



# Environment and Natural Resources Trust Fund

M.L. 2023 Approved Work Plan

## General Information

**ID Number:** 2023-022

**Staff Lead:** Michael Varien

**Date this document submitted to LCCMR:** June 5, 2023

**Project Title:** Regional Assessment of Project Outcomes in the RRB

**Project Budget:** \$920,000

## Project Manager Information

**Name:** Andrew Graham

**Organization:** Red River Basin Flood Damage Reduction Work Group

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**Web Address:** <https://www.rrwmb.org/fdrwg>

## Project Reporting

**Date Work Plan Approved by LCCMR:** June 22, 2023

**Reporting Schedule:** April 1 / October 1 of each year.

**Project Completion:** June 30, 2028

**Final Report Due Date:** August 14, 2028

## Legal Information

**Legal Citation:** M.L. 2023, Chp. 60, Art. 2, Sec. 2, Subd. 04b

**Appropriation Language:** \$920,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with Red River Watershed Management Board acting as fiscal agent for the Red River Basin Flood Damage Reduction Work Group to plan and implement multiresource monitoring at flood damage reduction and natural resource enhancement projects across the Red River Basin to evaluate outcomes and improve design of future projects at a regional scale. This appropriation is available until June 30, 2028, by which time the project must be completed and final products delivered.

**Appropriation End Date:** June 30, 2028



## Narrative

**Project Summary:** Carry out multi-resource monitoring at flood damage reduction and natural resource enhancement projects across the Red River Basin to evaluate outcomes and improve design of future projects at regional scale.

**Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.**

Since 1998 the FDRWG has coordinated a collaborative, project-planning process that provides flood damage reduction (FDR) and natural resource enhancement (NRE) across Minnesota's portion of the Red River Basin (RRB). Projects completed and those currently being planned include flood storage impoundments; improved water-level controls in pools managed for wildlife; rehabilitation and restoration of stream channels and floodplains; creation of wetland-like features, and planting of associated uplands with native seed mixes. The FDRWG has a long-standing interest in monitoring the outcomes of projects developed under this program, but has lacked consistent funding for this activity. Monitoring has been performed at some project sites, but has not been conceived or executed in the context of a larger regional vision to produce programmatic benefits across the Red River Basin.

**What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.**

The FDRWG and its Monitoring Committee would use LCCMR funding to plan and carry out a five-year monitoring program (four years of actual monitoring) at FDR/NRE project sites, in collaboration with local watershed districts and their project-development teams across the Minnesota portion of the Red River Basin (18 counties). This includes three main activities: 1) Develop and coordinate site-specific monitoring plans in collaboration with local watershed districts and their project teams; 2) monitor resource conditions and project outcomes at completed project sites and resource conditions at sites now in the development stage; and 3) share results regionally and statewide to improve outcomes. The monitoring plans will reflect the range of resource types enhanced by the underlying FDR/NRE projects, such as aquatic and wetland habitat; upland habitat, water quality conditions and loading; and stream channel stability. Approximately 20 project sites encompassing dry impoundments, wet impoundments, wetlands, upland areas and stream channel restorations will be considered, and a subset of 10 to 12 of these sites will be selected for monitoring to enable assessment of multiple project types.

**What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?**

The monitoring program will enable the FDRWG and its partners to: 1) evaluate the outcomes of past projects to better understand how well they are achieving their original objectives for natural resource enhancement; 2) determine whether re-investment in existing project features, and/or adjustment of project operations could improve outcomes at existing projects; and 3) improve the planning, design and operation of new FDR/NRE projects that will be developed across the RRB in the future.

