strategic planning session in March to evaluate WMP implementation, performed adaptive management and identified additional needs. This includes identifying additional projects and continuing to apply for grant dollars to fund other CRWD projects.
- Provided \$10,000 in cost share and technical services to support a Wright SWCD project to stabilize a ravine and reduce sediment and nutrient loading to Lake Augusta.
- Stabilized the Pleasant Lake Outlet Channel to reduce sediment and nutrient loading to downstream Clearwater Lake.

2020

- Substantial completion and year 1 system commissioning for the \$2.8 million Nitrogen Mitigation System for the Clearwater Harbor, Hidden River Waste Water Treatment System.
- Completed the 2021-2030 Comprehensive Watershed Management Plan update.
- Continued to monitor water quality, hydrology, and hydraulics to track water quality trends and the effectiveness of existing management strategies. These actions help to improve efficiencies of implementation of projects.
- Continued education and outreach efforts including an update of the Districts Web Site (in progress).
- Conducted the annual strategic planning sessions to evaluate WMP implementation, performed adaptive management and identified additional needs. This includes identifying additional projects and continuing to apply for grant dollars to fund other CRWD projects

2021

- Two District lakes, Augusta and Scott, were removed from the impaired waters list.
- Secured Board of Water and Soil approval for a 10 Year Comprehensive Plan update in April 2021 and was the first District in many years invited to present the plan to the full BWSR Board.
- Implemented maintenance on the following projects:
 - Clear Lake South Weir
 - Swartout Iron Enhanced Sand Filter
 - Highway 55 Project
 - Replacement/ repair of 3 of the 5 Cedar Lake Project Fish Migration Barriers a fourth was replaced in 2020.
- Inspected the following projects:
 - Watkins Stormwater Project
 - Kingston Wetland and Clearwater River Restoration
 - Segner Pond
- Conducted vegetation studies on Swartout Lake and Henshaw Lake
- Approved a request from the Lake Association on Cedar Lake to review and report on 15-year 06-01 project progress and set direction for next 15 years for lake resilience

- Secured a grant for the Clear Lake Restoration
- Appointed a new CAC member, and reconvened regular CAC meetings following Covid
- Conducted annual monitoring of lakes and streams and publish report cards
- Coordinated with Stearns SWCD on Theil Creek Restoration
- Cost share for county nutrient and sediment load reduction projects
- Established an ag lime cost share to reduce soluble nutrient export
- Expanded the targeted fertilizer application project to include the entire District to reduce nutrient loading to lakes and streams
- Operated lake outlets, and District projects

2022

- Coordinated with Clearwater Lake Property Owner's Association, residents on Grass Lake, the DNR and Stearns and Wright Counties to manage bogs in Clearwater and Grass Lake. Staff coordinated contracting made progress on securing a perpetual easement for the removal of future bogs. Field staff surveyed the Clearwater River channel downstream of Grass Lake for the presence of bogs. Staff and Board Members coordinated with residents to re-write the District's Bog Policy to reflect the current Lake Association member preferences as to Project operation.
- Fielded a high call volume about hydrology, flooding, drought, dam operation, bogs and shoreline erosion during a year where the District went from flood conditions to drought conditions in a matter of a month.
- Coordinated with residents and the DNR to survey the channel between Turtle Bay and Clearwater River and provide alternatives to residents seeking to remove sediment from the channel.
- Began work on the restoration of Clear Lake in Meeker County.
- Continued to monitor water quality, hydrology, and hydraulics to track water quality trends and the effectiveness of existing management strategies. These actions help to improve efficiency of implementation of projects.
- Invested significant staff time participating in the early phases of the Upper Mississippi 1W1P planning effort including staff support for preparation of the RFP for consulting services, the workplan, and a memorandum of agreement between entities.
- Participated in the WRAPS project for the Upper Mississippi River.
- Conducted annual project inspections.
- Began maintenance on existing projects as noted in annual project inspections.
- Continued education and outreach efforts including conducting 5 CAC meetings.

