

The water issue: 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. 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. In the metro there is a regional planning agency tracking cumulative impacts, but regional planning is lacking elsewhere.

Unforeseen: The state quickly became an emerging market for data centers as the demand for electricity exceeded grid capacity in other parts of the country (attachment). 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 were open to using a tool that we proposed during the last legislative session.

Proposed solution: We propose to protect water 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 created for non-specialists to understand and manage critical water resources—the World Resources Institute (WRI) Aqueduct project (<https://www.wri.org/research/aqueduct-40-updated-decision-relevant-global-water-risk-indicators>). Aqueduct 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. The general model of Aqueduct (Attachment) will be respected but 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). This screening tool is not a substitute environmental review 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.

Impact on environment: Cities feel pressured to make decisions quickly, commonly after signing a non-disclosure agreement which limits their willingness to consult state agencies and existing data. This may result in permitting water-intensive industries in places where they create significant long-term aquifer stress. Failure to effectively leverage available information to deliver better visualization of the specifics of water availability is a disadvantage to cities weighing these decisions in the near term but cumulative impacts to ecosystems may be regional and persistent.

Why not submitted during most recent RFP: This need emerged during the legislative session and after the LCCMR call for proposals. With the current pace of data center proposals, cities and counties are asking for guidance now (really, yesterday). Minnesota will continue to be looked at by drier parts of the country for other water-intensive industries like biofuels and green hydrogen.

Steps already taken: During the 2025 legislative session Freshwater met with legislators, DEED, DNR, MNGEO, several cities, Kimley Horn—the engineering firm designing many of the campuses, and WRI to explore solutions. We also spoke with Commissioner Rukavina from the IRRRB to assess their willingness to host data centers in former mine sites. We worked with legislators on both sides of the aisle to create bill language for a water risk atlas that was heard in committee. The money offered to fund the work would have impacted an agency health insurance budget which seemed inappropriate and politically unwise.

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

- **Improved Accuracy:** The [Aqueduct Water Risk Atlas](#) depicts inaccurate circumstances as a result of using a global model and projecting that information onto Minnesota.
- **Granularity of Information.** Adequate implies that the same risk factors are at play across an entire watershed; this is a faulty assumption and data for Minnesota is more site specific.
- **Best Available Information.** Industry siting decisions are being made without use of geospatial information, some of the state has already paid for, because it is not synthesized.
- **Dynamic Updates.** Aqueduct is reliant on “snap shots” in time. Minnesota is a geospatially rich with data dynamically enabled through use of technologies such as Open Geospatial Consortium (OGC) Web Feature Service (WFS) and Web Map Service (WMS), and approaches which can use Application Programming Interface (API). By leveraging the technical capabilities in Minnesota, a robust web-based map tool could be to resolve frozen-in-time issues.

Funds and Completion Date: We request funds from M.L. 2025, 1st Sp. Sess., Ch. 1, Art. 2, Sect. 2, Subd. 10a for \$2,984,000 (deadline: June 30, 2028). This project will take two years with an interim product available in one year. Estimated completion, Jan. 2028 or two years from start.

Team and Roles:

- [Freshwater](#) whose mission is to inspire and empower people to value and preserve water conceived of the idea and will be project lead. They will evaluate and help acquire data sets being used, assemble professionals from current and recent state service for periodic review and write a final white paper summarizing the methodology and decisions.
- [SharedGeo](#), whose mission is to help government, nonprofit, education, and corporate entities use mapping technologies and share geographic data for the public good will evaluate the structure of Aqueduct, build a web-based geospatial product based on it using open-sourced, dynamic data to create visualizations that portray aspects of Minnesota’s water resources.

[Eliza Swedenborg](#) is Manager of Strategy and Performance, Water Program, WRI, a global nonprofit working to improve people’s lives, protect and restore nature, and stabilize the climate. Their water work focuses on water security and building water resilience, nature-based solutions, accessible water data, links between water and conflict, and corporate water stewardship. Eliza is local and will monitor our progress and communicate with our team and WRI. The methodology we create could be a model for WRI across the Great

Attachment A:
Environment and Natural Resources Trust Fund Budget
Emerging Issues Budget Addendum



Legal Citation:

Project Manager:

Carrie Jennings

Project Title:

Minnesota Water Risk Atlas

Organization:

Freshwater and SharedGeo

Project Budget:

\$399,999

Project Length and Completion Date:

Two years from start

Current Date:

10/21/2025

BUDGET ITEM	Budget	Amount Spent	Balance	Justification for Generally Ineligible Expenses (if applicable)
Personnel (Wages and Benefits)	\$0	\$0	\$0	
Freshwater (Jennings, PI)	\$80,000	-	\$80,000	
		-	-	
	-	-	-	
	-	-	-	
	-	-	-	
Services and Subawards				
Stipends for groundwater professionals for review of methodology (6 meetings, \$500/meeting, 6 professional)	\$18,000	\$0	\$18,000	
Contract for services, Shared Geo with WRI	\$300,000	\$0	\$300,000	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
Equipment/Tools/Supplies				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
Capital Expenditures Over \$5,000				