## Project Location

**What is the best scale for describing where your work will take place?**

Region(s): NW

**What is the best scale to describe the area impacted by your work?**

Region(s): NW

**When will the work impact occur?**

In the Future

## Activities and Milestones

### Activity 1: Project Startup and Develop Monitoring Plans

**Activity Budget:** \$59,000

**Activity Description:**

The objective of this activity is to develop strategic monitoring plans to assess the habitat and water quality outcomes of Red River Basin flood damage reduction projects. Tasks include refinement of a prioritized list of existing and proposed projects to be monitored, development of project-specific monitoring plans, and scheduling monitoring activities using multi-site routes for maximum efficiency. Tasks will be implemented by a technical team familiar with the projects and with expertise in water quality and habitat including wetlands, grasslands, wildlife, and stream channels. This technical team will coordinate monitoring plans with local project sponsors (watershed districts). The products of this activity will be strategic four year monitoring plans for 10 - 12 projects throughout the Red River Basin. Water quality monitoring plans will include condition monitoring and load monitoring upstream and downstream of projects. Habitat condition monitoring plans will include assessment of the quantity and community diversity of wetland and grassland habitats, Stream habitat monitoring plans will include assessment of current stream morphology. All monitoring efforts will be coordinated to optimize the understanding of the habitat and water quality outcomes of priority projects.

**Activity Milestones:**

Description	Approximate Completion Date
Develop monitoring plan templates by project category	December 31, 2023
Review existing data from site areas	December 31, 2023
Develop site-specific monitoring plans with local sponsor input	February 28, 2024
Procure field contractors and laboratory services	March 31, 2024
Prepare all-sites monitoring schedule/routes	April 30, 2024
Prepare linkages for uploading data to State databases	July 31, 2024

### Activity 2: Site Monitoring

**Activity Budget:** \$650,000

**Activity Description:**

The objective of this activity is to monitor projects to assess their water quality and habitat outcomes. The tasks needed vary across the types of projects selected and will include a combination of seasonal/annual monitoring of water quality and stream flow, assessment of grassland and wetland habitat quality, and assessment of stream habitat quality including channel condition and stability. The monitoring to be completed each year/season will be based on the strategic monitoring plan and schedule developed in Activity 1. Water quality monitoring will include condition monitoring to determine general effects of select projects as well as load monitoring to quantify the direct effects of projects (e.g. impoundments) on sediment and nutrient loads. Wetland and grassland habitat monitoring will quantify the amount of habitat at project sites, changes over time, and determine the quality of the habitat. Stream habitat monitoring will quantify changes in habitat quality and stream channel stability at the present time compared to the original, as-built conditions. Some monitoring will be opportunistic based on flood conditions. Private-sector environmental services firms will perform the monitoring using established standardized methods. Data and results will be recorded, summarized, and incorporated into existing state and federal databases.

**Activity Milestones:**

Description	Approximate Completion Date
Review air photos and LiDAR	July 31, 2024

Field sampling/data collection started at 50 percent of monitoring stations	September 30, 2024
Field sampling/data collection started at 100 percent of monitoring stations	September 30, 2026
Field sampling and data collection 50 percent complete	December 31, 2026
Field sampling and data collection 100 percent complete	December 31, 2027
Data uploads to standard state and federal data aggregation sites 50 percent complete	December 31, 2027
Data uploads to standard state and federal data aggregation sites 100 percent complete	June 30, 2028

### Activity 3: Report and disseminate outcomes and provide guidance for future projects

**Activity Budget:** \$211,000

**Activity Description:**

The objective of this activity is to synthesize and summarize the monitoring data, report the project specific outcomes, and provide written guidance for future projects in the Red River Basin to optimize achievement of natural resource goals (water quality, habitat). The tasks include statistical analysis of monitoring data, narrative summaries and reporting of water quality and habitat outcomes of projects, and development of guidance for future flood damage reduction projects so that they optimize their potential for natural resource benefits (i.e. adaptive management at the regional program scale). A workshop will be hosted and recorded to report project results and engage watershed districts, consulting engineers, and agency staff working on Red River Basin "project teams" to encourage the use of the recommendations in planning future projects. Where applicable, changes in ongoing operations or re-investment in existing facilities will be recommended at the existing projects. While the overall focus of this project is the Minnesota portion of the Red River Basin, the guidance developed in this activity can be applied to the siting, design, and operations of water-resource projects statewide, including water-storage projects, wetland restorations, stream channel restorations and similar projects.

