

Vision Zero - what is it about?

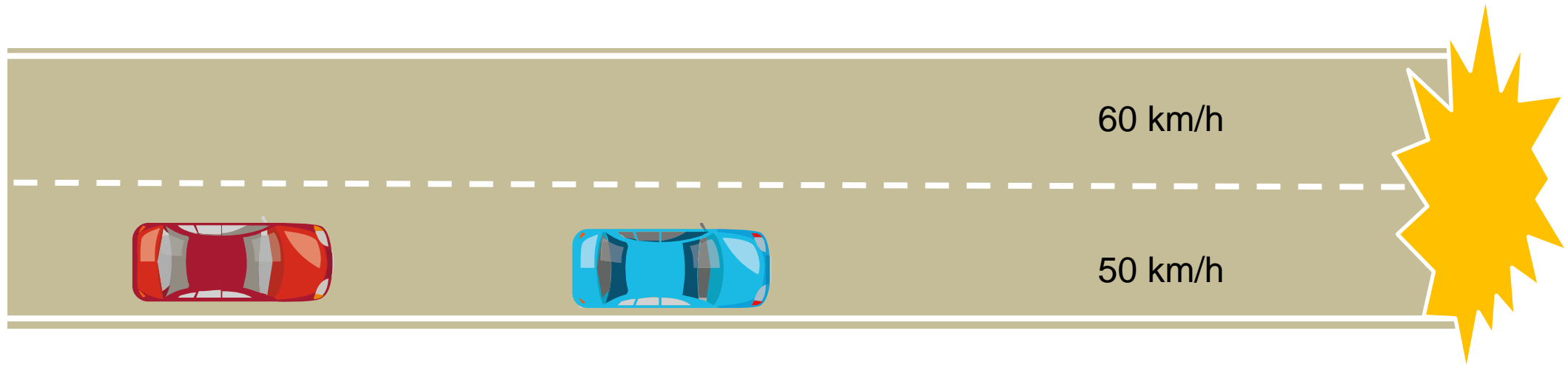


TRAFIKVERKET
SWEDISH TRANSPORT ADMINISTRATION

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What speed would the red car be at when the blue car has stopped?



Basic physics

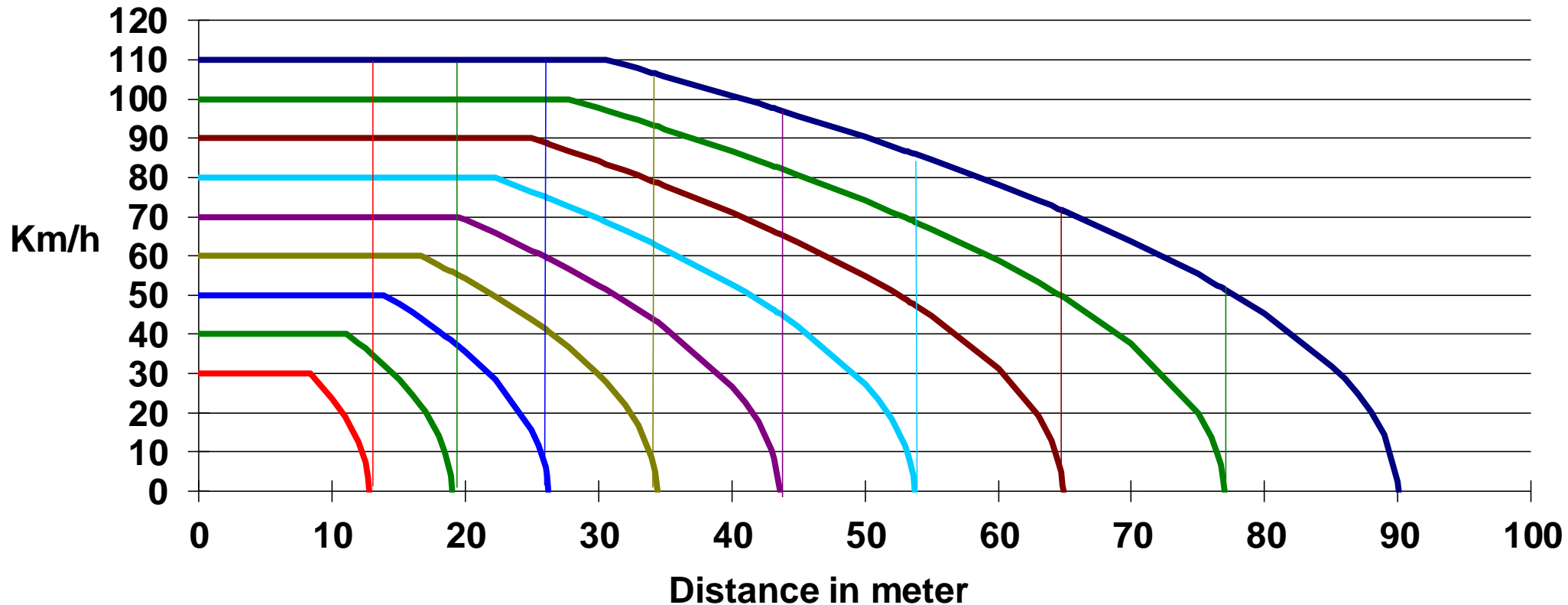
$$\text{Kinetic energy} = \frac{m \cdot v^2}{2}$$

