

# Ace Bonema Emerging Issues Proposal

Subject: Request for Emerging Issues Account Support – Gap-Filling Weather Radars Pilot Project

Dear LCCMR Members,

On behalf of Kandiyohi County, with support from the Association of Minnesota Counties (AMC), Association of Minnesota Emergency Managers (AMEM), Minnesota Pollution Control Agency (MPCA), Minnesota Department of Agriculture (MDA), and a technical partnership with Climavision, we respectfully request \$1,250,000 from the Emerging Issues Account (M.L. 2025, 1st Special Session, Ch. 1, Art. 2, Sec. 2, Subd. 10a) for a two-year pilot to address a critical and time-sensitive threat to Minnesota's natural resources: the lack of reliable, low-level weather radar coverage across most of the state.

## 1. Description of the Issue

**Large portions of Minnesota remain invisible to federal weather radar systems**—the most critical observational tool for all weather data across the country – in areas known as weather gaps or radar blind zones. **Of note, 72 of Minnesota's 87 counties and 8 of 11 tribal nations** lie within radar gaps—regions where rainfall, snow, wind, and fire signatures go unseen. Without accurate low-level observations, agencies and local officials cannot reliably forecast floods, drought, wildfire, or air-quality impacts from smoke, nor can they track long-term precipitation trends essential to resource planning and protection. Radar blind zones hinder rainfall, flooding, wind, and smoke monitoring—factors that directly affect soil health, water quality, forest stability, wildlife habitat, and crop yields. These limitations prevent proactive management of land and water resources.

## 2. Why the Issue Is Unexpected

The severity and impact of radar coverage gaps has only recently become clear as we've experienced more volatile weather across MN and researched the cause of shortfalls in legacy forecasting and federal weather infrastructure. The federal NEXRAD radar network, built in the early 70s and 80s, was assumed to provide full national coverage. However, analysis of elevation angles and recent events—such as the summer 2025 Bemidji microburst and Kandiyohi County flooding—revealed that storms' most damaging features were undetected by federal radar, meaning weather impacts occur with minimal warning, leaving no time to prepare or respond. These gaps leave state agencies, local governments, watershed managers, and emergency responders without the low-level rainfall, wind, and other environmental data needed to anticipate and respond to fast-changing weather events. New research and technology have only recently made it possible to address radar gaps quickly and effectively.

## 3. Proposed Solution

Kandiyohi County and partners propose a two-year project to immediately address these radar gaps. At a cost of \$625,000 per year—**about 11 cents per Minnesotan**, this project operationalizes five high-resolution gap-filling weather radars that will provide new high-resolution weather data across key agricultural, forested, and watershed regions. These radars provide real-time rainfall, wind, and storm-intensity data, which will flow directly to MPCA, MDA, DNR, counties, and emergency managers **immediately improving flood forecasting, nutrient and sediment management, irrigation planning, wildfire and smoke detection, habitat protection, and public-health coordination**.

A gap-filling radar installed in Wendell in October 2023 in partnership with Grant Co and several other counties proved what's possible. In early 2025, **it enabled the region's first-ever official snow-squall warning—not because squalls never happened before, but because there had never been the data to detect and alert early**. That same radar also **helped save seven homes in Pope County by detecting two small wildfires before they spread**.

This new radar data also improves air-quality alerting and awareness. During the Canadian wildfires of 2023, smoke drifted into Minnesota, reducing visibility and harming air quality statewide. Enhanced radar coverage allows earlier detection of smoke plumes, giving agencies the lead time to **alert residents, schools, and farmers** to protect outdoor workers, livestock, and wildlife.

## 4. Consequences of Inaction

Delaying implementation until the next LCCMR cycle or legislative appropriation would mean two more years of unreliable rainfall data and insufficient situational awareness for counties and resource managers. Each season that passes without these observations increases risk to: watersheds (where inaccurate rainfall records hinder flood modeling and erosion control), farms (where crop and soil management depend on rainfall accuracy), and forests and wildlife (where wind and drought data inform fire prevention and habitat stability). Without intervention, storms will continue to form undetected, threatening the state's natural and community resources during an era of increasingly volatile weather. Delaying this project would mean **knowingly continuing to manage Minnesota's natural resources with incomplete and inaccurate data**. Each storm season without improved radar coverage perpetuates losses to farmland, forests, and watersheds—especially as weather vulnerability increases across natural resources and impacted communities located in gaps.