**Activity Milestones:**

Description	Approximate Completion Date
Analyze monitoring data	March 31, 2028
Prepare written reports and guidance	June 30, 2028
Hold workshop for project teams, agencies and others	June 30, 2028
Contract management (5-year period)	June 30, 2028

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Henry Van Offelen	Minnesota Board of Water and Soil Resources	Technical Advisor. Henry has been involved in project planning and development with the FDRWG since approximately 2000 and has on-the-ground familiarity with nearly every project that will be monitored if this application is funded. He will provide technical input on monitoring fish and wildlife habitat, water quality and streamflow.	No
Michael Sharp	Minnesota Pollution Control Agency	Technical Advisor. Jim represents the MPCA on the FDRWG and is an active member of the FDRWG Monitoring Committee. He will provide technical input on monitoring water quality conditions and will serve as a gateway to additional technical expertise within the MPCA as needed.	No
Danni Halvorson	International Water Institute	Field Team Oversight. Danni will coordinate field and laboratory services performed by the contractors on this project.	Yes
Corey Hanson	Red Lake Watershed District	Corey will help the project team coordinate monitoring activities for projects within the Red Lake Watershed District and will share data the District has on water quality, stream flow and related conditions.	No
Tracy Halstengard	Roseau River Watershed District	Tracy and her staff will help the project team coordinate monitoring activities for projects within the Roseau River Watershed District and will share data the District has on water quality, stream flow and related conditions.	No
Kristine Altrichter	Buffalo-Red River Watershed District	Kristine and her staff will help the project team coordinate monitoring activities for projects within the Red Lake Watershed District and will share data the District has on water quality, stream flow and related conditions.	No
Morteza Maher	Middle-Snake-Tamarac Watershed District	Morteza and his staff will help the project team coordinate monitoring activities for projects within the Middle-Snake-Tamarac Watershed District and will share data the District has on water quality, stream flow and related conditions.	No
Tara Jensen	Wild Rice Watershed District	Tara and her staff will help the project team coordinate monitoring activities for projects within the Wild Rice Watershed District and will share data the District has on water quality, stream flow and related conditions.	No
Dan Money	Two Rivers Watershed District	Dan and his staff will help the project team coordinate monitoring activities for projects within the Two Rivers Watershed District and will share data the District has on water quality, stream flow and related conditions.	No
Dr. Dan Svedarsky	U of M - Crookston (retired)	Technical Advisor. Dan will provide input on monitoring wildlife habitat conditions at project sites.	No
Nick Brown	Minnesota DNR - Wildlife.	Technical Advisor. Nick will provide input on monitoring wildlife habitat conditions at project sites.	No
Dr. Nicholas Kludt	Minnesota DNR, Fish and Wildlife Division	Technical Advisor for issues relating to fish and aquatic habitat.	No
Rob Sip	Red River Watershed Management Board (Exec. Director)	Rob will lead fiscal agent responsibilities, and will provide a gateway to the RRWMB's seven member watershed districts to collaborate in this project's activities, information sharing, and eventual guidance for planning and developing flood damage reduction and natural resource enhancement projects across the Red River Basin of Minnesota.	Yes

## Dissemination

**Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.**

Dissemination will be done using three primary methods:

- 1) Project partners will keep the roughly 15 organizations involved in the FDRWG and RRWMB apprised of all project activities from startup through field work to report completion. This will be done at quarterly meetings of the FDRWG and monthly meetings of the RRWMB, whenever there are significant steps or outcomes to report. These organizations collectively represent watershed districts, counties, five MN state agencies, and select federal agencies. A variety of other stakeholders and interest groups will also receive information by email via the FDRWG and RRWMB "interested parties" distribution lists comprising several hundred individuals interested in flood resiliency and natural resource programs in the Red River Basin and other areas of Minnesota and North Dakota. Starting in approximately year 3, emerging results from the project will also be presented at the Annual Joint Conference of the FDRWG and RRWMB, typically attended by approximately 100 people with an interest in Red River Basin water resources.
- 2) As indicated in Activity 3, a public workshop will be held in Moorhead to report results of the five-year monitoring program at the conclusion of the project. A range of entities and stakeholders involved in Red River Basin waters resource management and monitoring will receive information encouraging their participation in the workshop, together with faculty and researchers affiliated with the University of Minnesota (Twin Cities and Crookston campuses) and North Dakota State University. The workshop will be open to the public.
- 3) There will be two written products that will be available to interested parties: a) a final report summarizing results of the five-year monitoring program, and b) guidance on how to incorporate the results of this study into planning and design of new flood damage reduction and natural resource enhancement projects in the Red River Basin. Both of the written products are expected to have value for similar projects in other regions of the State besides the Red River Basin. Notice of availability of these materials will be provided through the FDRWG and RRWMB email distribution lists. Both of these products will be printed for workshop participants and will be made available on the FDRWG web site.