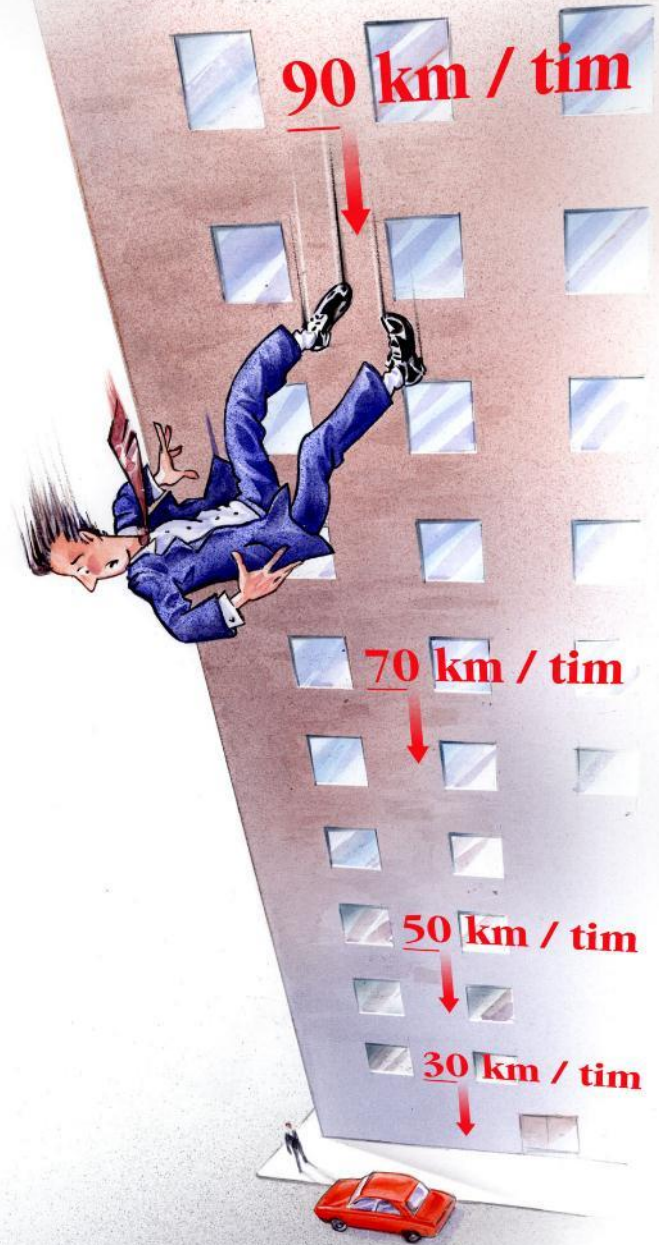
m = mass

v = velocity

Stopping distance and collision speed

Fast reaction time 1 second and hard breaking on dry asphalt (retardation 0,8 g)





