

Yielding behaviour at bicycle crossings at roundabouts with separate bicycle paths

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ABSTRACT

Converting intersections to roundabouts has been shown to reduce the number and the severity of crashes in general (Elvik et al., 2009). However, the effects on cyclists' safety are found to be less favourable (Schoon & Van Minnen, 1994) or even negative (Daniels et al., 2009, 2011).

The presence of separate cycle paths appears to have a positive effect on bicycle safety at roundabouts (Daniels et al., 2011). However, research is inconclusive about whether a design with priority for bicyclists or a design without priority for bicyclists should be preferred (Daniels et al., 2009). The way road users interact with each other is highly determining for bicycle safety in this respect. Yielding behaviour in bicyclist – motor vehicle interaction is very complex and depends only to some extent on the actual yielding rules (Sakshaug et al., 2010). Therefore, this study analyses the interactions between bicyclists and motor vehicles at both types of roundabouts.

Detailed information about 143 bicyclist – motor vehicle interactions were collected at six roundabouts in Flanders – Belgium (three). The data collection consisted amongst others about the approaching and yielding of the road users, looking behaviour, gender and age, use of helmet and direction indicator.

Some results are:

- The difference between both types of roundabouts regarding who of the road users goes first is relatively small; at both types of roundabouts, the bicycle goes first in the majority of interactions (with priority: 78%, without priority: 65%).
- Who arrived first at the conflict point was also highly determining for who goes first. This indicates that the yielding behaviour is partly a matter of 'first come, first served'.
- In 81% of the cases, both road users look in each other's direction, but on an individual level the number of times the bicyclist was looking (97%) was markedly higher than the motor vehicle driver (84%)

Keywords: roundabouts, bicycle crossings, yielding behaviour, interaction

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