

Apartheid or anarchy –roundabouts as a case of different segregation strategies, and their effects on perceived and real safety in Norway, Sweden and Denmark

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ABSTRACT

Cyclists tend to express a preference for separated infrastructure rather than sharing the road with cars. However, segregation as a principle is known to be associated with a higher risk of accidents whenever road user groups are forced to meet, at intersections. Norway, Denmark and Sweden have adopted different principles for planning of cyclist infrastructure, with var-ying degrees of traffic separation. In the current study, video observations and survey data are used to compare cyclists' and car drivers' interaction and experiences at roundabouts in Norway (no segregation), Denmark (in-termediate segregation) and Sweden (high segregation). Safety is measured using a surrogate measure, the Swedish traffic conflict methodology. The results confirm that cyclists tend to prefer solutions with high degrees of separation. How-ever, the conflict levels do not correspond to perceived safety. The Danish solutions (a marked cycle path in the roundabouts) give more conflicts than the typical Norwegian solution mixing traffic.

keywords: Roundabouts, video-analysis, traffic segregation, psychology

Yielding behavior at cyclist crossing facilities on channelized right-turn lanes

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ABSTRACT

Channelized right-turn lanes are a means of improving traffic flow efficiency, enabling right-turning drivers to bypass the traffic lights at signalized intersections (for right-hand drive countries). In many cases, crossing facilities for pedestrians and cyclists are constructed on these right-turn lanes. Previous studies examining the safety performance of channelized right-turn lanes indicated that overall safety levels increase, but hint that certain issues with regard to vulnerable road users exist. This study investigated these safety issues by observations of yielding behavior and the effect of the priority ruling on cyclists' safety at two channelized right-turn lane designs. Four locations were selected: two where the priority ruling favored the cyclists and two where motorists were in priority. The four locations were videotaped unobtrusively during one week. With regard to yielding, four types of crossing behavior were identified and defined. The video data show that, independent of the priority ruling, cyclists cross first in most of the interactions using a defensive crossing style. A model was developed indicating that being a pedal cyclist instead of a moped rider and arriving from the left at the cyclist crossing facility increases the probability of the vulnerable road user to cross first. Slowing down behavior of either road user decreases his/her probability to cross first. A safety evaluation was executed, using two conflict indicators (TTCmin and the TA-value). High correlations between the two indicators were found ($r^2 > 0.83$), but no conclusions about the safest form of priority ruling for cyclists could be drawn. The results hinted however that motorist priority and crossing from right to left (from the drivers point of view) yielded the most safety critical events.

keywords: Behavioral observation, Cyclist crossings, Yielding behavior