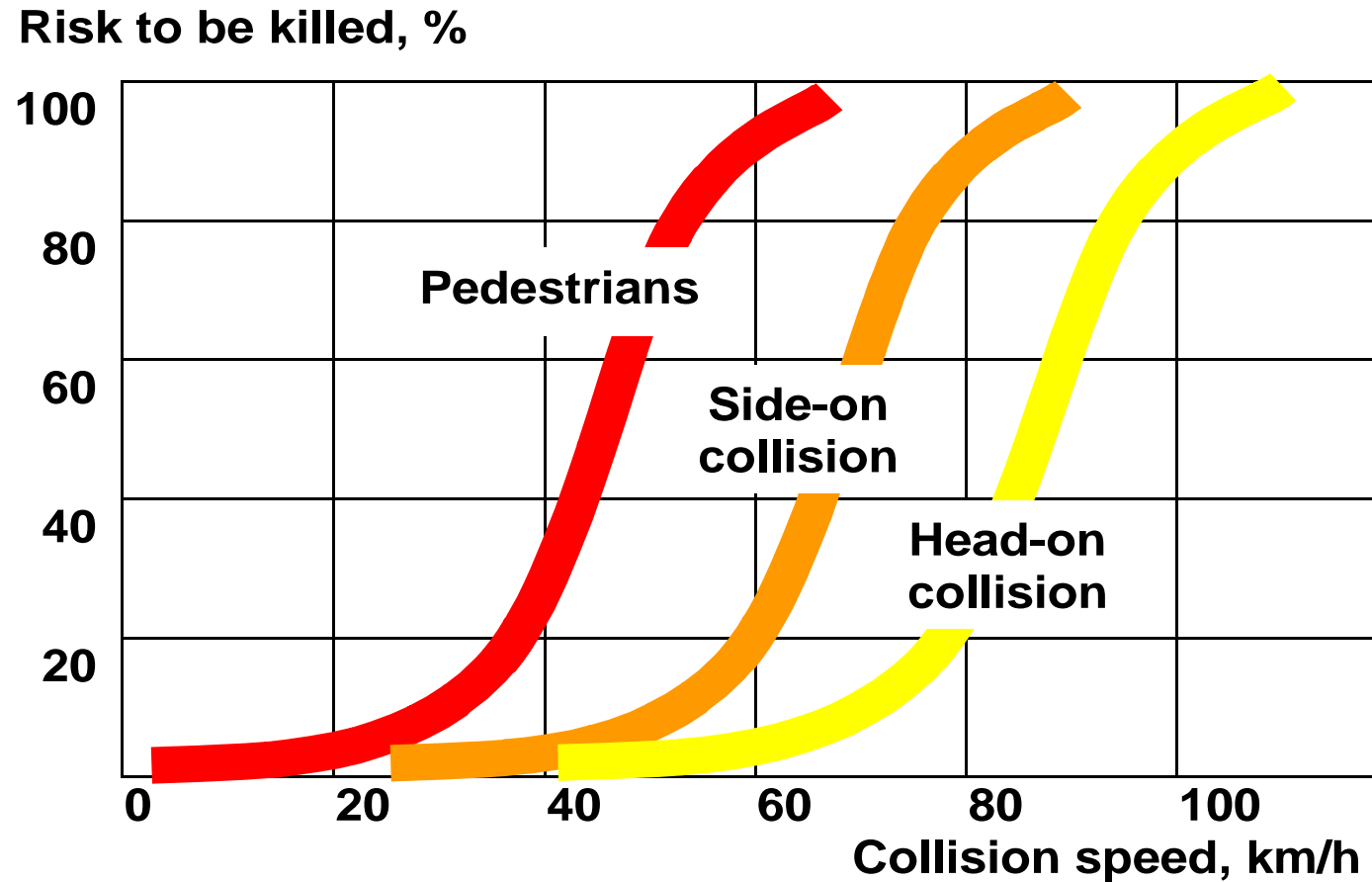
Usain Bolt – the fastest man on earth



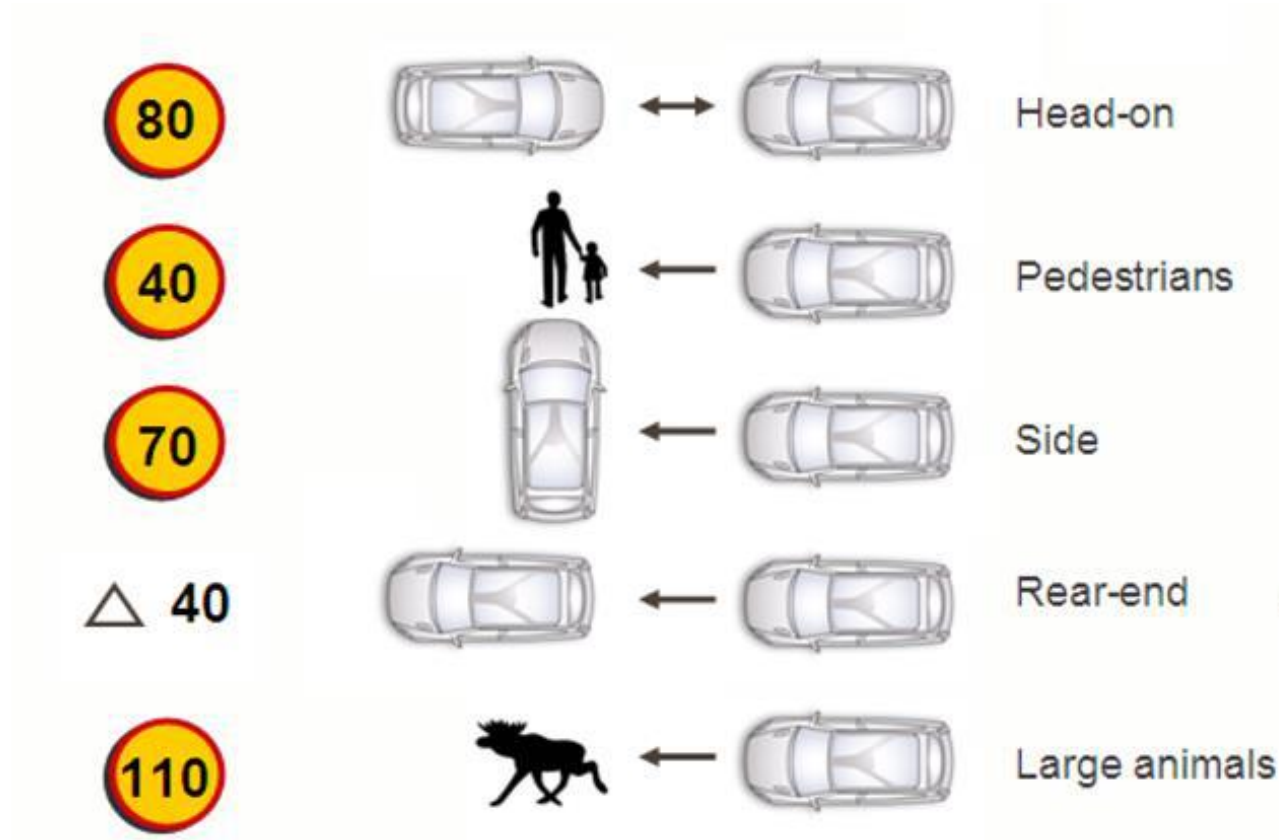
100 m: 9.58 sec

Mean speed: 38 km/h

Risk to be killed at different collision speeds



Vision Zero design speed for modern cars



Vision Zero

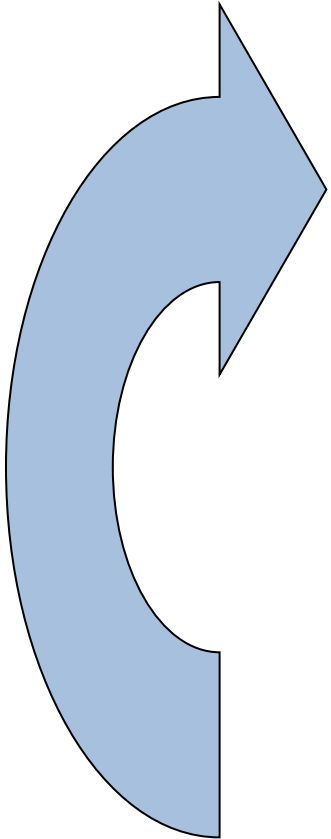
An ethical standpoint that no-one should be killed or suffer lifelong injury in road traffic.

Road users will always make errors.

The level of violence that the human body can tolerate without being killed or seriously injured shall be the basic parameter in the design of the road transport system.



Shared responsibility



System designers are responsible for the design, operation and the use of the road transport system and are thereby responsible for the level of safety within the entire system.

Road users are responsible for following the rules for using the road transport system set by the system designers.

If the users fail to comply with these rules due to a lack of knowledge, acceptance or ability, the system designers are required to take the necessary further steps to prevent people from being killed or injured.