In a fiscally constrained environment, this is exactly the kind of **efficient, preventative solution** Minnesota needs—

one that mitigates disaster impacts and strengthens resource resilience. **Inaction now means knowingly continuing to accept incomplete and/or inaccurate data** when a proven, immediate solution is ready to deploy.

### 5. Why This Was Not Submitted Through the Regular RFP

The urgency of the radar gap issue emerged after the most recent LCCMR RFP closed, triggered by the June 2025 flood and microburst events and new data analysis showing the magnitude of unmonitored areas. These incidents underscored the immediate need for supplemental radar coverage **that cannot wait for the next funding cycle**. This issue has also only recently become actionable due to new technology and data integration capabilities validated with NOAA and the National Weather Service. Additionally, the urgency of recent weather-related losses and the proven success of the Wendell pilot demonstrate that waiting for the next biennial RFP would risk additional preventable damage to Minnesota's environment and economy.

### 6. Steps Already Taken

- A fully operational gap-filling radar was installed in Wendell, MN in 2023 in partnership with Grant County and neighboring counties.
- Data from this radar is integrated with the National Weather Service and shared with over 16 counties.
- Performance and environmental outcomes are being documented and shared with stakeholders to inform broader deployment.
- Partnerships with Climavision, AMC, AMEM, MPCA, and MDA are already in place to support rapid replication statewide.
- Remaining 4 radar sites are already secured to fill the gaps in the proposed areas.

### 7. Next Steps and Expected Outcomes

Upon approval, Kandiyohi County will immediately release an RFP for service-based radar data for the identified sites in central and western MN. Upon successful award, Kandiyohi County will execute data-sharing and subscription agreements to activate the radar data. Deployment of the four new gap-filling radars will begin within 6 months of funding. Data integration with state, tribal, and federal partners will follow, ensuring real-time accessibility through a shared portal.

#### Primary Outcomes and Outputs:

- Five operational radars integrated with state agencies and local partners, delivering statewide, high-resolution coverage.
- A public data portal providing real-time and archived rainfall and storm datasets.
- Two years of validated rainfall records for use by MPCA, MDA, DNR, counties, and watershed districts.
- Case studies and reports demonstrating improved flood forecasting, agricultural scheduling, emergency response, and wildfire-risk monitoring.
- Final evaluation and recommendations for statewide expansion and long-term sustainability.

#### Proposed Timeline and Completion:

- Project Initiation: within 60 days of award (target Q1 2026).
- Full Deployment: by Q2 2026.
- Ongoing Data Collection: 2026–2028.
- Final Deliverables and Report: by Q4 2028.

This is not a research project. It is an **operational, ready-to-deploy solution** that delivers immediate, measurable benefits to those **most affected by weather inequities: Minnesota's farmers, forests, waters, and communities**. We respectfully request your consideration for Emerging Issues Account support.

We recognize that it's difficult to fully capture the scale and urgency of this issue within two pages, and we welcome the opportunity to present this project and its potential impact in greater detail to the committee.

We respectfully request your consideration for Emerging Issues Account support.

Sincerely,  
On behalf of Kandiyohi County and project partners,

Steven J. Gardner, Chair, Kandiyohi County Commission (Commissioner, District 2)

[Authorized Signatory]  
Kandiyohi County  
Date: \_\_\_\_\_

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

**Legal Citation:**

**Project Manager:**

**Project Title:** Gap-Filling Weather Radars Pilot Project for Accurate Real-Time Rainfall Estimations and Increased Lead Time Before Disasters to Protect Minnesota's Natural Resources



**Organization:**

**Project Budget:**

**Project Length and Completion Date:**

**Current Date:**

BUDGET ITEM	Budget	Amount Spent	Balance	Justification for Generally Ineligible Expenses (if applicable)
<b>Personnel (Wages and Benefits)</b>	\$0	\$0	\$0	
	-	-	-	
	-	-	-	
	-	-	-	
	-	-	-	
	-	-	-	
<b>Services and Subawards</b>				
Gap-Filling Radar 1- Beltrami Co Region - 24 months	\$250,000	\$0	\$250,000	
Gap-Filling Radar 2- Grant Co Region - 24 months	\$250,000	\$0	\$250,000	
Gap-Filling Radar 3- Kandiyohi/Renville Co Region - 24 months	\$250,000	\$0	\$250,000	
Gap-Filling Radar 4- Fairbault Co Region - 24 months	\$250,000	\$0	\$250,000	
Gap-Filling Radar 5- Crow Wing Co Region - 24 months	\$250,000	\$0	\$250,000	
<b>Equipment/Tools/Supplies</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Capital Expenditures Over \$5,000</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Printing and Publication</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	

