



Florida Department of Transportation Research Impact of Trucks on Arterial LOS and Freeway Work Zone Capacity BD545-51 (9/07)

Two situations that can slow highway traffic were the focus of a study by the University of Florida's Traffic Research Center: (1) the effect of large trucks on traffic flow through intersections and (2) traffic restrictions caused by lane closures.

For modeling and other planning purposes, traffic planners have traditionally estimated trucks, regardless of size, to be equal in length to two average, 15-foot-long passenger cars. They have also estimated that every truck takes 2 seconds longer than a car to start moving when traffic lights turn green. If these estimates are correct, then all trucks need more than twice as much time as cars to go through an intersection during the signal. FDOT wanted more accurate information on how trucks compare in size to cars in order to better calculate how much time traffic needs to pass through intersections.

Through observation and computer simulation, researchers found that small, medium, and large trucks are equivalent in length to 1.8,



2.2, and 2.8 passenger cars, respectively. The average was 2.3 car lengths per truck. Based on these figures, the researchers developed a more accurate equation for calculating the time cars and trucks take to move through light signals.



Researchers also developed a new method to calculate the impact to traffic when lanes on high-speed roads, like interstate highways, are closed for repairs. They used a traffic simulation computer program to create models for three types of lane closures (2 lanes reduced to 1 lane, 3 lanes to 2, and 3 lanes to 1). The models can be used to estimate how much traffic would be able to pass through the different types of lane closures, and how long traffic might be delayed.

Vehicle traffic in Florida, especially commercial trucks, is expected to increase rapidly during the next several years. These new methods for calculating traffic flow should make the transportation of passengers and freight throughout Florida more efficient.

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