



# Environment and Natural Resources Trust Fund

M.L. 2025 Approved Work Plan

## General Information

**ID Number:** 2025-331

**Staff Lead:** Erin Barton

**Date this document submitted to LCCMR:** March 4, 2026

**Project Title:** Emerging Issues Minnesota Water Risk Atlas

**Project Budget:** \$400,000

## Project Manager Information

**Name:** Carrie Jennings

**Organization:** Freshwater Society

**Office Telephone:** (651) 313-5812

**Email:** [cjennings@freshwater.org](mailto:cjennings@freshwater.org)

**Web Address:** <https://freshwater.org/>

## Project Reporting

**Date Work Plan Approved by LCCMR:** March 4, 2026

**Reporting Schedule:** March 1 / September 1 of each year.

**Project Completion:** June 30, 2028

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

## Legal Information

**Legal Citation:** M.L. 2025, First Special Session, Chp. 1, Art. 2, Sec. 2, Subd. 10a-2

**Appropriation Language:** \$2,984,000 the first year is from the trust fund to the Legislative-Citizen Commission on Minnesota Resources to an emerging issues account authorized in Minnesota Statutes, section 116P.08, subdivision 4, paragraph (d).

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

## Narrative

**Project Summary:** Creation and vetting of a web-based map using existing surface water and groundwater datasets and regulations for improved water security for communities and industry.

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

The speed of business exceeds the speed of policy in accommodating a growing number of industries with large water footprints such as hyperscale data centers that have been incentivized to come to Minnesota. We quickly became an emerging market for data centers as the demand for electricity exceeded grid capacity in other parts of the country. The Minnesota Department of Employment and Economic Development (DEED) is developing a screening tool to better map factors affecting industry but opted to forgo using water availability as a screening tool at this time. They are open to using a tool that we develop for screening purposes.

Both businesses and communities need certainty that water will be available. Industry initially approaches state- then regional-economic-development teams and then cities for approval. Projects are commonly confidential and fast in a competitive market. Sites are chosen for reasons other than water security—grid and fiber capacity and land prices—with the assumption that water is available. At least twenty cities from the metro to Rochester have been approached by high-volume water users in the last year raising questions about long-term groundwater sustainability to support rivers, wetlands and lakes.

**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.**

We will promote sustainable and equitable water use across Minnesota through improved coordination between DEED, regional economic development teams, cities, and state agencies by creating a Water Risk Atlas modeled after a widely used global map; a map product created for non-specialists to understand and manage critical water resources by the World Resources Institute (WRI). Their Aqueduct project (<https://www.wri.org/research/aqueduct-40-updated-decision-relevant-global-water-risk-indicators>) provides insights on issues like water stress, floods, and droughts.

We will create a corresponding product using higher resolution and dynamic data sets available as a result of decades of LCCMR and ENRTF funding for the state of Minnesota. The general model of Aqueduct will be respected but the end product made specific to Minnesota's conditions and law (e.g. protection of fens and trout streams; treaty-reserved rights for hunting, fishing and gathering, and international agreements like the Great Lakes Compact). Ongoing guidance from external advisors will guide map development.

This tool is not a substitute for environmental review as directed by the EQB or site-specific investigations but would be used to direct water-intensive industries to regions that can potentially support the proposed use and away from water-stressed regions.

**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 Minnesota Water Risk Atlas is envisioned as a web-based, open-source data and visualization platform using existing datasets for planners, regulators, decision makers, and the public offering:

- Improved Accuracy: data scaled and specific to Minnesota will be used instead of global datasets.
- Granularity: the same risk factors are not at play across a watershed; site specific data will be used where possible.
- Best Available Information. Industry siting decisions made with already created, synthesized geospatial information.
- Dynamic Updates. By leveraging the technical capabilities in Minnesota, a web-based map tool that is dynamically enabled will resolve frozen-in-time issues.

## Project Location

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

Statewide

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

Statewide

**When will the work impact occur?**

During the Project and In the Future

## Activities and Milestones

### Activity 1: Research and team building: establish product goals, needs, and invite advisory board members

**Activity Budget:** \$57,500

**Activity Description:**

A leadership team kickoff meeting will establish goals and initial needs after review of the World Resources Institute Aqueduct model. The team will develop water risk measurements to be displayed in the map, based largely on the WRI work, and how the needs for Minnesota may differ. They will conduct an assessment of the available datasets and models and define and identify stakeholders and targeted users.

