



Strategies to Mitigate Wrong-Way Driving Incidents on Arterials

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Current Situation

Vehicles traveling against the direction of travel pose a very high risk of collisions which are likely to be more severe than other types of crashes. Most studies of wrong-way driving (WWD) have focused on freeways, where WWD often results in higher fatalities, multiple vehicle collisions, and significant slowdowns on major thoroughfares. Similar incidents occur more frequently on arterials roads with their intersections, turn lanes, etc. However, these incidents – and how to prevent them – have received less study attention. The subject is more complicated on arterials with their many access points and points at which a wrong decision can result in a WWD incident.

Research Objectives

Florida International University researchers identified strategies to reduce WWD incidents on arterials in Florida by developing a scenario-based WWD crash mitigation approach to help determine which arterial corridors are prone to WWD incidents.

Project Activities

The researchers summarized existing studies of WWD on arterials and WWD countermeasures. They also examined the role of public outreach in reducing WWD incidents. The researchers surveyed safety practitioners across the state to discover if public education about WWD was being conducted, if respondents thought it would be helpful, and what format might be the most effective.

The researchers then examined the statistics of WWD incidents on arterials in Florida. Police reports of all such crashes were obtained for 2012-2016. The reports were reviewed in detail, and elements related to the crash, such as lighting conditions, speed, driver age, and impairment, etc., were compiled. For each crash, roadway characteristics were identified. This analysis provided an overview of WWD incidents on arterials. For example, over half of WWD incidents occurred at intersections, and over half occurred during dark hours.

Spatial clustering analysis of crash locations was used to identify WWD arterial hotspots. Generally, the highest densities of WWD incidents were in the heaviest traffic locations: Tampa-St. Pete, Southeast Florida, Jacksonville, and Orlando. The researchers developed a methodology to identify more specific hotspots. For each FDOT district, they identified the top 10 WWD arterial crash hotspots. Hotspots were sites of up to 70 WWD crashes in the five-year study period.

The researchers examined the hotspots for trends and identified specific roadway geometric and demographic factors that contributed to WWD crashes to begin to address possible countermeasures. Based on these analyses, the researchers made recommendations for countermeasures as well as public outreach efforts.

Project Benefits

A streamlined process to mitigate WWD incidents on arterial streets can lead to effective countermeasures and safer roads.

For more information, please see dot.state.fl.us/research-center.



Despite a lane divider and delineator, drivers can misjudge a left turn on an arterial, resulting in wrong-way driving.