Speed is energy – and energy is the key factor

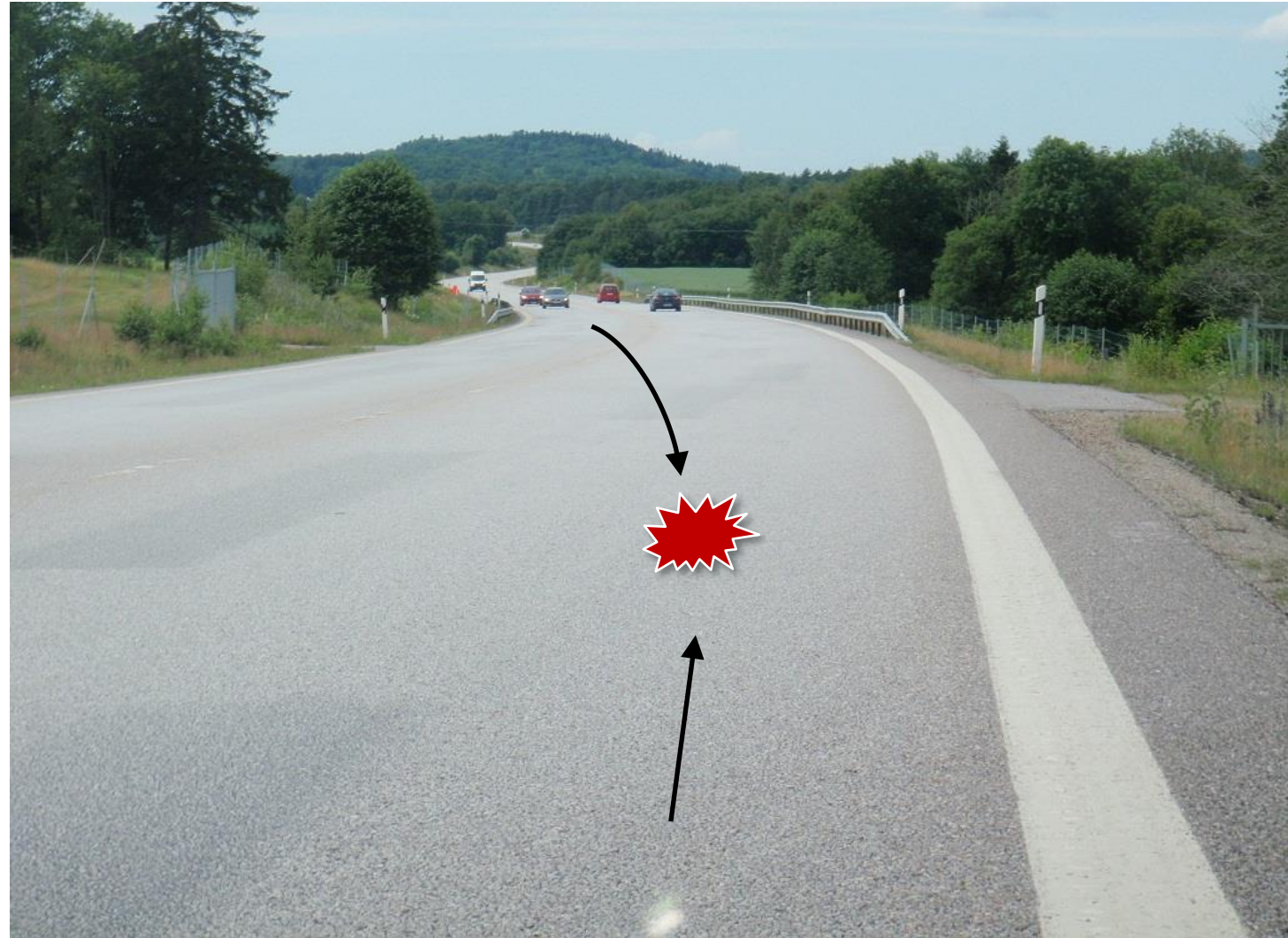
- **Vision Zero design speed** maximum speed to avoid serious injuries and fatalities
- **Posted speed** speed limit
- **Operation speed** actual driving speed

Vision Zero design speed = posted speed = operation speed ➡ SAFE SPEED

A tragic example

STA's in-depth studies of fatal crashes

- 90 km/h speed limit
- Road width 13 m
- AADT 5500 Annual
Average Daily Traffic
- Head-on collision between two passenger cars



Car nr 1, BMW 320 - model year 2007

5 stars EuroNCAP (2005)



Car nr 2, Volvo V70 - model year 2010

5 stars EuroNCAP (2007)



The posted speed limit is higher than the vision zero design speed



Intersections to roundabouts



A modern camera system



Example of a safe "hourglass" bus-stop



Safe bus-stop



Fence and speedbump



Typical speedbump in a residential area



Thank you for your attention!

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