



Caltrans Division of Research,
Innovation and System Information

Research

Notes

Rural

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Project Title:
California and Oregon Advanced
Transportation System (COATS) VII

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Demonstrating and Evaluating Intelligent Transportation Systems in Rural Environments

Technology transfer, evaluation of deployment sites, a survey of western states and development of a regional rural planning process

WHAT IS THE NEED?

The purpose of the COATS effort has been and continues to be encouraging regional, public and private sector cooperation between California and Oregon organizations to better facilitate the planning and implementation of ITS in a rural bi-state area extending north of Eugene, Oregon and south Redding, California.

For over 16 years, the California Oregon Advanced Transportation Systems (COATS) program has shown that a bi-state partnership to address rural ITS concerns is both feasible and advantageous. It allows for maximization of resources and provides a source for fresh ideas and perspectives. It provides a platform to address the issues and concerns of rural areas that might otherwise remain ignored. Numerous systems and approaches have been developed and evaluated over the years, providing useful information on which to base future deployment decisions. COATS has provided a platform on which to conduct expanding efforts geared toward outreach and technology transfer.

As COATS and its products have matured, it has gained interest from surrounding states, specifically Washington and Nevada. Consequently, the expanded COATS region now encompasses the Western States Rural Transportation Consortium (WSRTC) region, which includes the states of California, Oregon, Washington and Nevada

WHAT ARE WE DOING?

Some of the tasks proposed for COATS Phase 7 include the following:

Rural Winter Travel Times

Predicting the amount of time it takes to get from point A to point B can be extremely challenging during winter storms or other non-recurring events. However, being able to accurately do this yields very valuable information for the rural traveler. It provides highway users with a way to quickly evaluate the merits and disadvantages of using a particular route over another. In addition, it allows some measure of predictability to those travelers who are in the midst of a trip when severe weather closes in. The intent of this task is to conduct research to determine the viability of estimating rural winter travel times.



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

Bluetooth Evaluation Part II

On northbound I-5 north of Redding, trucks may be required to chain up or are screened to ensure that they have a full set of chains near Fawndale when chain controls are in place. When these chain restrictions are in place, there can be a backup of trucks for 5 miles or more, all the way to Pine Grove and beyond. In the four-lane section near Fawndale, the backup consists of one lane of trucks. Closer to Redding, there is a six-lane section that develops a truck queue in the number two and three lanes. Determining accurate delay times that could be displayed on changeable message signs (CMS) before the backup starts may reduce the wait times and backup length, which could improve safety within this corridor. This task will utilize yet to be deployed District 2 Bluetooth readers upstream, downstream and within the chain-up area. Using the information from the Bluetooth readers will allow the research team to develop a preliminary prototype algorithm to predict delays through the chain-up area.

Data Quality Part II

Data quality for traveler information data has generally been handled on an ad-hoc basis, with little or no provision for error notification other than perhaps through user-reporting of observed errors. Weather-related systems such as MADIS, Mesowest and Clarus have applied quality checks to weather sensor data, but these checks don't necessarily transfer to other sensor and data types. Further, these checks may not be applicable to department of transportation RWIS sites in the absence of data from additional sites. Some have implemented measures of reliability based on network and file transfer performance. The Caltrans District 2 Information Relay and the DRISI CWWP2 efforts have also included some checks for bad data in CCTV and other feeds. However, there does not appear to be unified, multi-dimensional approaches to data quality for aggregation and dissemination of DOT traveler information. Previous research results have indicated that best practices are lacking with respect to data quality. This task will provide further guidance and best practices related to data quality and how to improve traveler information data within Caltrans.

Western States Rural Transportation Technology Implementers Forum

An event focused on delivering high quality technology transfer and networking opportunities, the Forum targets an audience of professionals working in design and maintenance of ITS technologies in rural environments. It is unique nationally with respect to its audience and technical content, and its origin and development reflect the idea of using COATS as an incubator for innovations in the use of technology to address rural transportation challenges.

WHAT IS THE GOAL?

To provide research and support activities to help California and Oregon achieve the COATS vision of "Promoting innovative partnerships, technologies and educational opportunities to facilitate and enhance safe, seamless rural travel throughout the western United States."

For this phase of COATS, these activities included promoting technology transfer, Bluetooth reader use in estimating chain-up area delays, synthesizing information on automated safety warning devices, and development of guidance for the planning of regional Integrated Corridor Management. o the public.

WHAT IS THE BENEFIT?

COATS serves as an incubator for research ideas in a rural context. These incubator ideas are bounded by limited scope, time and money and provide insight if a proposed idea has merit. If the incubator is successful, it is often turned into a larger, fully funded rural research project, always with the eye toward deploying the results. Numerous incubator projects have gone this route, including:

- [The Redding Responder Project](#)
- [WeatherShare](#)
- [Automated Safety Warning System Controller](#)
- [One Stop Shop for Rural Traveler Information](#)
- [Integration of Aviation AWOS with RWIS](#)
- [TMC-TMS Communication Systems](#)
- [Professional Capacity Building for Communication Systems](#)

WHAT IS THE BENEFIT?

COATS is currently investigating the following tasks:

- Bluetooth Evaluation for Siskiyou Summit Chain-Control Chain-Up Area Part I
- Data Quality for Aggregation and Dissemination of DOT Traveler Information Part I
- Fredonyer Summit Icy Curve Warning System Evaluation – Long Term Effectivene
- Long-Term Operational and Safety Impacts of Radar Speed Signs

To learn more about the COATS effort, please visit:

<http://www.westernstates.org/Projects/COATS/Default.html>