

Cyclist behaviour in signalized intersections

The Danish Road Directorate has chosen to investigate how cyclists behave in signalized intersections. Cyclist behaviour has been assessed in relation to violations of selected parts of the Danish Road Traffic Act.

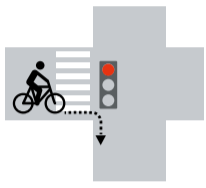



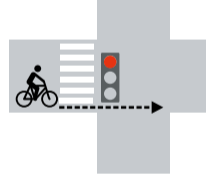
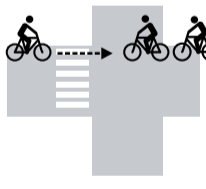

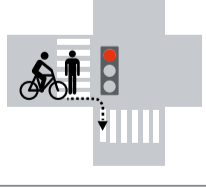
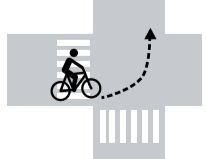


Almost 5% violate the Danish Road Traffic Act

Out of 28,579 cyclists observed, 4.9% (1,404 cyclists) committed one or more of the selected traffic law violations. 1,649 violations were recorded.

The most frequent violation was cyclists turning right on red without inconvenience to other road users.

The violations are thus divided into 9 selected types of behaviour:

1. Right turn on red WITHOUT inconvenience to other road users	34,5 %	
2. Cycling on the pavement	16,9 %	
3. Cycling to the left in the pedestrian crossing	12,4 %	
4. Using handheld mobile phone while cycling	8,4 %	
5. Going straight across at red signal/crossing a red signal	8,1 %	
6. Cycling against the direction of traffic	7,9 %	
7. Cycling straight across in the pedestrian crossing	6,3 %	
8. Right turn on red WITH inconvenience to other road users	2,8 %	
9. Small left turn	2,7 %	

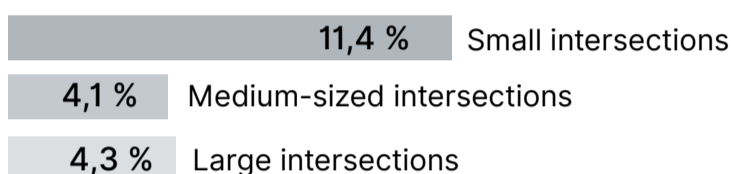
In larger cities, the proportion of cyclists violating the Danish Road Traffic Act is smaller

The proportion of recorded violations of the Danish Road Traffic Act among the observed cyclists decreases with the increasing size of the city. In signalized intersections with less traffic and more foreseeable traffic conditions, cyclists commit more violations.



For cyclists, the proportion violating the Danish Road Traffic Act is greater in the small intersections

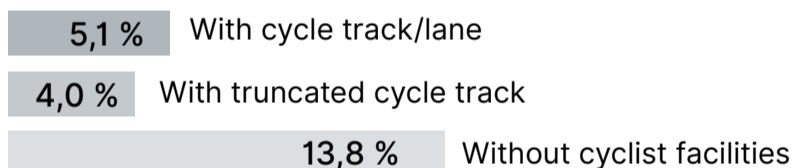
The proportion of cyclists committing Danish Road Traffic Act violations is greatest in the small signalized intersections. This suggests that the more straightforward the intersection design is, and the less traffic there is in the intersection, the greater the tendency for cyclists to violate the Danish Road Traffic Act.



Most violations in signalized intersections without cycle path or cycle track

The proportion of cyclists committing one or more of the observed violations of the Danish Road Traffic Act is greatest, when cyclists approach the intersection on a road segment without cyclist facilities. This is typical for small intersections with low traffic volumes.

The proportion of cyclists committing any of the 9 selected types of violations when approaching the intersection on road segments with the following cyclist facilities.



About the survey ("the fine print...")

The Danish Road Directorate, together with Ramboll, has carried out a study of cyclist behaviour in signalized intersections. The observations of cyclist behaviour include 9 situations, all of which represent a violation of the Danish Road Traffic Act. Eight of the situations are related to the cyclists' maneuver in the intersection, while the last situation concerns the use of a handheld mobile phone.

Registrations have been carried out on 48 road segments in 25 signalized intersections with counting carried out for 2-4 hours on each road segment distributed across peak hour/non-peak hour (except in cities <100,000 inhabitants). The intersections are selected in Copenhagen, Aarhus, Aalborg, Roskilde, Næstved, Randers, Herning and Vejle, i.e., cities with more than 100,000 inhabitants, and in cities with fewer than 100,000 inhabitants. In the intersection's road segments were selected which either have a cycle track/lane, a truncated cycle track or no cycle facilities.

The study provides a picture of the difference in the extent of traffic violations in relation to city size, intersection size, cyclist facilities, and rush hour/non-rush hour. The study can be read in its entirety in the publication "Cyclist behaviour in signalized intersections, 2019" (Danish) on the Danish Road Directorate's website.