2023

- Continued work with the Clear Lake Association and the US Fish and Wildlife Service and residents on the restoration of Clear Lake in Meeker County.
- Contracted with Carp Solutions to begin a comprehensive study to direct and inform. cost effective methods for rough fish management to improve water quality and habitat

in District lakes and streams.

- Coordinated with the Clearwater Lake Property Owners to support aggressive control of a newly detected starry stonewort infestation. This included funding a survey of the channel between Pleasant Lake and Clearwater Lake.
- Continued coordination with Clearwater Lake Property Owner’s Association, residents on Grass Lake, the DNR and Stearns and Wright Counties to manage bogs in Clearwater and Grass Lake.
- Once again fielded a high call volume about hydrology, flooding, drought, dam operation, bogs and shoreline erosion during another consecutive year where the District went from flood conditions to drought conditions in a matter of a month.
- Continued to monitor water quality, hydrology, and hydraulics to track water quality trends and the effectiveness of existing management strategies. These actions help to improve efficiency of implementation of projects.
- Continued work on policy book revisions.
- Made progress updating the financial tracking to better partition administrative expenses and provide clarity and transparency around investments/ spending.
- Participated in the WRAPS project for the Upper Mississippi River.
- Conducted annual project inspections and conducted major maintenance on the Kingston Wetland Sedimentation Basin.
- Continued education and outreach efforts including:
 - 3 CAC meetings and one joint CAC/ Board meeting.
 - Welcomed at least one CAC member at each Board meeting.
 - Conducted a watershed tour in May.
 - Held an AIS forum.
 - Staff attending Summer COLA Meetings to give updates and answer questions.
 - Funded water quality science class in Kimball School District
 - Hosted a rain garden workshop.

Table 3-1: 2023 Summary of Progress | Status of Projects and Programs

Activity	Notes
Advisory Committee	Per MN Statute 103D, the CRWD Board of Managers has appointed an advisory committee. More information on the committee, include meeting minutes, can be found at: https://www.crw.org/advisory-committee.html . The committee had quarterly meetings which we held in January, April, July, and November in 2022.
Annual Project Inspections	On an annual basis, the CRWD conducts a review of the operational status of all projects the CRWD owns, operates and/ or maintains on the landscape. At a minimum visual inspection of individual project’s components are performed, with more indepth inspections performed as warranted. From this, actions items needed to maintain operational

	<p>effectiveness are determined. The results of these inspections are summarized annual in a Project Inspection Report, which serves to provide an annual status update to the CRWD Board of Managers. A copy of report can be viewed at: https://www.crawd.org/publications-and-reports.html. Status of projects and programs that do not physically exist on the landscape are covered below.</p>
<p>Aquatic Invasive Species (AIS) Treatment Programs</p>	<p>The CRWD has been, from time to time, petitioned to established programs for the identification, management and treatment of AIS in certain CRWD waters. These programs are funded by special assessments, and the lake associations on each lake undertake the management of the treatment programs via agreement with the CRWD; the CRWD acts as a fiscal agent on all projects.</p>
<p>Bog Control Projects</p>	<p>In response to high water levels in the mid-1980s that caused severe floating bog problems on Augusta, Clearwater, and Grass Lakes, the CRWD set up two bog control projects with the cooperation of the lake property owners involved. These projects included acquisition and improvement of access areas for bog removal, and the funding (via assessment) and process for removal of floating bogs deemed harmful. The CRWD works in conjunction with the Minnesota Department of Natural Resources as well as other local authorities in removal of bogs from choke points on these three lakes in order to ensure river flow is not restrict such that flooding could result. Bog removal by the CRWD is governed by CRWD Policy. A high volume of bog activity occurred between Grass and Clearwater Lakes in 2022. Because of this, a new bog policy was written to reflect the needs of current Lake Associations and property owners. In 2022, staff surveyed the Clearwater River channel downstream of Grass Lake for bogs, and secured a perpetual easement for the removal of future bogs.</p>
<p>Education and Outreach Program</p>	<p>Program is a collection of activities, events, publications, etc. that fall under various projects and programs of the CRWD. Provides means to:</p> <ul style="list-style-type: none"> • Inform citizens on CRWD activities • Encourage involvement and ownership of water-resource issues • Discover citizen concerns • Establish and test methods <p>Activities completed in 2021 under this program include:</p> <ul style="list-style-type: none"> • Maintained the District’s web site (ongoing) • Enhanced social media engagement. • Replaced in-person meetings with phone calls or zoom calls when possible as Covid-19 limited actions. • Commented on variance and permit requests from Corinna Township, Meeker County, Stearns County and Wright County.

