DEPARTMENT OF TRANSPORTATION

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

Challenge

Consistent reporting of accurate, useful information about lane closures to inform travelers is a challenge for MnDOT. Lane closures are often temporary, and the exact location and timing of the closure is highly variable. Generic reports (e.g. "intermittent lane closures from May 15 through June 30") posted to traveler information systems, such as 511 web or mobile apps, provide limited value to travelers. Though construction and maintenance field staff often have access to up-to-date lane closure information, on-site conditions and other responsibilities make frequent reporting of this information a low priority.

Project Overview

MnDOT will leverage "model" systems engineering products from a recently completed ENTERPRISE Pooled Fund project to guide the deployment of an integrated ITS solution that will report the location and operational status of arrow boards in real-time to MnDOT's Regional Transportation Management Center (RTMC) systems. This project will equip arrow boards used by Twin Cities metro area maintenance shops with the functionality to export status and location for stationary and mobile/rolling closures. The project will then integrate the reported arrow board status information with the MnDOT Intelligent Roadway Information System (IRIS) and the MnDOT Condition Acquisition and Reporting System (CARS).

Project outcomes include:

- Detailed lane closure information will be disseminated through existing traveler information mechanisms such as 511 phone, web, and social media dissemination systems;
- RTMC operators will be alerted in real-time of closures so they may post messages to the appropriate Dynamic Message Signs (DMS), notifying travelers of upcoming lane closures; and
- Work zone planning professionals will have improved information for performance reporting and measurement due to improved accuracy of lane closure information.

Project Partners

- MnDOT Office of Traffic, Safety & Technology
- MnDOT Regional Transportation Management System (RTMC)
- MnDOT Metro District Maintenance
- MnDOT Research Services
- Athey Creek Consultants
- Street Smart Rental
- Castle Rock Associates

Arrow Board Status Extract: Extracting the Arrow Board status and making it accessible to MnDOT electronically in real-time

CARS Integration: Integrating Arrow Board statuses into CARS → CARS → Traveler Information

IRIS Integration: Integrating Arrow Board statuses into IRIS → IRIS → DMS