



Florida Department of Transportation Research

Evaluation of Shared Lane Markings in Miami Beach, Florida

BDM10 977-01

On urban streets, bicyclists must often ride in the narrow gap between traffic and parked cars, where they may become victims of a “dooring” crash, in which the door of a parked car opens suddenly into the bicyclist’s path. The bicyclist can be injured by striking the door and being thrown from the bicycle or by swerving into traffic to avoid the open car door.

Between 2000 and 2009, 52 such incidents were reported along a busy, one-mile stretch of Washington Avenue in Miami, Florida. To test a proposed solution to this problem, the City of Miami Beach sought to conduct a pilot study on Washington Avenue of shared lane markings. Specifically, bike-and-chevron markings were placed in the center of the outside lane to encourage bicyclists to take over the lane. A variety of campaigns informed the public about the shared bike lanes, including flyers distributed door-to-door along the corridor, articles in local magazines and on the city Web site, an electronic newsletter, social media, and others.

Researchers from the University of North Carolina, Chapel Hill, were contracted to study the behavior of drivers and bicyclists along the selected stretch of Washington Avenue, both before and after the shared-lane marking. Data consisted of video footage of bicycles and motor vehicles traveling along Washington Avenue, both northbound and southbound, at various times on dry days, and on both weekdays and weekends. Spacing between parked cars or curbs and bicyclists was measured from video stills. Types of bicycle/vehicle maneuvers and approximate age and gender of cyclists were also noted. A comparable site was sought for comparison, but none was found that matched the Washington Avenue site closely enough. Subtle differences in traffic flow, geometry, road quality, etc. can significantly influence outcomes related to bicyclists.

Shared-lane markings affected bicyclists’ and motorists’ behaviors. Researchers noted changes



In this pilot study, the bike-and-chevron marking was placed in the center of the outside lane to encourage bicyclists to take over the lane.

in many categories; a sampling follows. Before marking, about 10 percent of bicyclists rode near the center of the lane, but after marking, this increased to nearly 30 percent. Women were more likely than men to ride near the center of the lane both before and after marking. There was also a slight increase in the number of cyclists riding in the narrow space between traffic and parked cars. Marking decreased bicyclists’ use of empty parking spaces. Women used empty parking spaces less often than men, both before and after marking. Potential dooring incidents were reduced, first, by bicyclists riding further from parked cars – outside the “door zone” – and second, because the number of open parked vehicle doors was reduced by half. Bicyclists yielded to motorists much less after marking than before.

Overall, the study demonstrated definite safety effects associated with placement of the shared-lane markings. Most significant was the increase in the percentage of bicyclists riding near the center of the lane. The increased number of bicyclists weaving between parked cars and traffic is a concern and may indicate a need for continuing public education. Nevertheless, shared-lane marking appears to be a way to create a safer and more orderly travel zone for both bicyclists and motorists in this urban setting.

Project Manager: Trenda McPherson, FDOT Safety Office
Principal Investigator: William Hunter, University of North Carolina - Chapel Hill
For more information, visit <http://www.dot.state.fl.us/research-center>