



Project Number

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Commercial Truck Parking Detection Technology Evaluation for Columbia County Rest Areas

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Current Situation

Rest areas along Florida's interstate highways are heavily used by commercial trucks for overnight parking. Many rest areas regularly experience 100% utilization of the commercial truck parking spaces during the evening and early morning hours. Drivers may spend significant amounts of time searching for a place to stop for the night – often when they are already tired.

Research Objectives

University of Florida researchers tested several in-pavement systems which automatically detect the presence of vehicles in commercial truck parking areas, with the goal of creating a system that would remotely inform truck drivers of vacancies.

Project Activities

The researchers evaluated whether commercially available products were able to reliably detect vehicles in commercial truck parking spaces at interstate rest stops. They focused on accurate detection of vehicles in parking spaces, cost, and installation, setup, and maintenance requirements. Evaluation of sensor durability was also evaluated, but on a limited basis, due to the relatively short term of the project.



With its large population and numerous ports, Florida's highways are used by millions of trucks every year.

Three different products were tested which use two detection methods: SensIT uses magnetic and infrared detection while both the Sensys and CivicSmart use microwave radar. Both methods involve sensors which are placed in the pavement in an array at each of the monitored parking spaces. These sensors communicate wirelessly with an electronic device that aggregates the information and relays it to a central location. The information would be sent to SunGuide for processing. The Florida Department of Transportation (FDOT) will make the truck parking availability information accessible to users of the FL-511 app or third party applications that are based on FDOT-supplied data feeds.

A rest area along I-75 in Columbia County (FDOT District 2) was selected as the test site. Specific test areas of the commercial parking facility were chosen for installation of the detection technologies. Video cameras were also set up in the test areas as a quality control mechanism to confirm the results. At least one month of data was collected for each type of in-pavement sensor technology provided by the vendors.

Generally, all three vendor-provided technologies were able to detect the presence of vehicles accurately, at 95% accuracy or greater. Pricing or maintenance issues may guide the choice of technology.

Project Benefits

Trucking is crucial in the economic life of Florida. Making it easier for drivers to locate a place to stop reduces the time they spend checking rest areas for available spaces and helps them plan a safer and more efficient trip and avoid driving while fatigued at the end of a long shift.

For more information, please see dot.state.fl.us/research-center.