

RFID Drives Highway Traffic Reports

Orlando-Orange County Expressway Authority in Florida will measure the travel time of cars with toll-collection transponders in order to provide commuter updates.

By Claire Swedberg

Nov. 17, 2004—With an eye to improving traffic management and information access, the Orlando/Orange County Expressway Authority (OOCEA) is deploying an RFID-based traffic-monitoring system in central Florida. The system will use roadside RFID readers to collect signals from transponders already installed in about 1 million E-Pass and SunPass customer vehicles. E-Pass (used on roads operated by the expressway authority) and SunPass (used on the Florida's Turnpike system) are both automatic toll payment methods used in central Florida. Containing a passive 915 MHz chip and manufactured by TransCore, these E-Pass and SunPass transponders are slightly larger than a credit card and attach to a car's windshield. The goal is to implement a system that would trace the travel time of individual cars as they pass the roadside readers, create an average trip time and then disseminate that information to the public.

The OOCEA has hired Canadian company SIRIT to provide Traffic Management System (TMS) readers. A similar SIRIT system has been deployed in the San Francisco Bay area and is being testing in Colorado for a similar application. TransCore's Amtech Systems Division has developed a comparable system in use the Houston area. Although TransCore readers have been in operation on central Florida roadways for the past 10 years, they have been used solely for toll collection.

That will change with the installation of SIRIT readers above the road on the expressway authority's system. The SIRIT TMS readers, positioned about a half mile apart on the expressway, will track travel time and send traffic-flow data to be monitored by the Florida Department of Transportation (FDOT) and the OOCEA.

Travel time information from the readers is first encrypted and sent to the FDOT's Regional Traffic Management Center. The information then goes to the OOCEA, where it undergoes calculations done by a data server and then is sent back to the FDOT to be distributed to the public. Information about commute times will be sent to the public on dynamic message signs (DMS), installed at motorists' decision points around the roadway system to provide up-to-date traffic information. Motorists will also be able to access traffic information by calling 511 (the national travel information telephone number currently in use by 21 states) or by accessing a Web site that has not yet been activated.

The TMS system works by using AVI (automatic vehicle identification) technology, a toll-collecting technology that exists in the transponders already used for Florida's toll-collection system. The roadside readers capture the transponder's unique ID number according to John Freund, vice president of sales at SIRIT, which is based in Mississauga, Ontario. While privacy issues have already been raised by members of the public in California, the company and the FDOT have stated that the technology does not allow for privacy violations.

Once a driver's ID number is captured by a roadside reader, that number will be encrypted and sent to the FDOT server to be temporarily stored. Farther along the road, the next reader will read the same toll tag ID

number, encrypt it again and send that information to the server. After the data server receives data for the same toll tag from two separate readers, it calculates and saves the travel time, and throws away the encrypted ID number.

Before the system is brought online, the FDOT will explain the project to drivers with toll-collection transponders in their vehicles.

The trial phase of this system will last about two years, but after that time the system could be expanded to additional state roads in central Florida and other reader sites along roads used during the trial. The OOCEA is deploying 128 RFID readers for the initial phase of the testing. The first readers were installed mid-2004 by the FDOT, with project completion by May 1, 2005. Altogether, the system will cover about 228 miles of toll roads and nontoll state highways.

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