

Is the cyclist still safe at the roundabout?

A comparative study using big data

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SOFTWARE



IMPLEMENTATION



INITIATIVES



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Traffic has changed a lot in recent years



Cyclist safety is under pressure*

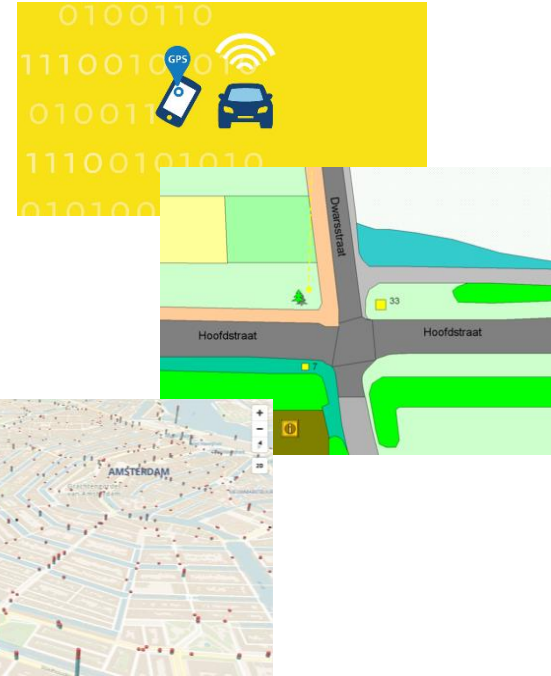
- 14% of all traffic accidents are with an (e)-bicycle
- 35% of all victims is an (e)-cyclist
- 57% of the (e)-bicycle accidents fall at an intersection versus 31% of all other accidents
- First half year of 2022 counts the highest number of (e)-bicycle casualties since 2014

Is the cyclist still safe at the intersection?

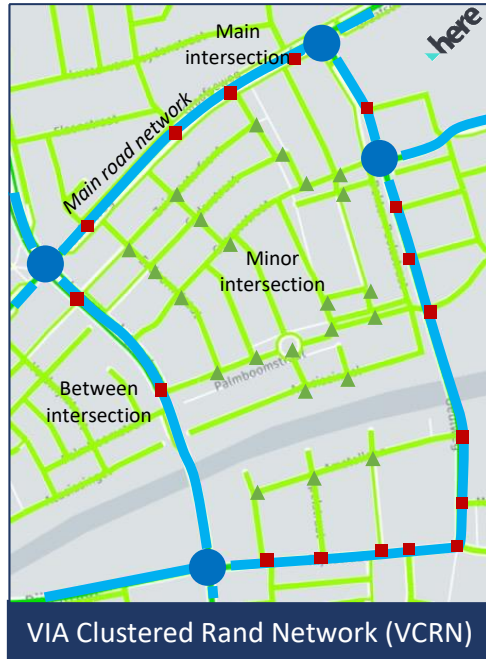


Comparative research with Big Data

- Floating Car Data (HERE)
 - Traffic flow, number of vehicle measurements
 - Split by driving direction
- GIS map (HERE)
 - Functional Road Class
 - Speed limit
 - Intersection types
- Accidents (STAR*)
 - Total number of accident victims
 - Victim of accidents with (e) bicycle