	\$0	\$0	\$0	
<b>Travel Expenses In Minnesota</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Travel Expenses Outside Minnesota</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>Other</b>				
	\$0	\$0	\$0	
	\$0	\$0	\$0	
	\$0	\$0	\$0	
<b>COLUMN TOTAL</b>	<b>\$1,250,000</b>	<b>\$0</b>	<b>\$1,250,000</b>	

<b>SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT</b>	<b>Budget</b>	<b>Spent</b>	<b>Balance</b>	<b>Status (secured, pending, or potential)</b>
<b>Non-State:</b>	\$0	\$0	\$0	
<b>State:</b>	\$1,250,000	\$0	\$1,250,000	
<b>In kind:</b>	\$0	\$0	\$0	

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

### **Statement of Organizational Capability**

Project Title: Gap-Filling Weather Radars Pilot Project for Accurate Real-Time Rainfall Estimations and Increased Lead Time Before Disasters to Protect Minnesota's Natural Resources

Submitted by: Kandiyohi County

Partners: Association of Minnesota Counties (AMC); Association of Minnesota Emergency Managers (AMEM); Minnesota Pollution Control Agency (MPCA); Minnesota Department of Agriculture (MDA); Climavision

### **Kandiyohi County's Organizational Capacity**

Kandiyohi County is a unit of local government responsible for overseeing all county operations, which includes watershed management, emergency management, and disaster mitigation. The County must regularly interact across agencies and jurisdictions. The County has managed multiple grant projects and is versed in managing state and federal funding.

As the lead applicant, Kandiyohi County will provide overall project administration, fiscal oversight, and coordination with participating local and state agencies. County administration and departments have experience in projects that require integrating new technologies, engaging diverse stakeholders, and ensuring compliance with state and federal standards.

### **Project Partners and Roles**

- Association of Minnesota Counties (AMC)

AMC represents all 87 counties in Minnesota and will facilitate statewide coordination and communication. Its engagement ensures that lessons learned from this pilot directly benefit counties across the state—particularly those in rural and agricultural areas where radar coverage is weakest.

- Association of Minnesota Emergency Managers (AMEM)

AMEM brings the emergency management community's operational expertise to the project, helping translate new radar data into actionable, on-the-ground improvements in preparedness and disaster response. Its membership spans all county and tribal jurisdictions, enabling rapid adoption and feedback.

- Minnesota Pollution Control Agency (MPCA)

MPCA oversees air and water quality across Minnesota and will leverage enhanced radar data to improve rainfall measurement, sediment transport tracking, and smoke monitoring capabilities. The agency's technical specialists may help integrate radar data into existing water and air quality models, strengthening predictive environmental management.

- Minnesota Department of Agriculture (MDA)

MDA supports sustainable agriculture, soil health, and nutrient management. Through this project, MDA will be able to incorporate new rainfall and soil moisture data into its programs—improving irrigation planning, nutrient runoff forecasting, and soil conservation outcomes across agricultural regions.

- Climavision

Climavision is a U.S.-based weather technology company headquartered in Louisville, Kentucky. The company designs, installs, and operates a national network of high-resolution, "gap-filling" weather radars and maintains validated data-sharing partnerships with NOAA and the National Weather Service. Climavision owns, operates and maintains the first radar installed in Wendell and provides full operational support for radar infrastructure, including installation, calibration, maintenance, data validation, and continuous monitoring. The company's team oversees all technical and infrastructure concerns associated with the radar system, ensuring reliability and long-term sustainability. Its integration with federal partners enables real-time data exchange for public-sector operations, guaranteeing that all radar information aligns with national meteorological standards and can be used for official federal warnings.

### **Ability to Carry Out the Proposed Solution**

Together, Kandiyohi County and its partners bring the full range of expertise and infrastructure capacity required to execute this project efficiently and effectively:

- Administrative and fiscal leadership through Kandiyohi County.
- Statewide coordination through AMC and AMEM networks.
- Scientific and regulatory integration through MPCA and MDA.
- Technical implementation and infrastructure management through Climavision's national radar operations team.

This partnership provides both operational credibility and scalability. It ensures immediate, data-driven benefits to Minnesota's environmental and agricultural management systems and lays the groundwork for a sustainable statewide radar network that strengthens resilience, reduces disaster losses, and enhances resource protection. \*It is understood that any contracts would be subject to state and federal procurement law.