Incentive Program	<p>Agricultural Incentives</p> <ul style="list-style-type: none"> • Incentive program focused on variable rate fertilizer application and alternative tile intake programs. • Added an incentive for ag lime application to bind phosphorus to soils <p>Visit: https://www.crawd.org/incentives.html to learn more about these incentive offerings.</p>
Partnerships	<p>Mississippi River (St. Cloud) Watershed WRAPS</p> <p>Collaborated with partners on this project where possible. The CRWD remains committed to working with its partners on the watershed restoration and protection strategies report process.</p> <p>1W1P</p> <p>The District continued to work with 1W1P planning group partners on advancing the regional plan.</p>
Project-specific	<p>Clear Lake</p> <p>Continued to work with Clear Lake residents to advance a lake restoration project and secure a grant. The grant was authorized late in 2021.</p>
Rough Fish Management Program	<p>The CRWD continues to implement rough fish management strategies (principally removal and migration barriers) in areas of the CRWD where management funding has been established. CRWD continues to struggle with area contractors approved for fisheries removal. The District opted to switch approach and pursue working with Carp Solutions. A repair of the fish migration barriers was implemented.</p>
Water Quality Monitoring Program	<p>Conducted water quality and hydrologic monitoring in accordance with recommendations of the WMP throughout the District to monitor project performance and better focus implementation efforts.</p>

3.3 SUMMARY OF PRIORITY PROJECTS

The CRWD has implemented several major projects to achieve water quality goals; status is shown below.

Table 3-2: Priority Implementation Projects

Project	TP Reduction (lbs/yr)	Expense	Learn More
Projects Completed			
Cedar Lake Restoration (06-01 Original)	1,500	\$295,000	https://www.crawd.org/cedar-albion-swartout-henshaw-project-06-1.html
City of Kimball Stormwater Management (Phase I)	244	\$189,550	https://www.crawd.org/willow-creek-kimball-phase-i-stormwater-retention--reuse-project.html
Clear Lake Notched Weir	588	\$80,000	https://www.crawd.org/clear-lake-south-notch-weir.html

Kingston Wetland Feasibility Study and Wetland Restoration	1,955	\$589,000	https://www.crw.org/kingston-wetland-feasibility-study-and-restoration-project.html
Conservation Corps Streambank Restoration	TP load reduction associated with sediment load reduction	\$65,275	https://www.crw.org/clearwater-river-channel-stabilization-ccm-riparian-project.html
Cedar Lake Watershed Protection and Improvement	1,280	\$583,000	https://www.crw.org/cash-project-06-1-segner-pond.html
Projects (06-01-Modified)			
GPS Fertilizer Application	3,200	\$437,000	https://www.crw.org/targeted-fertilizer-application-reduction-project.html
Expand Education Program	N/A	N/A	Incorporated in grant funded scopes of work are efforts to expand the CRWD's Education/ Outreach programs. The CRWD had a strong relationship with Lake Associations and hosts educational events that primarily target adults. The education program was expanded to include social media outreach as well as school age children in the community.
Watkins Area Stormwater Treatment	796	\$645,882	Land was acquired for this project in mid-2000s. An initial grant application for \$351,906 scored highly but was not selected in 2009 due to amount requested. Conducted additional feasibility work and completed another grant application which was not awarded. The District received grant award in 2015 and began design and permitting. Construction was substantially completed in 2017, and finalized in 2018. https://www.crw.org/watkins-area-stormwater-treatment-project.html
Clearwater River Restoration & Protection Phase II	TBD	\$144,000	Source inventory update complete. Design and implementation of best management practices at prioritized locations underway. https://www.crw.org/clearwater-river-restoration--protection-phase-ii-project.html
Clearwater Harbor/ Hidden River Nitrogen Mitigation Project	N/A	\$2.8 million	The project is a requirement for the two small community sanitary sewer systems to meet new MPCA regulations for nitrogen. The District is pursuing PSIG funding for the project. Construction was complete in December 2019, and system commissioning continued in 2020. https://www.crw.org/clearwater-harbor---hidden-riverproject-18-1-nitrogen-mitigation--analysis-planimplementation.html
Alternative Tile Intake	TBD	\$88,000	A 319 grant to promote the use of alternative tile intakes to reduce sediment, nutrient and bacteria concentrations in the upper watershed. The project, started in 2015, wrapped up in the summer of 2018 with some modifications due to low uptake of the

