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Project Manager

Eric Gordin, P.E.

FDOT Office of Traffic Engineering and Operations

Principal Investigator

Haitham Al-Deek, Ph.D, P.E.

University of Central Florida

Florida Department of Transportation Research

Study of Operational and Safety Impacts of Disabled and Abandoned Vehicles on FDOT Roadways

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Current Situation

A primary goal of the Florida Department of Transportation (FDOT) is to keep vehicles moving safely. But what are the safety impacts of vehicles that are not moving – particularly disabled and abandoned vehicles (DAVs)?

From 2015-2020, DAVs were involved in 1,250 crashes in Florida, resulting in 53 fatalities, 976 injuries, \$17.3 million in property and vehicle damages, and \$966 million in comprehensive fatality and injury costs.

The impacts of DAVs on roadways can result in initial and secondary crashes as well as congestion, which may result in blocked lanes and more crashes. Nearby pedestrians and officers responding to a DAV are also at risk of being struck by passing vehicles.

Previous studies have focused on response, but not reducing DAV safety impacts.

Research Objectives

The main objectives of this research were to evaluate the operational and safety impacts of DAVs on FDOT limited access roadways, identify and evaluate methods to reduce these impacts, and estimate the benefits and costs of these methods.

Project Activities

After conducting a comprehensive literature review, the FDOT and University of Central Florida research team developed a national survey of stakeholders – DOTs, turnpike/toll road authorities, state and local law enforcement agencies, and safety service patrols (SSPs) – to garner their experiences and responses to DAV events in their states. The respondents suggested that impacts could be reduced by improving interagency coordination to clear vehicles, reducing detection and response times, expanding existing SSPs, and better tracking DAV events and managing their associated data.

The team then collected and analyzed data from multiple sources. The analysis demonstrated the need to reduce detection and response times. For example, the data showed DAV crashes lasted an average of 130 minutes each, and over 34% of crashes blocked at least one travel lane. And SunGuide data showed abandoned vehicle events lasted over 13 hours on average before being fully cleared from the scene.

From this information, the team developed three potential methods to reduce DAV impacts: expanding SSPs patrol hours, implementing an instant dispatch tow system that notifies a towing vendor and patrol officer simultaneously regarding a DAV, and utilizing Waze alerts for earlier detection of DAV events. They then developed a methodology to estimate congestion savings due to the implementation of these methods.

Project Conclusions and Benefits

The most cost-effective methods for reducing DAV impacts were the instant dispatch tow and DAV Waze alerts. For the former, an estimated annual benefit due to congestion savings ranged from \$1.2 million to \$7.4 million. For the latter, the estimated benefits were \$3.5 million to \$4.3 million.

The findings of this project can help FDOT implement cost-effective strategies to reduce the impacts of DAVs on Florida roadways.



In a recent research project, FDOT and researchers from the University of Central Florida investigated the use of different methods to reduce the impacts of disabled and abandoned vehicles. One method was expanding the hours of the Road Rangers safety service patrol program.

For more information, please see fdot.gov/research.