Truck Parking Availability Study: Demonstration Project

About the Project

This project targets the development of an automated truck stop management system that can determine the number of occupied parking spaces at Minnesota Department of Transportation (MnDOT) safety rest areas and commercial truck stops. The system uses a network of cameras to monitor parking availability at truck stops, automatically identifying available spaces in real time. In this project, the information will be used to notify drivers and carriers about parking availability via a website, in-cab messaging, and variable message displays a few miles ahead of the rest area on the highway.

The system will be installed at three MnDOT rest areas and one private truck stop on Interstate 94 (I-94) west and northwest of the Twin Cities. The I-94 corridor—critical to the movement of goods in Minnesota and an important connection between trade centers on the West Coast and multiple marketplaces in the Midwest—experiences a large volume of truck traffic.

The Elm Creek Rest Area, two miles north of Interstate 494 on I-94, will be the first implementation site in fall 2012. The project team will install, calibrate, test, and refine the system at this location, allowing for quick deployment to the other project sites. Overall results will help the project team determine whether this technology holds promise for use in other corridors throughout the nation.

Project Benefits

Successful demonstrations of this technology can improve safety, lead to better trip and operations management by drivers and carriers, and help MnDOT and private truck stop owners manage their facilities more effectively.

The potential to improve safety by reducing driver fatigue and improving a driver's ability to park safely is one of the project's greatest benefits. Federal hours of service rules require truck drivers to stop and rest after 11 hours of driving. If they continue, drivers could become dangerously fatigued, be forced to park in unsafe locations such as freeway ramps, or face legal penalties.

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By providing information about the available number of parking spaces at each stop, this system will help drivers determine if it is safe to continue to the next rest area or if they should stop at their current location. The ability to determine when and where to stop within hours of service requirements could help drivers and carriers make better overall trip and operations decisions.

The project will also provide data on facility use, which could be used by MnDOT and private site owners to determine if existing facilities are suitable for demand. The data can also be used to plan needed improvement or expansion projects.

Project Team

MnDOT
- John Tompkins, Freight Project Manager

University of Minnesota
- Nikolaos Papanikolopoulos, Professor, Department of Computer Science and Engineering (CS&E)
- Vassilios Morellas, Program Director, CS&E
- Max Donath, Director, Intelligent Transportation Systems Institute
- Ted Morris, Information Technology Manager, CS&E

American Transportation Research Institute
- Dan Murray, Vice President

Sponsor

Funding for the project is provided through the Federal Highway Administration's Truck Parking Facilities Discretionary Grants Program and the Minnesota Department of Transportation. The FHWA grants program helps improve safety on the nation's interstates by promoting projects that allow trucks to park safely and securely in areas away from moving traffic, instead of alongside the road itself or on ramps.

More Information
- Contact project manager John Tompkins at 651-366-3724 or john.tompkins@state.mn.us
- Visit the project web page at www.cts.umn.edu/research/truckparking

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