

TRUCK PARKING AVAILABILITY SYSTEM (TPAS)



REST AREA
TRUCK PARKING

21
SPACES
AVAILABLE

Florida's transportation system has seen an increase in commercial vehicle traffic over the years. The high percentage of freight transported by trucks illustrates the significance and importance of the Florida roadway network as it relates to just-in-time deliveries. With the increase in commercial vehicle traffic, additional issues arise; one of the issues deals with commercial vehicle operators and the Federal Motor Carrier Safety Administrations (FMCSA) hours-of-service (HOS) rules.

FMCSA put HOS rules in place to ensure that commercial vehicle operators receive adequate rest; the rules were designed to prevent commercial vehicle related crashes and fatalities by prescribing on-duty and off-duty rest periods for drivers. However, truck drivers face two main issues in meeting these requirements:

- Lack of safe and convenient parking options.
- Lack of real-time parking availability information.

Florida's truck stops experience overflow parking at some locations while others remain underutilized, demonstrating a need for stronger parking information management. Truck drivers facing this ongoing challenge often resort to unsafe and illegal methods of parking on the interstate mainline and ramp shoulders or in vacant lots.

FIU RESEARCH

In a proactive approach to address the issue of truck parking shortage, the Florida Department of Transportation (FDOT) initiated a research project in 2011 with Florida International University (FIU) to determine the supply and demand characteristics for commercial truck parking in Florida. The research determined that a technology solution could be used to improve parking management.

PILOT PROJECT

As part of the research, a test project was deployed to review rest area parking data and to test the technology and determine the feasibility of providing real-time parking availability information. The project tested in-pavement wireless detection sensors (WDS) at the I-10 rest area in Leon County, west of Tallahassee, and utilized closed circuit television (CCTV) cameras for verification of the availability data.

A second test project deployment in a rest area in St. Johns County on I-95 south of Jacksonville tested the use of microwave vehicle detection sensors (MVDS) to count the vehicles as they entered and exited the rest area. An embedded dynamic message sign (DMS) approximately one mile ahead of the rest area notified commercial vehicle operators of the availability of parking spaces.

AID GRANT

Based on the FIU study and test deployment projects, the FDOT applied for and in June 2015 received a \$1 million Accelerated Innovation Deployment (AID) grant for a demonstration project on a Truck Parking Availability System (TPAS). The AID grant will supplement FDOT funding to deploy the TPAS at seven public parking sites located along I-4 and I-95 in FDOT District 5.

RESEARCH

As the AID project was being developed, in 2016 the FDOT tested the performance of available technology through a research project with the University of Florida (UF) at two rest areas in Columbia County to further define the parameters of the new WDS deployment. The study resulted in the establishment of a Developmental Specification outlining the requirements of the WDS.

FAST LANE GRANT

Additionally, as part of the initial AID project, the FDOT undertook project development to deploy TPAS throughout the entire Florida interstate system public parking areas: welcome centers, rest areas and weigh stations. The effort included concept plan development, cost estimates, environmental evaluation, utility coordination and right-of-way requirements. Leveraging the exhaustive efforts and the level of preparedness, an application for the inaugural Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) grant application was submitted. The FDOT was notified in September 2016 of the intent to award an additional \$10.7 million in Federal Funding for the full deployment of TPAS throughout Florida's interstate system, to supplement state funding.

The Florida Department of Transportation (FDOT) is currently developing a Truck Parking Availability System (TPAS) to address the need for parking information management. The TPAS program will be delivered in three stages:

STAGE

1

Implementation of technology to accurately assess and disseminate the availability of truck parking

Stage 1 is currently underway through a series of design-build projects. The system will provide real-time information on the availability of parking spaces along the interstates and will be deployed in state-owned welcome centers, rest areas and weigh stations. TPAS will detect parking availability through sensors embedded in the parking areas as well as through vehicle detection counters. The information will be aggregated through the existing Intelligent Transportation Systems fiber optic network at each of the District Regional Transportation Management Centers (RTMC). The truck parking availability will be disseminated to the public through roadside signs, the FL511 application as well as third-party data feeds. It is anticipated that statewide implementation will be completed in 2019.

STAGE

2

Development of predictive analysis for future parking availability

Stage 2 will follow once sufficient stabilization of parking occurs and adequate data is available. As statistically sufficient data is aggregated, algorithms will predict parking availability based on trends in parking utilization. This information will be made available through data feeds and allow motor carrier operators to make educated trip logistics planning to optimize safe and efficient freight movement throughout Florida. It is anticipated that this stage will begin immediately upon completion of Stage 1.

STAGE

3

Incorporation of private parking locations for systemwide resource utilization

Stage 3 will require ongoing coordination with third-party vendors to integrate private parking facilities into TPAS. Public-private partnerships may be leveraged to deploy technology at private system parking facilities. Private parking data will then be aggregated and disseminated along with public parking information to provide full system availability and predictive analysis to commercial vehicle operators and dispatchers, maximizing use of the parking network.

The information that will be provided by TPAS will assist truck drivers in identifying available parking locations where the technology is deployed. While this provides a great resource for trip planning and increasing safety, it only assists in alleviating a part of the issue. There is still a need for additional parking areas for commercial vehicle operators. The TPAS will address full utilization of existing parking resources through efficient technology application.