

How bike lane markings shape motorist expectations of cyclist placement at intersections

Mary Still and Jeremiah Still

Keywords: Bicycle safety, Driver behavior, Bike lane markings

Intersections are dangerous areas for cyclists. Most accidents at intersections involve motor vehicles, which increases the odds of serious injury for cyclists. Unfortunately, only a few studies formally investigate the differences in bicycle-specific intersection. We examined how motorists interpret bike lane markings at a four-way intersection. Specifically, a traditional bike lane was compared to a novel merge bike lane. Motorists' interpretation of the bike lane was indexed by asking them to indicate where they would stop their bike to wait for the light to change. They were also asked to rate how difficult it was to make the position judgment and their associated feeling of safety at that position. The results indicate a strong tendency to position cyclists on the right side of the road at the intersection. However, if a merge lane treatment was present, they were more likely to integrate the cyclist into traffic. An examination of individual participant responses suggested some motorists adopt simple heuristics to determine bicycle position, such as always stay right or always stay in the bike lane. Others adopted more complex strategies such as using the bicycle lane or taking the lane unless traffic was present. Motorists rated the merge bike lane scenarios as being less safe and as being more difficult to select compared to a traditional bike lane. Overall, it appears motorists understand the merge bike lane treatment but felt "taking the lane" was worrisome.