	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
Printing and Publication				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
Travel Expenses In Minnesota				
In-person team lead meetings (monthly, 3 people, average 20 miles)	\$1,000	\$0	\$1,000	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
Travel Expenses Outside Minnesota				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
Other				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
COLUMN TOTAL	\$399,000	\$0	\$399,000	

SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT	Budget	Spent	Balance	Status (secured, pending, or potential)
Non-State:	\$0	\$0	\$0	
State:	\$0	\$0	\$0	
In kind:	\$0	\$0	\$0	

OTHER ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS	Budget	Spent	Balance	Amount legally obligated but not yet spent
	\$0	\$0	\$0	

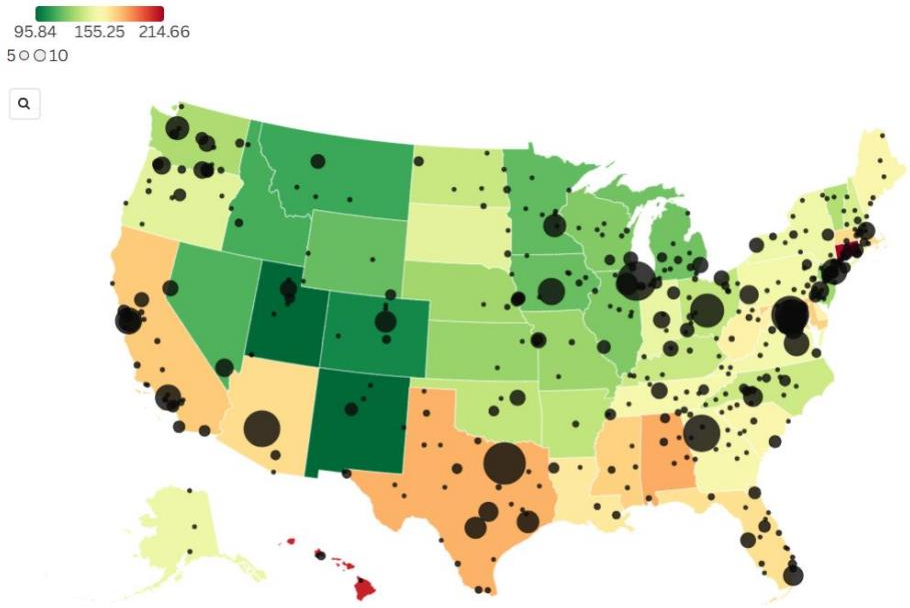
Attachment: Ability of Team

Freshwater (<https://freshwater.org/>) has experience managing complex, multi-institution projects and budgets. They will help identify the data sets to be used and convene external evaluators familiar with water resource data created by the state. Dr. Carrie Jennings has extensive map-making experience and GIS knowledge having published more than 28 maps while at the Minnesota Geological Survey and MNDNR. She has used MPCA and DNR surface-water and groundwater monitoring data to inform her research and policy work. She is now focused on translating the results of years of mapping and research into formats useful for policy applications and using resources wisely. Her 35-year career in this region and 30-year teaching at the U of MN have resulted in deep connections to those working at all levels in the state. She has already approached two US Geological Survey groundwater specialists, one recently retired, and a recently retired MNDNR groundwater modeler to be potential external reviewers of this work, MNGEO staff about hosting the product on the Geospatial Commons and discussed implications of the work with managers at the DNR. For further information consult her academic vita: <https://carrieejennings.umn.edu/carrie-jennings> and <https://freshwater.org/research/> for research projects conducted with Freshwater and partnering institutions.

SharedGeo (<https://www.sharedgeo.org/>) actively seeks funded projects which will simultaneously advance development of geospatial technologies and support the common good. They have an impressive portfolio of projects for various government and other clients across the Great Lakes region (<https://www.sharedgeo.org/portfolio/projects/>). They will dedicate a team of seven working part time to complete this project in two years. **Staffing would include a lead consultant from WRI (Eliza Swedenborg)**, technical project manager/administrator, developmental lead (Bob Basques), software documentarian, and 3 programmers with skill sets covering server management, user interface, database integration and code management and release. All developmental team individuals except for Eliza and a yet to be identified technical project manager/administrator (I can provide a resume for individual we are currently talking to about this project) have previously worked together and are available for this project. The budget proposed is in line with similar efforts in the past.

Attachment 1: Figures

Map Showing the Number of Data Centers in Each State



Sources: [DataCenterMap](#), [EnergyBot](#) Newsweek, "[Map Shows States With The Most Data Centers As Electricity Bills Rise](#)" (8/30/2025)