The leadership team will convene both technical and end-user advisory teams to clarify product end-use goals and identify risks to the project. Product development will be adjusted based on advisory team input. Members invited for the end-user advisory team may include elected officials, and those with backgrounds in industry, local government and economic development, data centers, nonprofits, emergency management, and planners. Members sought for the technical advisory team will have worked with relevant datasets and may include current or former state agency, federal and tribal government staff, consultants, and academics. If legislative elected officials are part of either advisory team, an equal number of officials from each party will be included. Advisory teams will be briefed on the purpose and general design of the Water Risk Atlas. This input will be summarized and incorporated.

**Activity Milestones:**

Description	Approximate Completion Date
Conduct kickoff meeting(s) of Project Leadership Team	March 31, 2026
Conduct detailed assessment of available resources (data, models, etc.)	March 31, 2026
Adjust tentative development plan based on available resources	March 31, 2026
Form advisory teams of end users and technical advisors	March 31, 2026
Brief advisory teams of initial plan and get feedback	March 31, 2026

### Activity 2: Software concept development and testing

**Activity Budget:** \$57,500

**Activity Description:**

The SharedGeo team will explore available datasets and evaluate their interoperability, evaluate modeling capabilities and produce a detailed plan of Water Atlas features for feedback. The condition of datasets may have a major impact on the project timeline. They will produce mock-ups of web maps for Advisory Team feedback. The long-term hosting of the map product will be discussed among the leadership team as it impacts the product design and outreach tools.

**Activity Milestones:**

Description	Approximate Completion Date
Data exploration for availability and interoperability with plan for ingesting datasets.	June 30, 2026
Produce detailed plan of Water Atlas features for feedback	June 30, 2026
Convene advisory committees and summarize feedback	June 30, 2026
Produce mock-up of web map views for feedback	June 30, 2026
Evaluate modeling capabilities vs. known datasets	June 30, 2026
Outline outreach tools and strategies based on identified stakeholders	June 30, 2026
Consider impacts of long-term hosting strategy on product design	June 30, 2026

### Activity 3: Programming and website development

**Activity Budget:** \$57,500

**Activity Description:**

In this quarter SharedGeo will continue to analyze software approaches and begin creating the Water Risk Atlas prototype for advisory team feedback. Ongoing advisory team feedback is important to map product utility and design. Website development will begin where project progress and information can be shared.

**Activity Milestones:**

Description	Approximate Completion Date
Analyze software approaches	September 30, 2026
Commence engineering of Water Risk Atlas prototype	September 30, 2026
Provide draft prototypes for advisory team feedback	September 30, 2026
Develop project website information	September 30, 2026

### Activity 4: Product testing and documentation

**Activity Budget:** \$57,500

**Activity Description:**

The development team will be creating, testing, reviewing, adjusting and documenting the creation of the map product and website with feedback from both advisory teams. They will address any issues that have surfaced with respect to accessibility or coding.

**Activity Milestones:**

Description	Approximate Completion Date
Develop and review Water Risk Atlas prototype	December 31, 2026
Address issues that have emerged (e.g. accessibility, security, and coding_	December 31, 2026
Convene advisory boards for feedback	December 31, 2026
Complete host website	December 31, 2026

### Activity 5: Beta testing and stakeholder feedback

**Activity Budget:** \$42,500

**Activity Description:**

A beta version of the map will be available for end-users. We will focus on outreach to various user groups through formal presentations at conferences and webinars. The input of audience members and end users will be documented and used to improve the map product and website. Long-term hosting of the map product discussions continue.

**Activity Milestones:**

Description	Approximate Completion Date
Conduct beta testing of new web map	March 31, 2027
Thorough review of project and development plan for possible adjustments	March 31, 2027
Outreach presentations	March 31, 2027
Explore options for long-term support and hosting	March 31, 2027

Start user documentation that could support replication project outside of Minnesota	March 31, 2027
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**Activity 6: Conduct broader outreach and feedback sessions around the state with different types of users groups to ensure usefulness.**

**Activity Budget:** \$42,500

**Activity Description:**

Freshwater will lead on promoting and socializing the map tool and seek feedback from end users beyond the advisory team members. This may include some travel and attendance at conferences. Stakeholder input will be summarized for SharedGeo.

