

Florida Department of Transportation Research

Comprehensive Study to Reduce Pedestrian Crashes in Florida

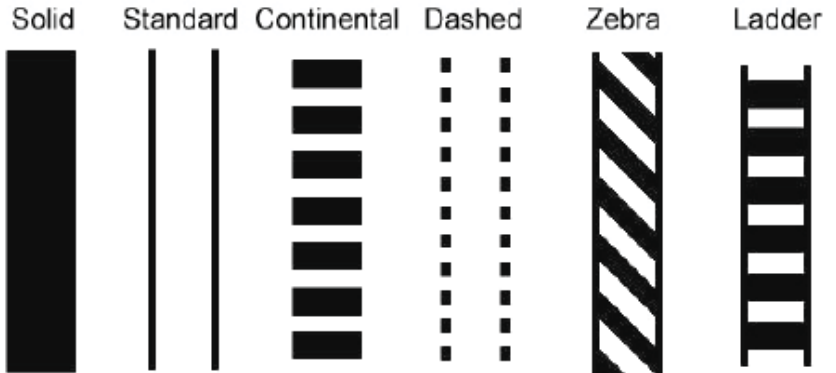
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Pedestrian crashes are a major safety concern in Florida, with about one in every five traffic fatalities involving a pedestrian. Recently, researchers at Florida International University studied ways to improve pedestrian safety on Florida state roads.

Researchers analyzed 6,434 pedestrian crashes which occurred between 2008 and 2010; 663 of them resulted in pedestrian fatalities. They reviewed police reports to obtain crash details, identified different types of crosswalks at intersections, and analyzed crash patterns as they relate to pedestrian, vehicle, traffic control roadway, and environmental characteristics. They also identified factors contributing to pedestrian injury severity and analyzed pedestrian high crash locations to identify location-specific crash causes and countermeasures.

Researchers developed a mixed logit model that included variables such as pedestrian age, speed limit, lighting, crosswalk type, vehicle type, hour of crash, at-fault road user, crash location, and weather condition. Researchers found that of the different age groups, the young pedestrian group (age 16-25) experienced the highest number of pedestrian crashes per million and also the highest pedestrian crash rate per million walk trips per year. Older pedestrians were found to experience a slightly higher number of fatal crashes per million walk trips per year. Although a majority of crashes occurred during daytime, daytime crashes resulted in a smaller proportion of fatalities.

Overall, researchers found pedestrians to be at fault in over 53 percent of the crashes and drivers were at fault in 28 percent of the crashes. They also found that crashes where the pedestrian was at fault tended to be more severe. Researchers found that cloudy weather was associated with a higher probability of major injuries. They also found that pedestrian crashes at signalized inter-



Crosswalk marking types

sections resulted in fewer major injuries; standard crosswalk type reduced pedestrian injuries; faster roadway speeds increased the probability of major and minor injuries to pedestrians, and major pedestrian injuries were more common in the morning peak periods.

The majority of the crashes occurred on urban principal arterials; however, fatal crashes were disproportionately high in rural areas. At a 5% significance level, researchers found there was no significant difference in the proportion of fatal crashes across different crosswalk types including standard, continental, ladder, and solid with special surface.

Researchers found that pedestrian crashes involving turning traffic could be prevented by eliminating the potential vehicle-pedestrian conflicts such as prohibiting right turns on red or providing a leading pedestrian interval that gives pedestrians a head start. They also found that increased lighting and increasing curb extensions would help prevent crashes in bus areas. In areas where pedestrians are expected to cross multi-lane roads with high travel speeds, researchers found that curb ramps would make crossing easier for all pedestrians. They also recommend lighting along corridors, requiring pedestrians to cross at designated crossings, installing traffic calming devices, and that sidewalks, or at a minimum, paved shoulders, be provided on both sides of the road.

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For more information, visit <http://www.dot.state.fl.us/research-center>.