The FDRWG will acknowledge the Minnesota Environment and Natural Resources Trust Fund (ENRTF) as the source of project funding at all formal presentations and in printed or on-line fact sheets, newsletters, reports or formal releases to the news media or social media covering project activities. This will include either use of the trust fund logo or standard attribution language provided, or both.

## Long-Term Implementation and Funding

**Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?**

The FDRWG will use information gained from this monitoring program to make recommendations to watershed districts on planning, designing and operating new and existing projects. In addition, the five-year period requested for LCCMR funding is expected to demonstrate the value of monitoring for providing meaningful and actionable information to improve existing and future project outcomes. Assuming this proves true, then the FDRWG may seek to extend the monitoring program further into the future. In that case we would seek ongoing funding from State or federal sources, or transition fully to in-kind services from state and local partners.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
							<b>Sub Total</b>	-
<b>Contracts and Services</b>								
International Water Institute	Sub award	Activity 1 - Technical input to plan the monitoring activities (Portions of Tasks 1-01 to 1-05)				0.07		\$17,000
International Water Institute	Sub award	Activity 2 - Technical support for oversight of contracted field monitoring and laboratory services (portions of Tasks 2-01 to 2-07)				0.12		\$33,000
International Water Institute	Sub award	Activity 3 - Technical oversight of analysis, reporting & workshop (Tasks 3-01 to 3-03), plus support of contract oversight performed by the sponsoring organization (Task 3-04).				0.18		\$49,000
TBD - Activity 1 Services	Professional or Technical Service Contract	Technical services to review available data and develop the monitoring plans and schedules under tasks 1-01, 1-02, 1-03, and 1-05.				0.18		\$42,000
TBD - Activity 2 services	Professional or Technical Service Contract	Technical services to deliver all of the field monitoring services in Activity 2 (Tasks 2-01 to 2-07). Includes air photo review, LiDAR review, water quality monitoring, stream flow rating curve development & stream flow monitoring, floristic quality assessments, and stream channel assessments.				1.68		\$600,000
TBD - Activity 3 services	Professional or Technical Service Contract	Technical services to analyze all field data collected, and to deliver the reports, guidance and workshop presentations in Activity 3 (Tasks 3-01 to 3-03), and to perform project management.				0.27		\$155,000
TBD - Laboratory services and associated shipping.	Professional or Technical Service Contract	Laboratory analysis of all field samples collected in Activity 2 (Tasks 2-03 to 2-05); plus shipping of samples from field areas to laboratory.				0		\$10,000
							<b>Sub Total</b>	<b>\$906,000</b>



<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Water quality sample containers, labels, etc. plus other miscellaneous supplies needed for field activities in Activity 2	Enable collection of field data using standardized and accepted methodologies.					\$4,000
	Equipment	2 control pads for water-quality monitoring Sondes. (Does not include cost of five \$15,000 Sondes to be provided by MPCA at no charge)	Download data from water quality monitoring Sondes.					\$4,000
							<b>Sub Total</b>	<b>\$8,000</b>
<b>Capital Expenditures</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
							<b>Sub Total</b>	-
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
	Printing	Hard-copy presentations and supplemental materials for attendees of final project workshop.	Disseminate results of the project to watershed districts, state and federal agencies, and interested parties in the Red River Basin and from other areas of the state.					\$1,000
							<b>Sub Total</b>	<b>\$1,000</b>
<b>Other Expenses</b>								

