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## **Evaluation of the safety effect of bike boxes**

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A big safety problem on roads with cycle paths is accidents where cars are turning right at signalised intersections and run down bicycle or moped going straight ahead. Throughout the years, a number of different physical designs of the cycle path in the intersection have been tested, but without finding a safe design.

In 2016 initiated the Danish Road Directorate a before / after trial in seven at signalised intersections that should clarify if a bike box in front of in the right-turn lanes stop line can prevent these accidents. Bike boxes are an additional waiting area for cyclists. A bike box is placed in front of the cars stop line in the right-turn lane and clearly marked with eg blue paint or with white bicycle symbol (see: [https://www.cyklistforbundet.dk/~ /media/Images/Aktuelt/Cykelboks%203\\_vejdirektoratet.ashx?w=700](https://www.cyklistforbundet.dk/~ /media/Images/Aktuelt/Cykelboks%203_vejdirektoratet.ashx?w=700))

The seven intersections are located in different city sizes and have different geometric design and traffic volume.

Aalborg University has conducted an evaluation of the trial for the Road Directorate. This extended abstract presents this evaluation.

The evaluation is made through a before-after study of the number of conflicts through Hydens conflict theory

The conflicts were found by video footage for a month before and after the bike boxes were made. After this potential conflict in the video footage were found using the image analysis software RUBA which identifies potential conflicts. Subsequently the potential conflict were analyzes and it was decided they were conflicts in accordance with the Swedish conflict technique.

Only the effect of accident types right-turning car in front of straight ahead cyclist and left-turning cars in front of straight ahead cyclist were studied.

In the seven intersections over 3600 hours of video were recorded before and after the establishment of the bike boxes, and in total 644 conflicts were identified.

When looking at right-turning car in front of straight ahead going cyclist, the number of conflicts has decreased overall by 9% during the 7 intersections, but the fall is far from statistically significant. Looking on the left-turning car in front of straight ahead going cyclists is the number of conflicts increased by 17%, but this result is also far from statistically significant.

Looking at the effects of the seven intersections individually, the results point in different directions, in some intersections the effect is positive and in other negative. The box has had a significant effect on right-turn accidents in three of the intersections, in two of the big cities the effect is positive, and in one of the minor cities the effect in negative. Why that's the case, the study can't say anything about.