



Project Number

BDV25-977-26

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Understanding Interactions between Drivers and Pedestrian Features at Signalized Intersections – Phase 2

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Current Situation

Our roadway systems have been planned largely around the needs of vehicles, but in recent years, the Florida Department of Transportation (FDOT) and other agencies have focused on roadway designs that are safe and efficient for all users – pedestrians, cyclists, and vehicles. Research has examined the interactions of these different classes of road users in order to improve safety and efficiency. One critical area of interest is the point at which pedestrians and vehicles are most likely to interact: intersections.

Research Objectives

University of South Florida researchers examined interactions between drivers and pedestrians based on two large data sets and developed implementable countermeasures to increase pedestrian safety at signalized intersections.

Project Activities

As part of the Strategic Highway Research Program (SHRP2), two large databases – the Naturalistic Driving Study (NDS) and the Road Information Database (RID) – were created to improve understanding of roadway issues and targeting of improvements. For NDS, thousands of cars were outfitted with sensors and video cameras that documented drivers’ behaviors. RID compiled information about thousands of roadways, providing a uniform source of roadway characteristics. The researchers examined thousands of hours of video collected in NDS and collected driver-pedestrian interactions at signalized intersections. NDS provided data that would have been difficult, time-consuming, and expensive to collect otherwise.

In a pilot project (FDOT Project BDV25-977-16), the researchers developed a research methodology, obtained initial research results, achieved a preliminary understanding of interactions between drivers and pedestrian features at signalized intersections, and demonstrated effective use of the NDS and RID to study drivers’ compliance rates to pedestrian safety-related signage at signalized intersections. In this project, the researchers applied the procedures and activities of the pilot project to over 2,000 interactions. Software developed by the research team was used to scan thousands of hours of video for relevant interactions, saving many research hours, and to assist in analysis and review of selected video, correlating video scenes with geographic locations and thus with the roadway data in RID.

Statistical analysis was used to correlate driver and pedestrian compliance with various personal characteristics like age, gender, and educational level and event features like the time of the event and the placement of signs. Additional analysis ranked the effectiveness of safety measures, leading to recommendations for readily implementable countermeasures to improve safety at the studied intersections.

Project Benefits

Large-scale studies of this type can provide significant insight into the behavior of drivers and pedestrians as well as the effectiveness of safety treatments. The result is safer intersections and a reduction in injuries.

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



Pedestrian safety relies on driver and pedestrian alertness and compliance with safety features.