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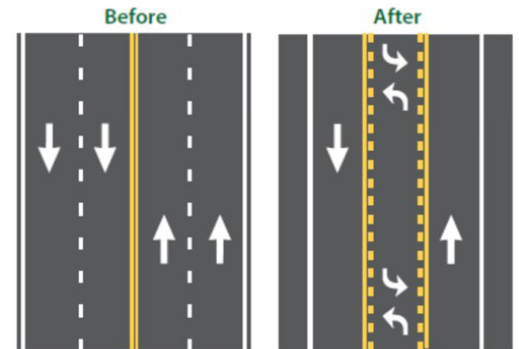
Florida Department of Transportation Research

Improving Multimodal Traffic Safety for Multi-Lane Arterials

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Current Situation

As Florida's suburbs continue to boom, so does the potential chance of vulnerable road users taking a direct hit. Although only 24% of Florida's roadway system is classified as suburban commercial, 50% of all fatal bicycle and pedestrian crashes occur on these roadways. Because they are highly exposed, vulnerable road users – specifically, pedestrians, bicyclists, and transit users – are at greater risk than drivers of being seriously injured or killed while traveling on multi-lane arterials, a characteristic roadway type of suburban commercial areas. Particularly, speed plays a role in these types of crashes.



A road diet is a countermeasure that removes travel lanes and utilizes the space for other uses and travel modes. (Federal Highway Administration, 2014)

Research Objectives

This project sought to identify factors that impact crashes involving vulnerable road users and evaluate countermeasures that are most effective at managing speed on multi-lane arterials.

Project Activities

Researchers from the University of Central Florida collected traffic data; vulnerable road users' exposure data; crash data; and signal data from multiple sources, including surveillance camera videos, automated traffic signal performance, and crowdsourcing, among others. The team then developed statistical and machine learning models to estimate the number of exposure points for both pedestrians and bicyclists.

Next, they combined the exposure points data with other parameters to develop Safety Performance Functions for speeding-related crashes, vulnerable road users' crashes at intersections, and bike crashes along the roadway segments.

Using the aforementioned data, the team then identified countermeasures that could manage speed on multi-lane arterials.

Project Conclusions and Benefits

The result of this project was an exhaustive list of speed management countermeasures that can have significant effects on operating speed and speeding behavior. When implemented, multimodal access could be improved, resulting in a reduced level of traffic stress.

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