**November 12, 2025**

To: Members of the Legislative-Citizen Commission on Minnesota Resources (LCCMR), State of Minnesota

**Letter of Support – Gap-Filling Weather Radars Pilot Project**

Dear LCCMR Members,

On behalf of the Association of Minnesota Counties (AMC), we are pleased to express our strong support for Kandiyohi County's request for Emerging Issues Account funding to establish a Gap-Filling Weather Radars Pilot Project in partnership with Minnesota counties, the Minnesota Pollution Control Agency, Minnesota Department of Agriculture, Association of Minnesota Emergency Managers, and Climavision.

Counties play a vital role in emergency preparedness, disaster response, and recovery. Reliable, real-time weather data is essential to responsibilities such as helping protect residents, infrastructure, and local economies. Unfortunately, significant portions of Minnesota remain outside dependable radar coverage, particularly in rural areas. This limits our ability to provide early warnings and make informed operational decisions during severe weather events.

Recent incidents such as the 2025 Bemidji microburst and Kandiyohi County flooding underscore the real-world impact of these coverage gaps. When local governments lack access to accurate low-level radar data, the ability to activate emergency alerts, coordinate mutual aid, and deploy local resources is compromised.

This proposal offers a meaningful solution by installing modern, high-resolution radar systems that dramatically improve coverage and precision in order to enhance coordination among local, county, and state partners. The pilot represents a forward-thinking, collaborative approach to building resilience and leveraging technology in the public interest.

AMC supports this project because it will:

- Strengthen local and regional emergency response capacity through better situational awareness.
- Improve public safety outcomes by increasing lead times for severe weather events.
- Reduce losses to life, property, and natural resources.
- Support a data-driven foundation for emergency management and environmental monitoring statewide.

This initiative aligns with AMC's ongoing commitment to support county innovation, strengthen intergovernmental collaboration, and promote resilient communities across Minnesota. We respectfully urge the LCCMR's full consideration and approval of this important pilot project.

Sincerely,

*Emilio Lamba*

Emilio Lamba  
Public Safety & Corrections Policy Analyst  
Association of Minnesota Counties (AMC)

November 14, 2025

To whom it may concern:

Subject: Letter of Support for proposal to LCCMR

I am excited to write this letter of support for your proposal entitled “Request for Emerging Issues Account Support – Gap-Filling Weather Radars Pilot Project for Accurate Real-Time Rainfall Estimations and Increased Lead Time Before Disasters to Protect Minnesota’s Natural Resources and Underserved Communities”

Minnesota has approximately 21 million acres in agricultural crop production and ranks in the top three US states in soybean and spring wheat production and fourth in corn. The exceptional productivity of Minnesota’s agricultural crops is due to rich soils and generally favorable climatic conditions during the growing season. Meteorological records show an increased occurrence of extreme weather events across the state, including high-intensity precipitation events. These events may result in not only risk of crop damage, but also erosion, leaching of nutrients to surface and groundwater, reduced soil quality and delayed field operations.

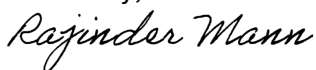
Having accurate information about precipitation events is critical for agricultural producers for risk management, extreme weather preparation and crop or asset damage assessments. The MDA is currently building out a state-wide agricultural weather station network to meet this need. Since precipitation amount and intensity can vary considerably over short distances, there is an urgent need to increase localized information about precipitation distribution and bring this actionable information into the hands of producers, land managers and emergency responders. This proposed work specifically meets this need. The project is a locally led effort of adding five weather radars to fill in the existing radar gaps and make the information publicly available through a data portal with both real-time and historical weather information.

The Minnesota Department of Agriculture (MDA) is actively engaged in demonstrating and promoting the use of weather information to ensure the agronomic, economic and environmental sustainability of Minnesota farms. The proposed expansion of radar coverage will help inform activities under several MDA programs including:

- The expansion of the Minnesota Agricultural Weather Network (MAWN) which is highly compatible with the addition of radar-derived precipitation information. The combination of weather data from MAWN and precipitation from the radars will provide producers with enhanced weather information.
- Implementation of the Nitrogen Fertilizer Management Plan. The objective of the plan is to reduce nitrogen loss to groundwater and resilience to extreme weather events is an example of tools to reduce these losses.

MDA enthusiastically supports your proposal and wishes to participate in the project by serving as an external partner. Jeppe Kjaersgaard will be MDA’s representative for the project. Please reach out to him if you have questions or need additional information at 651-201-6149 or [jeppe.kjaersgaard@state.mn.us](mailto:jeppe.kjaersgaard@state.mn.us).