			practice. However several other projects which promote load reductions were implemented. https://www.crwed.org/alternative-tile-intakeproject.html
Projects In Progress			
Clear Lake Restoration	TBD	\$361,000 (grant amount) + local levy	Secured grant to install an iron enhanced sand filter behind an existing wetland outlet control structure. Remaining project will include operations and maintenance for all District projects supporting improved water quality on Clear Lake.
Potential Future Projects			
Cedar Lake Subwatershed Improvement Project Additions	TBD	TBD	Managing upper watershed loads, lake restorations and shallow lakes management of 3 shallow lakes. Manage SRP wetland loading.
Resilience planning-municipalities in the District	TBD	TBD	Close to 10 years ago, the District offered stormwater evaluations which included delineations and modeling and recommendations on stormwater management. The time to revisit this study is now in the face of changing weather patterns. Reviewing this work and offering some resilience planning to the cities will incorporate nutrient and sediment load reduction, flood reduction.
CD 20 Project	TBD	TBD	CD 20 is a major source of bacteria to the Clearwater River. Investigate sources and opportunities to mitigate loads.
Watkins soluble phosphorous load reduction project	TBD	TBD	Identify and develop projects to reduce soluble phosphorous loading in the watershed.
Other soluble phosphorous load reduction projects	TBD	TBD	Identify and develop projects to reduce soluble phosphorous loading.
Theil Creek Restoration and Protection	TBD	TBD	Theil Creek is a trout stream in the District. The Board of Managers authorized formation of and participation in a task force to evaluate opportunities to protect and improve the stream.
Fairhaven Creek Restoration and Protection	TBD	TBD	Fairhaven Creek is a trout stream in the District. The Board of Managers authorized formation of and participation in a task force to evaluate opportunities to protect and improve the stream.
Clearwater River Restoration upstream of Lake Betsy	TBD	TBD	This section of the river has many areas of high erosive force, destabilizing the toe and increasing sediment loads. Tributaries form deep ravines which also contribute to the load, as well as watershed loading from highly erodible soil areas. Work under a 319 grant identified target areas within the watershed for stabilization to reduce sediment nutrient and bacteria load to the river. In addition, instream stabilization assessment is under consideration.

4.0 Managers' Plan of Work for 2023

4.1 PLAN OVERVIEW

The CRWD Board of Managers approved the following plan at the February 21, 2024 regular Board and planning meeting. The scope of this plan is limited to a high-level overview, providing a summary of work envisioned by the CRWD Board of Managers for the year. Throughout the year, new information and opportunities may arise; as such, implementation of the plan may be altered at any time. While focused only on 2022, the plan factors in long-term planning to ensure the District remains on task to accomplish its mission and purposes.

Many work items covered below are too complex to be completely covered in a single, all-encompassing work plan. As such, many of these items have their own stand-alone work plans.