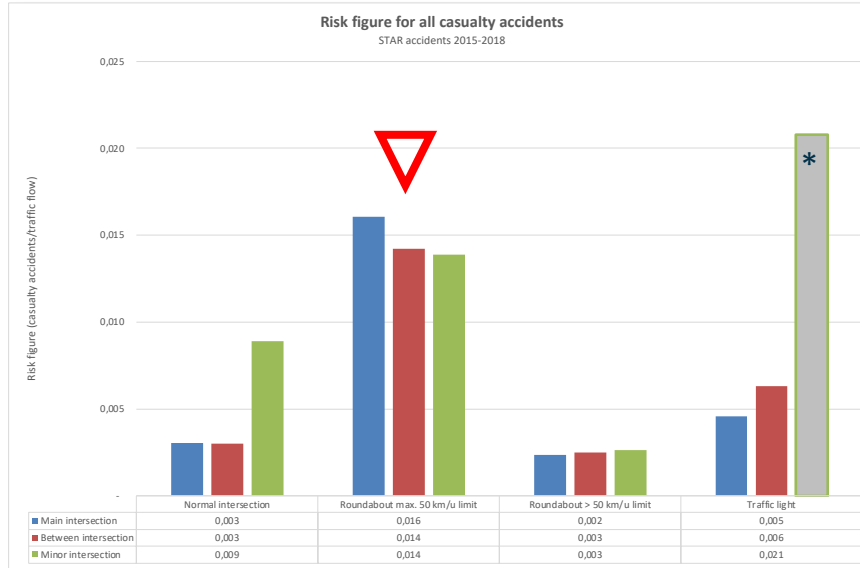


VCRN: algorithm to combine geographical data in clusters



All intersection in the Netherlands (N = 575.970)	Main intersection	Between intersection	Minor intersection
Normal intersection	12.541	94.027	457.912
Roundabout max. 50 km/u limit	1.736	1.170	610
Roundabout > 50 km/u limit	1.532	454	83
Traffic light	3.499	2.304	102

Risk figures various intersection types



 roundabouts with max. 50 km/h are with priority for cyclists as a guideline

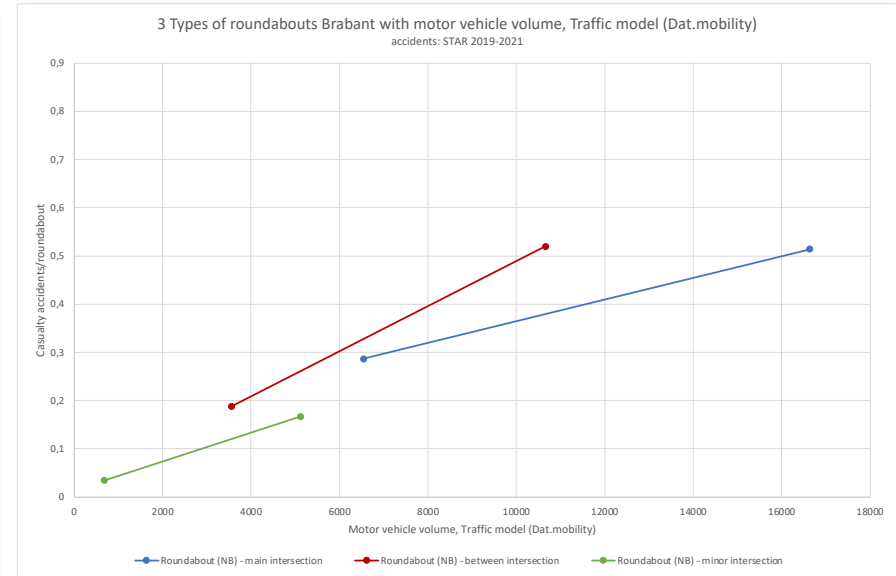
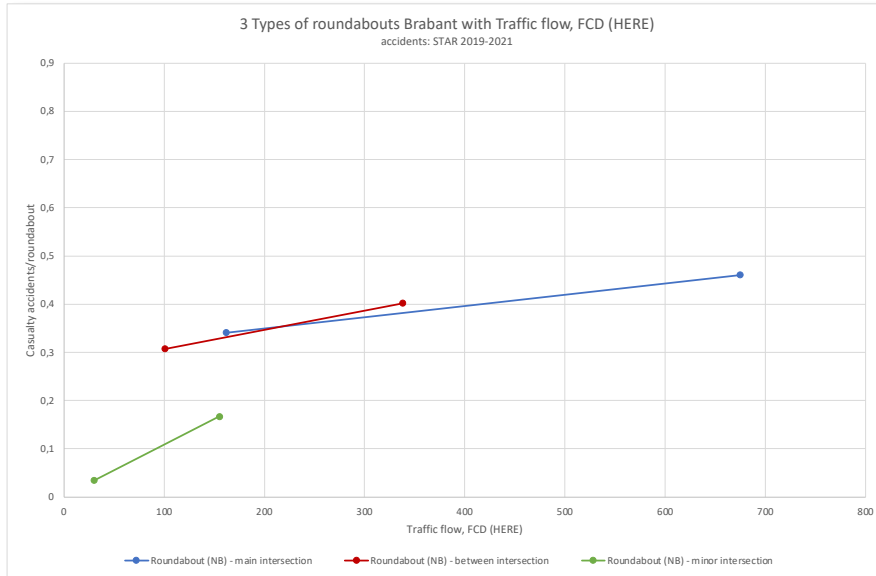
* Small number and not logical situation

