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Determining Sample Measures of Distracted Driving, Distracted Pedestrian Activities and Impacts of Such Behavior on Traffic Operations at Signalized Intersections

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Current Situation

How much time is lost due to traveler distraction? Florida law prohibits texting while a vehicle is moving, but how much travel delay is caused by drivers looking at their phone while stopped at a traffic light or a pedestrian responding to a text message while traversing a crosswalk?

Beyond increased crash rates, these behaviors lead to travel delays, poor speed control, excessive lane variability, and lowered reaction times. However, they can be quantified in intersection analysis as part of a traffic measure called “lost time.”



Camera used to capture distracted driver images.

Research Objectives

This research aimed to determine the impacts of distraction types for both motorists and pedestrians on traffic operations. It also measured the effects of different distraction types on headway (distance between vehicles) for motorists as well as crossing time for pedestrians at signalized intersections.

Project Activities

The University of Central Florida research team collected thousands of observations from 21 approaches at 15 intersections in Central Florida, covering a variety of land uses, intersection configurations, and peak traffic periods. The team used high-resolution video cameras to record driver distractions across all lanes of traffic. They then developed custom video editing software to assist in detecting, quantifying, and documenting the level of driver distraction that may occur when a light signal switches from red to green. Two synchronized videos were recorded at each location to accurately measure if there was any delay in driver response.

Fifty percent of drivers were distracted at intersections in through movements, while 87 percent of drivers were distracted at intersections in left movements. Almost one-third of drivers were distracted by their cell phones for these movements, which increased headway by 20 percent and resulted in 16.5 percent reduced intersection capacity.

Project Conclusions and Benefits

This study gives lawmakers valuable information about allowing drivers to use cell phones when vehicles are stationary, like at intersections. Traffic engineers can also use these findings to design better intersection signal timing and traffic simulation models.

For more information, please see [fdot.gov/research](https://www.fdot.gov/research).