To: CRWD Board of Managers
From: Rebecca Carlson, P.E. (MN)
 District Engineer, Administrator
Re: Monitoring Plan 2024
Date: 2/21/2024

Introduction

The Clearwater River Watershed District has conducted an annual water quality monitoring program at select locations throughout the watershed since 1981 to assess District progress towards water quality goals, track long-term water quality trends, and evaluate effectiveness of existing water quality improvement projects and programs.

Laboratory costs went up significantly in the middle of the 2022 monitoring season, and again in the 2023 season. Staff secured a 20% discount last season which will still be honored in 2024. Prices did not rise except for OP to \$31.20/sample.

RMB Lab Fees	2023		2024	
	2022	Discount	Full	Discount
TP (65 lake samples/70 stream samples)	\$ 15.00	\$ 19.20	\$ 24.00	\$ 19.20
OP (70 stream samples)	\$ 13.00	\$ 23.20	\$ 29.00	\$ 31.20
TSS (70 stream samples)	\$ 23.00	\$ 18.40	\$ 23.00	\$ 18.40
Chl-a (65 lake samples)	\$ 20.00	\$ 24.00	\$ 30.00	\$ 24.00

Table 1. Lab costs increases

Baseline Monitoring:

Lakes

The history and future plans are presented in tables 4 and 5 for context. Monthly surface samples will be collected from thirteen lakes 5 times between May and September. Lab parameters include Total Phosphorous and Chlorophyll-a. Field parameters include temperature, dissolved oxygen, specific conductivity, and pH profiles, secchi depth. IBI sampling and sediment coring are not planned for 2024.

Streams

- Continuous water level monitoring will be recorded using pressure transducers at the following stations;
 - CR28.2 (Kingston)
 - CR16.7 (Fairhaven Dam)
 - CR10.5 (Grass Lake Dam)
 - CD20-1.0
 - SSW04 (Illsley Ave)
 - TC0.7 (Theil Creek)

- Telemetry for continuous water level monitoring at Grass Lake Dam and Thiel Creek
- Visual monitoring at 5 fish migration barrier sites in Cedar Lake subwatersheds

	Sites	Lab Fees	Labor	Total
Lake Monitoring	13	\$ 7,981.00	\$ 17,160.00	\$ 25,630.00
Stream Monitoring	10		\$ 10,800.00	\$ 10,800.00
Transducer Install, Removal, Maintenance	7		\$ 1,320.00	\$ 1,320.00
Lake Gauge Install, Removal	6		\$ 1,716.00	\$ 1,716.00
Rain Gauge Coordination	5		\$ 245.00	\$ 245.00
Expenses (mileage, supplies, shipping, rentals)			\$ 9,800.00	\$ 9,800.00
Reporting, Lab Coordination			\$ 15,000.00	\$ 15,000.00
SUBTOTAL				\$ 65,591.00
10% Contingency				\$ 6,559.10
TOTAL				\$ 72,150.10

Table 2. 2024 Program Cost

Funding Source	Allocation
Data Collection [205]	\$14,322
Chain of Lakes [210]	\$39,387
Project #06-1 [215]	\$10,026
Watkins Stormwater Fund [406]	\$2,148
SSL#17-1 [407] (Lake + Thiel Creek)	\$3,581
Clear Lake Fund	\$2,148

Table 3: Fund Allocation



Table 4: Baseline lake monitoring for CRWD lakes

STATIONS	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Clearwater East ^{^*}	X		X		X		X		X	
Clearwater West ^{^*}	X~	X		X		X		X		X
Augusta ^{^*}	X	X	X	X	X	X	X	X	X	X
Caroline [*]	X		X	X	X	X	X	X	X	X
Marie ^{^*}		X	X	X	X	X	X	X	X	X
Louisa ^{^*}		X	X	X	X	X	X	X	X	X
Scott [*]	X	X			X			X		
Betsy [*]	X	X	X	X	X	X	X	X	X	X
Clear	X	X	X	X	X	X	X	X	X	X
Cedar ^{^#}	X~	X	X	X	X	X	X	X	X	X
Albion [#]	X		X	X	X	X	X	X	X	X
Swartout [#]	X		X	X	X	X	X	X	X	X
Henshaw [#]	X		X	X	X	X	X	X	X	X
Bass			X			X			X	
Grass [*]										
Little Mud	X				X				X	
Nixon		X				X				X
Otter	X							X		
Pleasant				X			X			X
School Section		X		X			X			
Union		X				X				
Wiegand ^{!*}										
TOTALS	13	11	12	13	13	13	13	13	13	13

