

I-35 Traveler Information During Construction

RESEARCH THEME

SYSTEM OPERATIONS

OUTREACH AND
TECHNOLOGY TRANSFER

DATA ANALYTICS

PERFORMANCE MANAGEMENT

SYSTEM MODELING

TECHNOLOGY DEPLOYMENTS

PROJECT DETAILS

Sponsor: Texas Department of Transportation

Period: December 2010 - present

Budget: \$20M

BENEFITS

- Development and validation of new smart work zone safety deployments and metrics
- Development of advanced traveler information and dissemination techniques
- New use of mobility coordination in rural, linear corridor with multiple projects and contractors.
- Project advancements contributed to statewide standards, practices, and deployments



Summary

As TxDOT rebuilds I-35 in Central Texas, with over 35 million travelers/year, this project developed an advanced and highly integrated system providing TxDOT with sophisticated work zone monitoring and traveler information dissemination capabilities.

Background

TTI has led the development of a one-of-a-kind integrated system that provides TxDOT with unmatched work zone monitoring and traveler information dissemination. The system collects and integrates planned lane closure schedules from the multiple independent contractors working on the 100-mile I-35 corridor, automatically assesses the traffic queuing and delay potential associated with those closures and disseminates advance notification of the closures and potential impacts to various users across multiple outreach channels, including social media. The system has also been designed to assist TxDOT and contractors with deployment decisions of portable end-of-queue warning systems and integrates inputs from those systems with various other traffic monitoring technologies in the corridor to develop accurate delay forecasts for travelers in the corridor.

Project Overview

The Texas Department of Transportation (TxDOT) is implementing planned improvements to 200 directional miles of the I-35 corridor through the Waco District. Significant components of this operational work effort that align with the propose manual content include:

- **Technology Deployment:** More than 200 field sites with multiple technologies were developed and deployed within construction zones operating on solar and cellular systems.
- **Traveler Information:** Multi-faceted and multi-platform traveler information outreach for planned closures, incidents, and real-time

information. Activities cover both en-route and pre-trip and take place via web, email, text, and social media platforms.

- Work zone traffic management: Comprehensive safety-oriented approach looking at specific work zone countermeasures and measuring results through evaluations.
- End-of-Queue (EOQ) warning: Developed mobile, nightly EOQ implementation and led deployment and evaluation efforts. Resulted in 60% reduction in accidents over nights where an EOQ system was not deployed.
- Incident management: Developed comprehensive incident management plan for the District along with implementation and regular after-action reviews. Developed comprehensive incident alerting system to the general public.
- Pedestrian/Bike Facilities: Integrated pedestrian/bike facility closures and impacts into traveler information as well as developing and implementing "Be Safe Be Seen" program for Baylor University as a major affected stakeholder.
- Integration, Communications, DSS, Command and Control: Designed and developed comprehensive systems engineering approach to corridor management, including all field site efforts and command/control integration to the statewide traffic management software.
- Stakeholder engagement: Comprehensive engagement effort encompassing operating agencies, fire, police, EMS, local, county, and regional jurisdictions, major employers, health-care facilities, schools and day cares, and more than 1000 local businesses.

Applications

- Highly detailed lane closure database
- Comprehensive public awareness program for lane closures
- Construction travel time signs
- Comparative travel times for construction zones (PCMS and DMS)
- Current delay signs
- End-of-queue warning systems
- Dynamic late merge systems
- Significant automation
- Software builds use TxDOT C2C data dictionaries as base
- Innovative real-time map combining textual and visual information
- Text messaging for incidents
- Streaming CCTV construction cameras via YouTube
- Use of social media
- Export processes and solutions to other Districts
- International attention

MISSION of SYSTEM RELIABILITY DIVISION

To transform transportation operations, reliability, mobility, and safety through the application of innovative concepts, tools, and technologies. We will focus on the core programmatic areas of: (1) advanced transportation operations and (2) connected and automated transportation.

TTI's MISSION:

To solve transportation problems through research, to transfer technology and to develop diverse human resources to meet the transportation challenges of tomorrow.

CONTACT



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