Points to consider in research

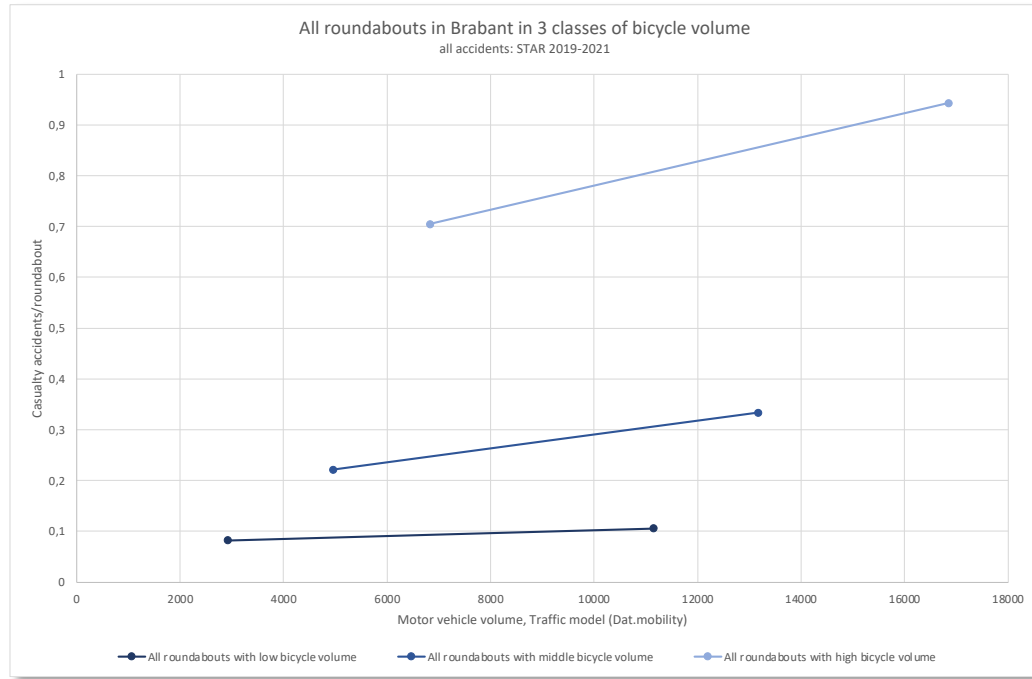
- Influence of errors in Big Data and automatic match?
 - Coverage of data match* >97.8%
 - Data errors in accidents and traffic flow occur in all situations
 - Errors in GIS data occur in relatively small numbers in comparison with the high total numbers
- Effect of 'FCD traffic flow' as traffic volume on a comparative study?
- Effect of cycling intensities on the safety of roundabouts?



Traffic flow (FCD) versus Traffic volume (model)



Effect of cycling intensities



Conclusions & recommendations

- Up-to-date Big Data are very useful, especially in times of rapid change
- VCRN and Big Data are suitable as
 - New signalling function for monitoring
 - Instrument to anticipate on events that make changes traffic
- It's time for a 'expiration date' on research results due to recent changes in traffic?
- The discussion about the safety of cyclists on roundabouts is important and must be conducted



Always a step ahead. **via.software**

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