NOTES

[^] denotes a lake that has a CRWD AIS Project

[#] denotes a lake that falls under Project #06-1

^{*} denotes a lake that falls under the 1980 Project

~ SWAG Funding

! Wiegand lake sampling was discontinued in favor of stream sampling at Nordell Bridge downstream; that event will be tracked in separate schedule going forward

Table 5: Baseline stream monitoring

STATIONS	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
SCE01~!										
SHE01~!										
SSW01*!										
SSW02*#	X	X	X	X	X	X	X	X	X	X
SSW04*	X	X	X	X	X	X	X	X	X	X
CR7.0										
CR10.5	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry
CR28.2^	X	X	X	X	X	X	X	X	X	X
CR29.0^	X	X	X	X	X	X	X	X	X	X
CLN	X	X	X	X	X	X	X	X	X	X
CLS#	X	X	X	X	X	X	X	X	X	X
CD20-1.0^	X	X	X	X	X	X	X	X	X	X
CD20-2.2				X		X		X		X
TC0.7		X	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry	Stage + Telemetry
LAWT										
ULST										
ULWT										
WS1#		X	X				X			X
WR1.4-West			X							
WR1.4-East			X			X			X	
WR0.2	X	X	X	X	X	X	X	X	X	X
TOTALS	7	11	13	11	10	11	11	10	11	11

NOTES

^denotes a site that falls under the 1980 project

*denotes a site that falls under Project #06-01



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93 Oak Avenue South, Suite 5
Annandale, MN 55302
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OFFICE MEMORANDUM

TO: CRWD BOARD OF MANAGERS
FROM: REBECCA CARLSON
DATE: 02/21/2024
SUBJECT: 2024 DRAFT MANAGERS' PLAN OF WORK

Introduction

Per MN Statute 103D.351 (a), the CRWD Board of Managers must provide a discussion of their plans for the upcoming year. The Board has traditionally set its yearly plan of work at its annual strategic planning meeting. The Managers' Plan of Work provides directives to guide and implement various District matters for the following year. While focused on only one year, it factors in long-term plans to ensure the District remains on task to accomplish its mission and purposes.

The Administrator traditionally prepares a draft plan based on the following:

- The current Watershed Management Plan (WMP)
- Activities of the past year
- Recently completed water quality monitoring and WMP implementation portion of the annual report
- Annual project inspection reports
- Board meetings from the previous year
- Other documents

Many items covered in this document are too complex to be completely covered in a single, all-encompassing work plan. These items often have their own stand-alone work plans. Those plans should be referred to for more detailed information.

The scope of this document is limited to a high-level overview, providing a summary of work planned for 2024 by the CRWD Board of Managers. A key element of the plan is to actively consider new information and opportunities as they arise and alter the plan as necessary.

The Board's annual plan of work was discussed at a Regular Board held 2/17/2024. The CAC committee met 12/7/2023 to provide input to the draft plans and were invited to attend the 2/17/2024 planning session. The draft plan was approved 2/17/2024.

In 2023 the District accomplished the following:

- Continued work with the Clear Lake Association and the US Fish and Wildlife Service and residents on the restoration of Clear Lake in Meeker County.
- Completed a 15 year review of the Cedar Lake 06-01 Project