**Activity Milestones:**

Description	Approximate Completion Date
Schedule outreach efforts and compile feedback	June 30, 2027
Refine Water Risk Atlas based on input from advisors and end users	June 30, 2027

**Activity 7: Product refinement**

**Activity Budget:** \$42,500

**Activity Description:**

All aspects of the Water Risk Atlas development will be reviewed with continued outreach and refinement of the final product to ensure usability and acceptance by the various end users. Web hosting decisions will be finalized.

**Activity Milestones:**

Description	Approximate Completion Date
Continue outreach and feedback efforts	September 30, 2027
Refine Atlas and website based on advisory board and user feedback	September 30, 2027

**Activity 8: Project review, documentation, outreach and conclusion**

**Activity Budget:** \$42,500

**Activity Description:**

All parts of the Water Risk Atlas and supporting elements will be reviewed, methods documented, and hosting secured for the near term. Additional training opportunities will be offered to potential user groups.

**Activity Milestones:**

Description	Approximate Completion Date
Review map and supporting elements and deficiencies corrected.	December 31, 2027
Steps, as needed, to transition Atlas to new hosting site.	December 31, 2027
Final report creation	December 31, 2027

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Steve Swazee	SharedGeo	Project Oversight	Yes
Anna Brennes	SharedGeo	Product Manager	Yes
Nancy Read	SharedGeo	Financial Oversight	Yes
Bob Basques	SharedGeo	Software Development Lead	Yes
Brenda Basques	SharedGeo	Project Comptroller	Yes
Caitlin Wolters	SharedGeo	User Interface Developer	Yes
Jim Klassen	SharedGeo	Lead Programmer	Yes
Brent Pellin	SharedGeo	Assistant Programmer	Yes
Karen Brier	SharedGeo	Software Documentation	Yes
Eliza Swedenborg	SharedGeo	Project Manager	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.**

The project methodology will be transparent and begin with two advisory boards, user-group and technical. All meetings will be recorded and notes transcribed. Internal team meetings will also be recorded and notes transcribed. This will allow for easy reporting of the approval processes and steps taken.

After one year a beta version of the map will be tested with the user group advisory committee and after that made available in a provisional way.

Project leads will promote the beta version at the WRC conference and at meetings of water professionals around the state by going to their regular gatherings or presenting via Zoom . State agencies will be included through presentations at interagency coordinating meetings like those for Minnesota One Stop. This will require continuing the discussions we have already begun with DEED, DNR, and MNGEO.

The beta product will be discussed and tested with user groups like members of the League of Minnesota Cities, Southeast Minnesota League of Municipalities, Iron Range and Rehabilitation Board; industry groups like the Data Center Coalition and members of the Minnesota Water Technology Roundtable.

We will develop a plan for long-term hosting in cooperation with state agencies other potential hosting organizations.

After two years, a final product that is updateable will be delivered to the host organization and made available through any other agreed upon platform like through SharedGeo.

A final report will be delivered to the LCCMR by the end of the funding period.

Throughout the project, the Environment and Natural Resources Trust Fund will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgment Guidelines.

## 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?**

Whenever possible and appropriate, the software will be developed mindful of community standards which promote interoperability and have been approved by recognized industry subject matter expert groups. During the project we will develop a plan for long-term hosting of a website to provide project outreach and host the prototype map product in discussions with state agencies and others. We will offer ongoing training opportunities for user groups as they emerge.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
Project Lead		This director-level role will track all aspects of the project and lead advisory teams, coordinate with SharedGeo and WRI			56%	0.24		\$80,000
							<b>Sub Total</b>	<b>\$80,000</b>
<b>Contracts and Services</b>								
SharedGeo	Service Contract	SharedGeo will be using a “Best Efforts” software development approach dependent on the interplay of data availability and technical feasibility to create a Water Risk Atlas for the state of Minnesota, mindful of community standards to promote interoperability. They will respond to stakeholder input and adjust the map product accordingly.				3		\$300,000
							<b>Sub Total</b>	<b>\$300,000</b>
<b>Equipment, Tools, and Supplies</b>								
							<b>Sub Total</b>	-
<b>Capital Equipment</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
	Miles/ Meals/ Lodging	Based on 24 trips (one/month) average of 20 miles for 3 members of leadership team for internal coordination and outreach to greater Minnesota (e.g. groups like League of Minnesota Cities, Southeast	Leadership team meetings, outreach presentations					\$1,000