Sincerely,



Rajinder Mann  
Assistant Division Director  
Pesticide and Fertilizer Division  
Minnesota Department of Agriculture

November 12, 2025

Daniel Dix, Meteorologist/Emergency Manager/Continuity Coordinator  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, MN 55155-4194

RE: LCCMR Emerging Issues account support for **Gap-Filling Weather Radars Pilot Project**

Dear: LCCMR Members,

I am writing to express my strong support for Kandiyohi County in their application for the Emerging Issuing Account. As a longtime meteorologist (general and air quality) and expert radar data user, I have witnessed firsthand the critical need for a much-improved radar network across greater Minnesota. With that I wanted to recognize the dedication and impact of the work done by the Association of Minnesota Emergency Managers (AMEM) and support of the Association of Minnesota Counties (AMC) in the group effort to help move forward this critical initiative.

The project will help to reduce the gaps in radar data coverage that have been well known for the past 25 years since the original National Weather Service (NWS) 88-D NEXRAD radars were installed. Though excellent and powerful, NWS radars are primarily installed near major urban areas and/or large airport facilities with limited range and capabilities beyond 60-70 miles from the radar. The gap-filling radars placed strategically around the state will help to fill those gaps in low level atmospheric coverage below 6,000 – 10,000 feet. It is in this lower level of the atmosphere where many meteorological phenomena occur including tornadic development and formation, high straight-line winds, snow squalls, and even wildfire smoke intrusions as well as localized heavy rainfall. Longer term data capture in these areas can dramatically improve the true understanding of the area for drought severity measures, fire weather indicators, and water allocation efforts as just a few examples.

My organization with its team of meteorologists and a growing emergency management presence is committed to support this initiative by offering consultation, creation of various case studies and use cases, and putting use of these data into operational use (i.e. information for wildfire-caused air quality alerts, weather outlooks and forecasts for state agency use, etc.).

I endorse this proposal and encourage you to give it your full consideration. Please feel free to contact me at [651.757.2326/daniel.dix@state.mn.us](mailto:651.757.2326/daniel.dix@state.mn.us) for any additional information.

Sincerely,

Daniel Dix  
Meteorologist/Emergency Manager/Continuity Coordinator  
Minnesota Pollution Control Agency





# Association of Minnesota Emergency Managers (AMEM)

8716 Arbor Street, Duluth, MN 55808

[amem-ed@charter.net](mailto:amem-ed@charter.net) / 218-626-7930

2025-2026

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*Region 6 Representative*

*Abby Jewison*

*Scott County*

**November 6, 2025**

To: Members of the Legislative-Citizen Commission on Minnesota Resources (LCCMR), State of Minnesota

## **Letter of Support – Gap-Filling Weather Radars Pilot Project**

Dear LCCMR Members,

On behalf of the Association of Minnesota Emergency Managers (AMEM), we are writing in strong support of Kandiyohi County's request for Emerging Issues Account funding to establish a Gap-Filling Weather Radars Pilot Project in partnership with Minnesota counties, the Minnesota Pollution Control Agency, Minnesota Department of Agriculture, Association of Minnesota Counties, and Climavision.

Emergency managers across Minnesota rely on accurate, real-time weather information to protect lives, property, and infrastructure. Yet large portions of our state remain outside reliable radar coverage, leaving communities without critical low-level weather data needed for timely decisions. The 2025 Bemidji microburst and Kandiyohi County flooding illustrate this challenge—both occurred in areas with limited National Weather Service radar coverage, reducing warning accuracy and lead time to activate local response efforts. These blind spots hinder our ability to anticipate flash floods, coordinate evacuations, monitor wildfires, and manage disaster declarations.

This project will close those gaps by deploying modern, high-resolution radar systems that provide up to ten times the spatial detail of existing federal NEXRAD systems. The data will be shared in real time with local emergency managers, counties, and state agencies—enhancing situational awareness, coordination, and resource management. Just as importantly, this effort represents a cost-effective public-private partnership at a time when the federal radar network is aging and not planned for expansion.

AMEM strongly supports this proposal because it will:

- Improve warning lead times for severe weather and other potentially deadly incidents.
- Strengthen coordination among local, county, state, and federal partners.
- Reduce loss of life, property, and natural resources through better early detection.
- Advance resilience in underserved and rural regions of Minnesota.

This pilot directly supports AMEM's mission—to protect Minnesota communities through coordination, preparedness, and innovation—and represents a scalable model for statewide resilience. We respectfully urge your full consideration and approval of this important initiative.

Sincerely,

**Ed Snetsinger**

President, Association of Minnesota Emergency Managers (AMEM)