- Drafted and implemented the cost share worksheet for Ag Lime and Targeted Fertilizer program expansions.
- Contracted with Carp Solutions to begin a comprehensive study to direct and inform. cost effective methods for rough fish management to improve water quality and habitat in District lakes and streams.
- Coordinated with the Clearwater Lake Property Owners to support aggressive control of a newly detected starry stonewort infestation. This included funding a survey of the channel between Pleasant Lake and Clearwater Lake.
- Continued coordination with Clearwater Lake Property Owner's Association, residents on Grass Lake, the DNR and Stearns and Wright Counties to manage bogs in Clearwater and Grass Lake.
- Once again fielded a high call volume about hydrology, flooding, drought, dam operation, bogs and shoreline erosion during another consecutive year where the District went from flood conditions to drought conditions in a matter of a month.
- Continued to monitor water quality, hydrology, and hydraulics to track water quality trends and the effectiveness of existing management strategies. These actions help to improve efficiency of implementation of projects.
- Continued work on policy book revisions.
- Made progress updating the financial tracking to better partition administrative expenses and provide clarity and transparency around investments/ spending.
- Participated in the WRAPS project for the Upper Mississippi River.
- Conducted annual project inspections and conducted major maintenance on the Kingston Wetland Sedimentation Basin.
- Continued education and outreach efforts including:
 - 3 CAC meetings and one joint CAC/ Board meeting.
 - Welcomed at least one CAC member at each Board meeting.
 - Conducted a watershed tour in May.
 - Held an AIS forum.
 - Staff attending Summer COLA Meetings to give updates and answer questions.
 - Funded water quality science class in Kimball School District
 - Hosted a rain garden workshop.

2024 DRAFT Plan

Core Activity	Priority Issue	Title	Summary	Priority
Capital Project and Program Implementation	Threatened and Impaired Surface Water Quality and Natural Resources	Clear Lake North subwatershed - soluble P abatement	Continue Coordination on filtration project.	High
Capital Project and Program Implementation	Threatened and Impaired Surface Water Quality and Natural Resources; Climate Change	Ag Incentive Programs	Use menu of cost share options to build soil health, resilience to climate extremes, reduce sediment and nutrient export, and support landowners. Continue to develop partnerships with locals SWCDs to accelerate practice adoption in priority subwatersheds	High
Capital Project and Program Implementation	Threatened and Impaired Surface Water Quality and Natural Resources	Theil Creek Restoration	Work with stakeholders to secure funding and move to implementation	High
Capital Project and Program Implementation	Threatened and Impaired Surface Water Quality and Natural Resources	Clearwater River Assessment/ Restoration	Assess and stabilize the Clearwater River between Clear Lake and Kingston Wetland	High
Capital Project and Program Implementation	Threatened and Impaired Surface Water Quality and Natural Resources	Resilience Studies for municipalities / townships in District	Conduct H&H modeling to evaluate resilience to changing precipitation and recommend solutions to be implemented later.	High

2024 DRAFT Plan

Core Activity	Priority Issue	Title	Summary	Priority
Capital Project and Program Implementation	Threatened and Impaired Surface Water Quality and Natural Resources	Ongoing rough fish management	<ul style="list-style-type: none"> • Maintain existing fish migration barriers. • Trap & sein from lakes/ streams as deemed necessary. • Evaluate options to work with lake associations through AIS projects. 	High
Capital Project O&M	Threatened and Impaired Surface Water Quality and Natural Resources	Vegetation Management Program	<ul style="list-style-type: none"> • Get quotes for management services at select CRWD projects. • Control woody vegetation and noxious species at three sewer systems treatment areas. • Control woody vegetation and noxious species at the three wetland treatment systems and the isolation unit. 	High
Capital Project O&M	Threatened and Impaired Surface Water Quality and Natural Resources	Existing CRWD AIS Projects	<ul style="list-style-type: none"> • Continue to support lake associations as fiscal agent for community driven AIS projects. • Consider amending projects, instituting projects based on resident efforts. 	High
Capital Project O&M	Localized Flooding and Navigation Obstructions	Bog Control Projects	Operation	High

