Aurora Pooled Fund

Aurora: A 17 agency pooled fund focused on advancing Road Weather Information Systems.

Administrative lead state: Iowa DOT
Managed by Iowa State University
Interesting times…
Aurora is...
an international program for advancing road weather information systems (RWIS) technology.
17 Agencies

Alaska
Arizona
California
Colorado
Delaware
Illinois
Iowa
Kansas
Michigan
Minnesota
North Dakota
Ohio
Ontario Ministry of Transportation
Pennsylvania
Utah
Virginia
Wisconsin

Iowa DOT serves as administrative lead state.
Iowa State University serves as the project manager.
Aurora is aware of the impact weather events can have on...

mobility, safety, and the economy
Aurora is aware of the impact weather events can have on mobility, safety, and the economy... during all seasons... and road settings
Aurora activities provide practical results in terms of:

Collaborative Research

Deploying and Evaluating Technology

Implementing Results
Aurora helps members obtain and organize data into information for effective decision making ...

...and readiness
Aurora is collaboration...
Between Member Agencies and with FHWA, NOAA, NSSL, etc.
and with Industry

Friends of Aurora

Organized event held every other year (even years) as an opportunity for industry engagement and collaboration on immediate research needs.

Oct 2016 Participants:
Amec Foster Wheeler
AmeriTrak
Boschung America
Certified Cirus Control Sys
High Sierra Electronics, Inc.
Lufft USA Inc.
MeteoGroup
Telvent DTN, Schneider Elec
Vaisala Inc.
Weathernet
Aurora is focused on…
✓ Deployment and support of RWIS by public agencies in terms of **technologies and strategies**

✓ **Conducting research** to improve weather readiness and transportation resiliency

✓ **Improving efficiency of RWIS maintenance operations**

✓ **Facilitating information exchanges** between transportation and other agencies and groups
and celebrating achievements!

New York

Minnesota  Kansas  Alaska
Aurora project information looks like this…
Project general categories include:

- Road Condition Monitoring Tools
- Site Operations / Quality Assurance
- Getting Weather Information to Users
- Equipment Evaluation
- Standards / Architecture
- Decision Support / Modeling
Project completion per year has been:

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Completion Year</th>
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<tbody>
<tr>
<td>2</td>
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<tr>
<td>4</td>
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<td>3</td>
<td>2014</td>
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<td>2</td>
<td>2013</td>
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Recently Completed Projects:

2018
✓ Quantifying Salt Concentration on Pavement, Phase 2
✓ Survey of Best Practices in Data Storage

2017
✓ Improving Traffic Speed Estimation Phase 2
✓ Snow Liquid Water Equivalent for...PWD Sensors
✓ Review Synthesis of Alternative Power Supplies
✓ RWIS Training Tool

2016
✓ Mobile Weather Data Collection Guidelines
✓ RWIS Sensor Density and Location
✓ Eval Sensor Tech for Road Condition Monitoring, Phase 1
✓ Eval Sensor Tech for Road Condition Monitoring, Phase 2
Active Projects:

- **Seasonal Weight Restrictions Demonstration, Phase 2**
  *Objective:* Validate the predicted thaw depths and restriction dates recommended using the Clarus EICM approach and alternative, degree-day based approaches to provide an understanding of reliability of different approaches in setting load restriction dates.

- **RWIS Sensor Density and Location, Phase 2**
  *Objective:* Continue work from Phase 1 including climate regions. Develop location and density optimization models and solutions. Account for both spatial and temporal attributes of road weather and surface conditions. Develop an empirical optimal density model and related guidelines based on results for all topographic-climate zones. Evaluate the effects of spatial demarcation on RWIS planning, examine the implications of RWIS deployment at different geographical/jurisdictional levels and Integrate the developed solutions into LORWIS.
Projects Being Considered:

- **Guidelines on the Use of Invasive and Non-Invasive Sensors, Phase I Existing Capabilities and Limitations**
  
  *Objective:* Develop a decision matrix to guide sensor selection based on a range of conditions. This project is the first phase of this effort which will document existing capabilities and limitations for each type of sensor from published or on-going work. Future phases will conduct field research where known gaps exist and ultimately develop the desired selection guidance.

- **RWIS Life Cycle Cost Analysis**
  
  *Objective:* Develop guidelines for determining RWIS long-term, life cycle costs; ultimately providing answers to the following questions.

  1. What is the optimal point for agencies to replace RWIS components?
  2. What level of RWIS replacement funding is needed each year to achieve a corresponding target class age over a 3, 4 or 5 year period?
  3. How should agencies address and fund the replacement or repair of components where the technology is constantly changing (such as communications)?
Aurora program finances and benefits include...
**Program Income:**
The Aurora program activities are supported through income from member agencies ($25,000 per year) as well as in-kind match.

**Program Expenditures**
Aurora expenditures include administrative costs, costs associated with Aurora meetings, and individual project costs.

**Project Tracking**
The funds available for each project is the difference between the allocated funding and the project expenditures to date.
Aurora Benefits:

- Active participant towards collaborative research (here is what matters to us and needs solved), development (research and industry innovation), and deployment (let’s get it into the field and use it) of road and weather information systems (RWIS)

- Ability to multiply agency’s financial resources to address the most pressing RWIS related challenges

- Opportunities to develop relationships with national and international, public, and private leaders in RWIS equipment, decision support systems, standards, and training

- Support towards leveraging the full benefits of RWIS within your state (what works, doesn’t, how do I move forward)
We look forward to meeting you at our next meeting and online...
The Fall Aurora meeting in:

Columbus, Ohio
October 16-18, 2018
Aurora Program Web Site:

www.aurora-program.org

Aurora is an international partnership of public road agencies working together to perform joint road weather research. This site is designed to introduce the program, its partners, and its research.

**Why Join Aurora?**
- to set the agenda for collaborative research, development, and deployment of road weather information systems (RWIS).
- to multiply your agency’s financial resources to address its most pressing RWIS-related challenges.
- to develop relationships with national and international, public and private leaders in RWIS equipment, decision support systems, standards, and training.

Aurora will be represented in the standards development for Connected Vehicle and Road Weather (SAE J2945X) Committee.

Events Introduce Strategies for Weather-Savvy Roads
Presentations at three events enabled transportation professionals to learn about the EDC-4 road weather management – weather-savvy roads innovation.

Update to the USDOT Road Weather Management Program
The details of the Road Weather Management Program are available here.
2017 Aurora Program Chair:
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Aurora Vice Chair:
Jason Norville, Pennsylvania DOT

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