		One full-day workshop to present results. Assume 50 attendees, plus 10 presenters/organizers. Cost is for rental of hotel venue in Moorhead, MN.	Disseminate results of the monitoring program, with reference to planning and design of similar projects across the Red River Basin and in other areas of the state					\$5,000
							<b>Sub Total</b>	<b>\$5,000</b>
							<b>Grand Total</b>	<b>\$920,000</b>

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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## Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount
<b>State</b>				
In-Kind	State agency staff participation on a Technical Advisory Committee to be formed for input to this project.	Routine activities per State agencies biennial appropriations (DNR, PCA, BWSR).	Potential	\$30,000
In-Kind	Routine appropriations to DNR for activities of the Red River Basin Coordinator.	Routine activities per State agencies biennial appropriations (DNR).	Potential	\$30,000
			<b>State Sub Total</b>	<b>\$60,000</b>
<b>Non-State</b>				
In-Kind	Watershed district levies for routine administration/operations.	Staff from up to seven watershed districts in the RRB will help to coordinate assembly of existing data and coordinate field activities associated with the existing on-site projects that they own and operate. Some with particular expertise will also serve on the Technical Advisory Committee for this project.	Potential	\$27,000
			<b>Non State Sub Total</b>	<b>\$27,000</b>
			<b>Funds Total</b>	<b>\$87,000</b>

## Attachments

### Required Attachments

#### *Visual Component*

File: [55147559-353.pdf](#)

#### *Alternate Text for Visual Component*

Map of Minnesota's portion of the Red River Basin, with project sites indicated. Table listing 20 candidate sites for monitoring per the LCCMR proposal. Photos showing; stream-monitoring activity; a filled flood-storage impoundment and associated restored stream channel; and a wetland complex....

#### *Board Resolution or Letter*

Title	File
RRWMB Resolution 748 (2022-04-19)	<a href="#">d4629347-955.pdf</a>
RRWMB Letter - Fiscal Agent for FDRWG funding application	<a href="#">c6422101-baa.pdf</a>
FDRWG Co-Chairs Affirmation	<a href="#">91443dd8-807.pdf</a>

### Optional Attachments

#### *Support Letter, Photos, Media, Other*

Title	File
RRWMB (FDRWG Fiscal Agent) Audited Financial Statements CY2020	<a href="#">900852cf-7d3.pdf</a>
Red Lake Watershed District letter of support	<a href="#">c1f61fa8-d81.pdf</a>
Middle-Snake-Tamarac Rivers WD letter of support	<a href="#">30bf9931-f98.pdf</a>
Buffalo-Red River Watershed District letter	<a href="#">6e2daa81-1a0.pdf</a>
Sand Hill River Watershed District letter	<a href="#">bbfb8b62-b67.pdf</a>
Two Rivers Watershed District letter	<a href="#">59a4b6b6-e4d.pdf</a>
Background Check Certification Form	<a href="#">99f44642-f76.pdf</a>

## Difference between Proposal and Work Plan

#### *Describe changes from Proposal to Work Plan Stage*

Budget adjusted to match amount approved/recommended by LCCMR, and to correct minor errors in allocation between sub-award and contractors. Minor change in description of non-ENRTR funds.

In Activity 2, the date for Milestone 2 (stream flow monitoring) was pushed out to align with the date for Milestone 3 (load monitoring). Both milestones are now set 12/31/27.

In budget, the description of equipment was modified to correct an error in the number of sondes that the MPCA will provide free of charge. The correct number is five sondes, not 10 sondes.

Addressed comments on work plan received from LCCMR staff in November 2022.

## Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

**Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?**

N/A

**Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?**

N/A

**Does your project have potential for royalties, copyrights, patents, or sale of products and assets?**

No

**Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?**

N/A

**Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?**

N/A

**Does your project include original, hypothesis-driven research?**

No

**Does the organization have a fiscal agent for this project?**

Yes, Red River Watershed Management Board