		Minnesota League of Municipalities, Rural Water Association, Iron Range Resource and Rehabilitation Board, Red River Watershed Board, Area II Minnesota River Basin).						
	Conference Registration Miles/ Meals/ Lodging	Attendance for 2 at the U of M Water Resource Conference	The U of M Water Resources Conference is typically attended by 800 water resource professionals in the private and government sectors. It is held in St. Paul. Registration is usually ~\$500 for the 2.5 day conference. This meeting is an ideal setting to discuss the Water Risk Atlas and get feedback.	X				\$1,000
							<b>Sub Total</b>	<b>\$2,000</b>
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
							<b>Sub Total</b>	-
<b>Other Expenses</b>								
		Stipend for end user team members	To ensure participation by a broad end user group, this stipend will compensate members for their time in the meeting and in preparation for the meeting. We anticipate approximately 9 individuals to be members of this committee from across the state representing industry, city government, state elected officials, and DEED, MetCouncil and others. Hybrid meetings will be offered quarterly over the two-year project. We used \$125/meeting assuming an hourly billable rate of \$62.50 for professionals (1 hour for meeting preparation and 1 hrs for participation) (9 people x 4 meetings per year x 2 years x \$125).	X				\$9,000

		Stipend for technical advisory team members	Up to 9 technical experts will attend 8 meetings over two years to help recommend data sets, review data prioritization schemes, test beta product, review metadata, read-me instructions, and advise on final product design. If employed by the state in this capacity, there will be no compensation. If they are retired or employed in another capacity they will be offered a stipend to ensure continuity of participation. Hybrid meetings will be offered quarterly over the two-year project. We used \$125/meeting assuming an hourly billable rate of \$62.50 (1 hour for meeting preparation and 1 for participation for professionals) (9 people x 4 meetings per year x 2 years x \$125).	X				\$9,000
							<b>Sub Total</b>	<b>\$18,000</b>
							<b>Grand Total</b>	<b>\$400,000</b>

## Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
<b>Travel In Minnesota</b>	Conference Registration Miles/Meals/Lodging	Attendance for 2 at the U of M Water Resource Conference	This is an efficient way to reach a maximum number of water resource professionals in the state who serve in both government and private sector roles.
<b>Other Expenses</b>		Stipend for end user team members	A small stipend provides incentive to participate for those who may not be able to justify this work in their day job or do not have the discretionary income to attend on personal funds.
<b>Other Expenses</b>		Stipend for technical advisory team members	A small stipend provides incentive to participate for those who may not be able to justify this work in their day job or do not have the discretionary income to attend on personal funds.

Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount
State				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

**Total Project Cost: \$400,000**

**This amount accurately reflects total project cost?**

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [b178caa6-996.pdf](#)

#### *Alternate Text for Visual Component*

Organizational structure for project team...

#### *Financial Capacity*

Title	File
IRS Form 990 Freshwater	<a href="#">2fec8850-dde.pdf</a>
Freshwater Audit	<a href="#">3ce8d213-ac2.pdf</a>
Business in Good Standing	<a href="#">f660be67-263.pdf</a>

#### *Board Resolution or Letter*

Title	File
Freshwater Board Resolution	<a href="#">8772dc06-018.pdf</a>

## Difference between Proposal and Work Plan

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

When we described plans for dissemination we described how the map could be served up in a web platform in this way:

After one year a beta version of the map will be tested with user groups and made available in a provisional way. We are working with DEED and MNGEO to ensure that any final product is suitable for their use and hosting.

Requested change in wording: We will develop a plan for long-term hosting in cooperation with state agencies such as DEED and MNGEO.

Given the start date, we are asking for reporting deadlines approximately 6, 12, 18 and 24 months from start.

## 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 understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?**

Yes, I understand the Commissioner's Plan applies.

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

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?**

No

**Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?**

No

**Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?**

No

**Provide the name(s) and organization(s) of additional individuals assisting in the completion of this project:**

Carrie Ellen Jennings, Freshwater

**Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements**

Yes, I understand