The ENTERPRISE pooled fund encourages member collaboration to implement traffic solutions like ICWS devices and to address other transportation needs through innovative technology.

RESEARCH SOLUTIONS

Technology-focused pooled fund explores new transportation solutions

Developing intelligent transportation systems (ITS) innovations can be resource intensive and is not always feasible for transportation agencies already operating with limited staffs and budgets. The Evaluating New Technologies for Roads Program Initiatives in Safety and Efficiency (ENTERPRISE) pooled fund offers a solution to this challenge—inviting state departments of transportation (DOTs) and Canadian transportation organizations to drive innovation by collaborating on research that addresses emerging needs and leads to implementable solutions.

THE ENTERPRISE PROGRAM

Since 1991, the ENTERPRISE pooled fund has explored and promoted ITS technologies in highway operations, growing from four to eight members that share resources to investigate topics of common interest. Together they prioritize needs, choose research goals, evaluate progress, and implement results. ENTERPRISE members rotate in championing research projects, while also participating in those led by other members.

During the second phase of this program, pooled fund members performed three types of studies: applied research, evaluation activities, and exploratory research. Iowa DOT contributed ideas for projects related to these activities based on the state's interest in ITS development and application. The example projects described below summarize some of this research.

IOWADOT
Research

PUTTING IT TO WORK

Iowa DOT's work with ENTERPRISE has helped the state bring new home new technologies, including:

- Arrow boards for construction and maintenance projects across the state, connected to the 511 travel information website (511ia.org). This work has earned a federal grant, making Iowa a pilot site for Work Zone Data Exchange.

- ICWS devices at seven collision-prone intersections in the state, warning drivers when a car is in position to pull out.

FEATURED PROJECTS

Real-Time Integration of Arrow Board Messages into Traveler Information Systems Evaluation. Status information from arrow boards used for directing traffic and closing lanes during road construction and maintenance now integrate into traveler information systems. Through this technology link, traffic management center operators and travelers can receive real-time information indicating whether the boards are active, which can point to lane closures and other traffic management activity. This application removes the need to rely on unverified information or to send field crews to check the on/off status of boards across the state.

ENTERPRISE participants Iowa DOT and Minnesota DOT engaged in separate pilot studies of these integrated arrow boards, working with product vendors to assess how the boards function when connected with each state's traffic management and road condition reporting systems.

Intersection Conflict Warning Systems. ENTERPRISE members engaged with other agencies, associations, and pooled funds nationwide to develop and deploy strategies for intersection conflict warning systems (ICWS). These instruments warn drivers on a main road of vehicle activity around stop-controlled intersections they are approaching. Vehicles nearing the intersection of a main road activate the signal, warning other drivers of their presence.

Building on previous research, ENTERPRISE conducted follow-up work in Phase II to further document issues for development and deployment of these devices. State DOTs that use ICWS must meet certain federal requirements before implementing the systems. ENTERPRISE members created planning guidance to help states decide where and how different warning devices should be deployed, and they developed steps for accelerating and standardizing implementation.

Wrong-Way Driving Applications. The severity of crashes resulting from wrong-way driving has prompted transportation agencies to deploy countermeasures for at-risk locations. Vehicle navigation systems and mobile applications offer a potential solution as drivers rely more frequently on guidance from these tools. Navigation systems use geographic information system mapping to track the precise location of the vehicle or device, and could alert a driver when a vehicle is approaching a location prone to wrong-way driving. The alerts are similar to current traffic, weather, and collision updates already provided by these programs based on vehicle location.

ENTERPRISE reached out to automobile manufacturers and mobile app developers to share the idea of adding wrong-way driving alerts to their products. Feedback from these companies indicated interest in considering this option for future development.