ENTERPRISE

Transportation Pooled Fund Project #TPF-5(359)

Lead state Michigan DOT

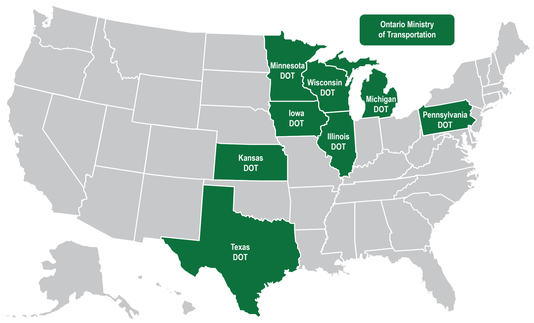
SHAPING TECHNOLOGY INNOVATIONS

ENTERPRISE: Evaluating New Technologies for Road Program Initiatives in Safety and Efficiency

Created in 1991 when intelligent transportation systems (ITS) technologies were early in their development, the ENTERPRISE pooled fund has been a consistent leader in the development and application of ITS innovations. Numerous state DOT and Canadian transportation organizations have collaborated through ENTERPRISE for a quarter century to produce more than 70 research products advancing the highway operations strategies of member agencies and the entire transportation community. The study's goals are to:

- Facilitate rapid progress in the development and deployment of ITS technologies.
- Accelerate the systematic advancement of selected ITS projects.

Members carry out ITS projects and activities including fundamental research and technology development, demonstration, standardization, and deployment. ENTERPRISE allows research to progress in tune with emerging needs and newly available technologies, always with an eye toward integrating effective solutions into day-to-day operations.



Become a Member

ENTERPRISE membership ($30,000 contribution per year) is open to federal, state, and local transportation agencies. Contributions can be made with 100% federal funds. Current members include:

- Illinois DOT
- Iowa DOT
- Kansas DOT
- Michigan DOT (lead state)
- Minnesota DOT
- Ontario Ministry of Transportation
- Pennsylvania DOT
- Texas DOT
- Wisconsin DOT

Member Benefits

ENTERPRISE addresses traffic operations challenges both by sharing members' ITS solutions and by conducting practitioner-oriented research. Partner agencies meet in person twice each year (travel expenses are paid by the pooled fund) to identify needs, scope research projects, and view the latest ITS deployments around the country.

CURRENT INITIATIVES

In-Progress Research Projects

- Evolution of ITS in asset management
- Phasing out legacy ITS systems/devices
- Integrating arrow board messages into traveler information systems (Phase 3)
- Roadmap for the next generation of intersection conflict warning systems
- ITS infrastructure integration of digital mobility as a service

Upcoming Research Projects

These projects have been selected for funding; work will begin in 2019 and 2020.

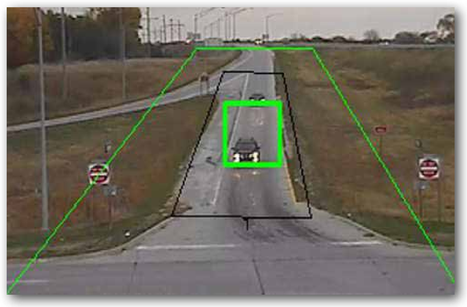
- Emerging practices for communications infrastructure
- Leveraging AVL/probe data to evaluate and prioritize arterial operation strategies
- Use cases and benefits of active traffic management strategies
- Volumes from probe data
- Wrong-way driving application for connected vehicles
- Partnering with emerging technologies as an infrastructure owner-operator
- Automated/assisted classification of winter road conditions (Phase 2)
- Color messages on dynamic message signs
- In-vehicle messaging for weather-based speed advisory notifications
- Combining ITS and signals infrastructure
- Value of advanced technology to historical/traditional methods

APPLIED ITS RESEARCH AT WORK

These four projects are a sampling of ENTERPRISE research, which addresses a range of ITS-related topics. Learn more about these and other completed and in-progress research projects at ***enterprise.prog.org****.*

Video Analytics: Next-Generation Traffic Data and Incident Detection

2014



Emerging video analytics technologies have the potential to analyze video feeds from traffic cameras and detect crashes, congestion, stopped vehicles, wrong-way drivers, and other scenarios. If an incident is detected, the systems can create real-time alerts for the operators at transportation management centers (TMCs).

Video analytics systems can also collect traffic data, including traffic volume by lane, speed, vehicle classification, and lane occupancy.

This project conducted a proof-of-concept evaluation of video analytics systems from several vendors, testing their effectiveness for traffic data collection and as a tool for TMC operators. Researchers determined that the technology was ready to meet practitioners' needs in several use scenarios.

Wrong-Way Driving Countermeasures

2016

This project created a repository for wrong-way countermeasure deployments to help ENTERPRISE agencies increase their understanding of countermeasure types. The repository includes evaluation efforts and results, agency coordination efforts, feedback on the deployments from local motorists, and lessons learned.

The repository features deployments that use ITS/technology, such as detection systems and dynamic message sign alerts, as well as preventive countermeasures that do not, such as static signing and pavement marking improvements.

Photos courtesy of Arizona DOT

Planning Guidance for ITS Devices

2015

This four-phase project developed planning guidance to assist agencies with ITS device deployment decisions and site selection. To date, the project has produced guidance for 10 technologies:

Courtesy of Minnesota DOT

- Closed circuit television
- Curve warning systems
- Dynamic message signs
- Dynamic speed displays
- Highway advisory radio
- Intelligent work zones
- Intersection conflict warning systems
- Ramp meters
- Road weather information systems
- Variable speed limit signage

The planning guidelines define specific purposes for each technology (for example, informing travelers of traffic conditions) and then identify the critical factors that determine whether a deployment is warranted at a specific site.

Real-Time Integration of Arrow Board Messages into Traveler Information Systems

In progress (Phase 3)

Now in its third phase, this project is focused on using ITS to integrate real-time lane closure information from arrow boards into traveler information systems. The goal is for active arrow boards to transmit their status (the direction of the arrow) to traveler information systems, alerting transportation management center (TMC) operators and travelers of lane closures in real time.

The first two phases developed model concept of operations and requirements documents for arrow board reporting systems, and developed an evaluation plan that ENTERPRISE agencies are using in Phase 3 (now in progress) to evaluate pilot deployments of these technologies.

Courtesy of FHWA

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