

Rural

MAY 2020

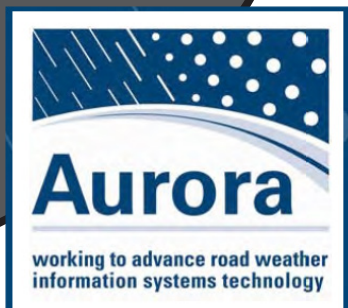
Project Title:
Road Weather Information System
(RWIS) Research

Task Number: 2649

Start Date: October 23, 2013

Completion Date: December 31,
2020

Task Manager:
Melissa Clark
Transportation Engineer (Electrical)
melissa.clark@dot.ca.gov



Aurora Program - Aurora Road Weather Information (ARWI) Systems, TPF-5 (290)

A partnership of agencies that collaborate on road weather information systems (RWIS) to improve the efficiency, safety, and reliability of surface transportation.

WHAT IS THE NEED?

California Department of Transportation (Caltrans) has over 100 Road Weather Information System (RWIS) installation statewide that are deployed for many purposes, such as automated fog, ice, and wind warnings; for traveler info online (on QuickMap); and for planning winter maintenance and other roadwork. The Aurora Program is a technical focused Pooled Fund Study (PFS) working on RWIS issues.

WHAT ARE WE DOING?

The Aurora Program is a consortium of public agencies focused on collaborative research, evaluation, and deployment of advanced RWIS that fully integrate state-of-the-art roadway and weather forecasting technologies with coordinated, multi-agency weather monitoring infrastructures. Aurora's research projects are designed to improve the efficiency of highway maintenance operations and distribute effective real-time information to travelers. Its initiatives are expected to result in technological advancement and improvement of the existing RWIS, significantly reducing the adverse impacts of inclement weather on mobility.

Pooled Fund Information:

- PFS Approved until December 2020
- Iowa Department of Transportation (DOT) – Lead State for Pooled Fund Study PFS
- 20 Participant State Department of Transportations
- DOT Members: Alaska, Arizona, California, Colorado, Delaware, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, New York State, North Dakota, Ohio, Ontario Ministry of Transportation, Pennsylvania, Utah T, Virginia, Washington State, Wisconsin. Maine became a member in late 2019



DRISI provides solutions and knowledge that improves California's transportation system

- Caltrans' Commitment is \$150,000 over 6 years, below is the breakdown:
 - FY 2013/2014 \$25,000
 - FY 2014/2015 \$25,000
 - FY 2015/2016 \$25,000
 - FY 2016/2017 \$25,000
 - FY 2017/2018 \$25,000
 - FY 2018/2019 \$25,000

WHAT IS OUR GOAL?

The program's mission is to support cooperative research, evaluation, and deployment of innovative technologies that advance road weather monitoring and forecasting in highway design, construction, maintenance, and operations and to serve as an international advocate for expanded uses of these technologies.

Six primary goals are:

1. To improve dissemination of road weather information to transportation providers and end users, ultimately increasing safety by reducing potential weather-related incidents and improving transportation safety, reliability, and mobility in both urban and rural areas.
2. To improve the efficiency of maintenance operations.
3. To aid in the development of technologies that seamlessly integrate to facilitate the formation of partnerships between maintenance and operations and facilitate the dissemination of road weather information.
4. To develop initiatives that assist public agencies in deploying RWIS technologies and methodologies.
5. To encourage greater cooperation and information exchange between transportation agencies and the other agencies and groups.
6. To support development of expanded uses of RWIS technologies.

WHAT IS THE BENEFIT?

1. Caltrans involvement allows input on national standards, development, and implementation (device and communication)
2. Caltrans will learn best-practices from other states
3. Caltrans will be able to influence which studies are conducted, making California's priorities known.

WHAT IS THE PROGRESS TO DATE?

Recent Activities:

- Solicitation for continuation of Aurora Program (FY 2020-FY 2024) Pooled Fund Study (Solicitation #1496) was announced in March 2019 and will remain open until funding has been met.
- The Aurora Board has approved three new projects that will be initiated in calendar year 2020:
 - 2019-01-Optimal RWIS Sensor Density and Location - Phase III: Continuous Mapping of Winter Road Surface Conditions via Big Data and Deep Learning
 - 2020-01- Economic Impacts of Atmospheric Rivers in the Transportation Sector: Methodology and Preliminary Case Studies
 - Roadway Ice/Snow Detection using a Novel Infrared Thermography Technology
- Continued work on In-Progress Projects:
 - 2018-01 RWIS Life Cycle Cost Analysis
 - 2018-02 Invasive and Non-Invasive Sensing: Assessing Agreement between Measurements Systems
 - 2014-01 Seasonal Weight Restriction Demonstration – Phase II

PROJECT WEBSITES

- <https://www.pooledfund.org/details/study/532>
- <http://www.aurora-program.org/>
- <https://www.pooledfund.org/Details/Solicitation/1496>

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