



Florida Department of Transportation Research

Operational and Safety Impacts of Restriping Inside Lanes of Urban Multilane Curbed Roadways to 11 Feet or Less to Create Wider Outside Curb Lanes for Bicyclists

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Bicycling is an integral part of a sustainable transportation system. It is energy efficient, cost effective, and environmentally friendly. Dedicated bike lanes provide the ideal conditions for both motorists and bicyclists. However, it is not always possible to designate dedicated bike lanes due to limited right of way. FDOT specifications allow lane widths on multilane roads to be adjusted so that the inside lane ranges between 11 and 12 feet and the outside lane ranges between 13 and 14 feet. Creating a wider outside lane provides room for bicyclists and motorists to share the lane.

Under contract with FDOT, researchers at the University of North Florida recently studied the influence of several site characteristics on the operational behavior of motorists when passing bicyclists riding in wide curb lanes. Roadway test segments in 10 Florida cities were selected for the study. Data was collected during high traffic volume morning and evening hours. At each location, cyclists rode along the segment while researchers videotaped their paths and interactions. Researchers strategically located video cameras to avoid influencing driver behavior.

Researchers found that the wider the lane width, the wider the distance between vehicles and bicyclists. They found that passenger cars drive closer to bicyclists than other vehicle types, and pickup trucks and SUVs encroach more on bicyclists' space than passenger cars. The amount of encroachment increases in restricted lane changing and high traffic level conditions, and with a decrease in the width of the curb lane. Also, researchers observed that the further out into the road a bicyclist rides, the less space they receive from passing vehicles.

Researchers found that when there are gaps in traffic in the adjacent lane, there is a tendency



A bicyclist rides in a wide outside curb lane while a researcher standing in front of a utility pole observes motorists' behavior.

of motorists to move from the curb lane to the inside lane after recognizing there is a bicyclist downstream. They found that motorists give more space to female bicyclists than male bicyclists. Also, they observed that motorists tend to reduce their speeds when passing bicyclists and accelerate after passing.

Researchers concluded that the distance between vehicles and bicyclists is influenced greatly by the width of the outside curb lane. They determined that outside lane widths less than 13.5 feet could result in a significant decrease in the safe distance between motorists and bicyclists.

Researchers recommend additional research to collect data from other areas of Florida and out of state, and adding more site characteristics, such as land use, bicycle speed, driver population type, and age of bicyclist, to better understand motorist behavior.