2024 DRAFT Plan

Core Activity	Priority Issue	Title	Summary	Priority
Capital Project O&M	Localized Flooding and Navigation Obstructions	Pleasant Lake Outlet Control Project	Operation , Repair wood decking	High
Capital Project O&M	Threatened and Impaired Surface Water Quality and Natural Resources	O&M	Maintenance Projects, Watkins (2), Kingston. Inspections/ secure drone services.	High
Capital Project O&M	Threatened and Impaired Surface Water Quality and Natural Resources	O&M Contract	Operations Contract w/ Blackstone for fish migration, lake outlets, Swartout Boards, Kimball Boards	High
Capital Project O&M	Threatened and Impaired Surface Water Quality and Natural Resources	Watkins Wetland south of Hwy 55	Direct engineer to undertake study on potentially retrofitting the system. • Implement recommendations.	High
Capital Project O&M	Threatened and Impaired Surface Water Quality and Natural Resources	Watkins Wetland Treatment System - Maintenance/ Restoration	Previous project inspections have noted this project needs channel and berm maintenance. In addition, monitoring has indicated this wetland is likely a soluble P source. • Direct engineer to undertake study on potentially retrofitting the system. • Implement recommendations	High

2024 DRAFT Plan

Core Activity	Priority Issue	Title	Summary	Priority
Capital Project O&M	Operation and Maintenance; Threatened and Impaired Surface Water Quality and Natural Resources	Operate, Maintain and Permit 4 Community Wastewater Systems	Continue commissioning and permitting for the CWH/ HR System and work through commissioning issues.	High
Education and Outreach	All	Education + Outreach	CAC	High
Education and Outreach	All	Education + Outreach	Meetings with each county/ SWCD. Web site and social media updates. Continue to take high quality photos for posting to engage stakeholders. Press release for NMAP system once control panel issue is addressed.	High
Education and Outreach	All	Education + Outreach	Re-establish Annandale cost share with SRWD (Adam), Annual Tour. Continue web site updates.	High

2024 DRAFT Plan

Core Activity	Priority Issue	Title	Summary	Priority
Monitoring and Studies	All	Annual Project Inspection Program	The CRWD has implemented an annual inspection program of its existing infrastructure as part of its commitment to ensuring all projects are operationally effective. • Perform visual inspections of each CRWD infrastructure during the months of April - June. • Summarize inspections in a report to the CRWD Board by July. Prioritization of necessary repairs/ modifications follows.	High
Monitoring and Studies	Threatened and Impaired Surface Water Quality and Natural Resources	Fairhaven Creek Monitoring	Monitoring plan	Medium
Monitoring and Studies	Threatened and Impaired Surface Water Quality and Natural Resources	Annual Water Quality Monitoring Program	Program to collect water quality data (primarily chemistry and hydrology) to establish trends, assist with setting goals, determine projects, practices, and programs to implement and evaluate effectiveness of completed projects, practices and programs.	High

2024 DRAFT Plan

Core Activity	Priority Issue	Title	Summary	Priority
Monitoring and Studies	Threatened and Impaired Surface Water Quality and Natural Resources	Annual Water Quality Monitoring Program	Reach out to Cities on sotmrwater management plans to coordinate updated plans incorporating climate resilience	Medium
Sustainable Administration & Financing	Sustainable Administration & Financing	Identify/ Respond to emerging opportunities	evaluate new opportunities for alignment with core activities, priority issues and feasibility	Medium
1W1P/ WRAPS	Sustainable Administration & Financing	MPCA & BWSR Required programs	Continue to particpate in WRAPS, ended active participation in 1W1P	Low
Sustainable Administration & Financing	Sustainable Administration & Financing	Policy Book Review, Update	Update policy book.	Medium
Sustainable Administration & Financing	Sustainable Administration & Financing	Operations Optimization	Migrate to fully electronic files. Jenson continues to make progress on this front. Ensure we have all project documents electronically.	High

2024 DRAFT Plan

Core Activity	Priority Issue	Title	Summary	Priority
Capital Project and Program Implementation	Threatened and Impaired Surface Water Quality and Natural Resources	CR 17 Partnership - Road + Field Corner	Stabilize eroded area, cleanout ditch checks to reduce sediment load to Clearwater River. This is a high priority targeted area and partnership with Meeker SWCD.	High