Speed management in a new scenario

Astrid Linder, Adj Prof, PhD
Research Director, Traffic Safety

The Swedish National Road and Transport Research Institute

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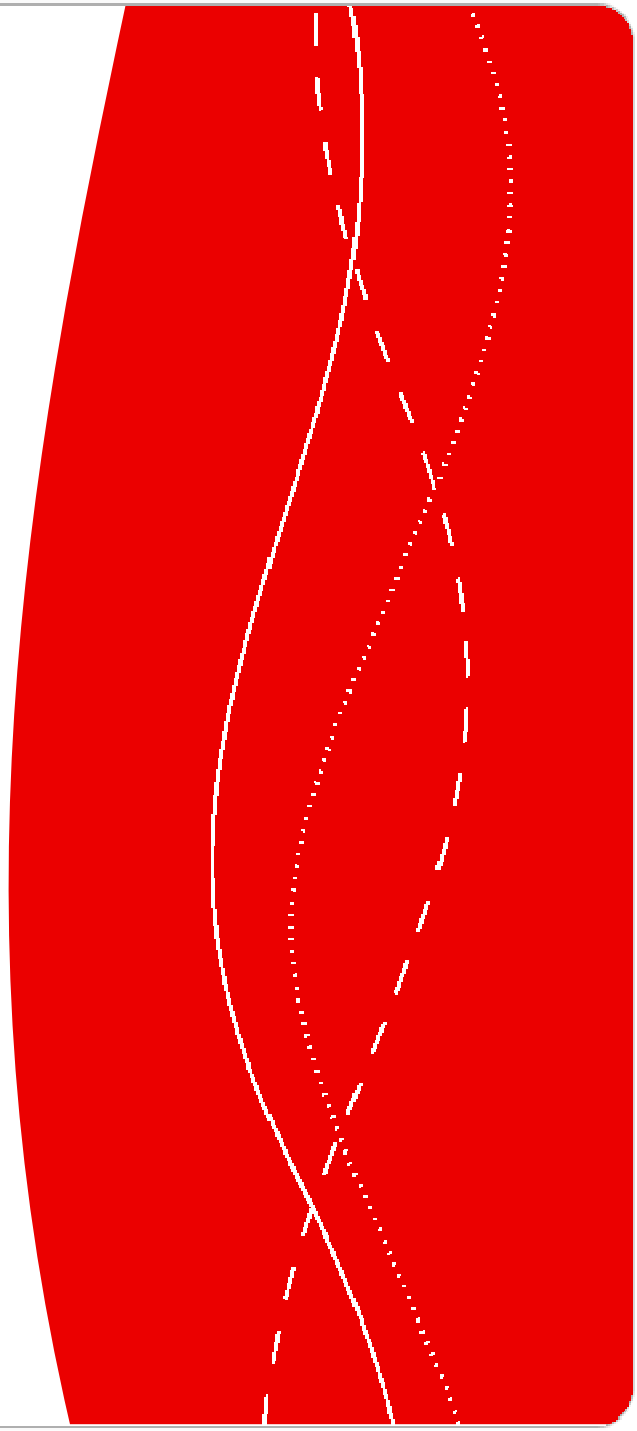
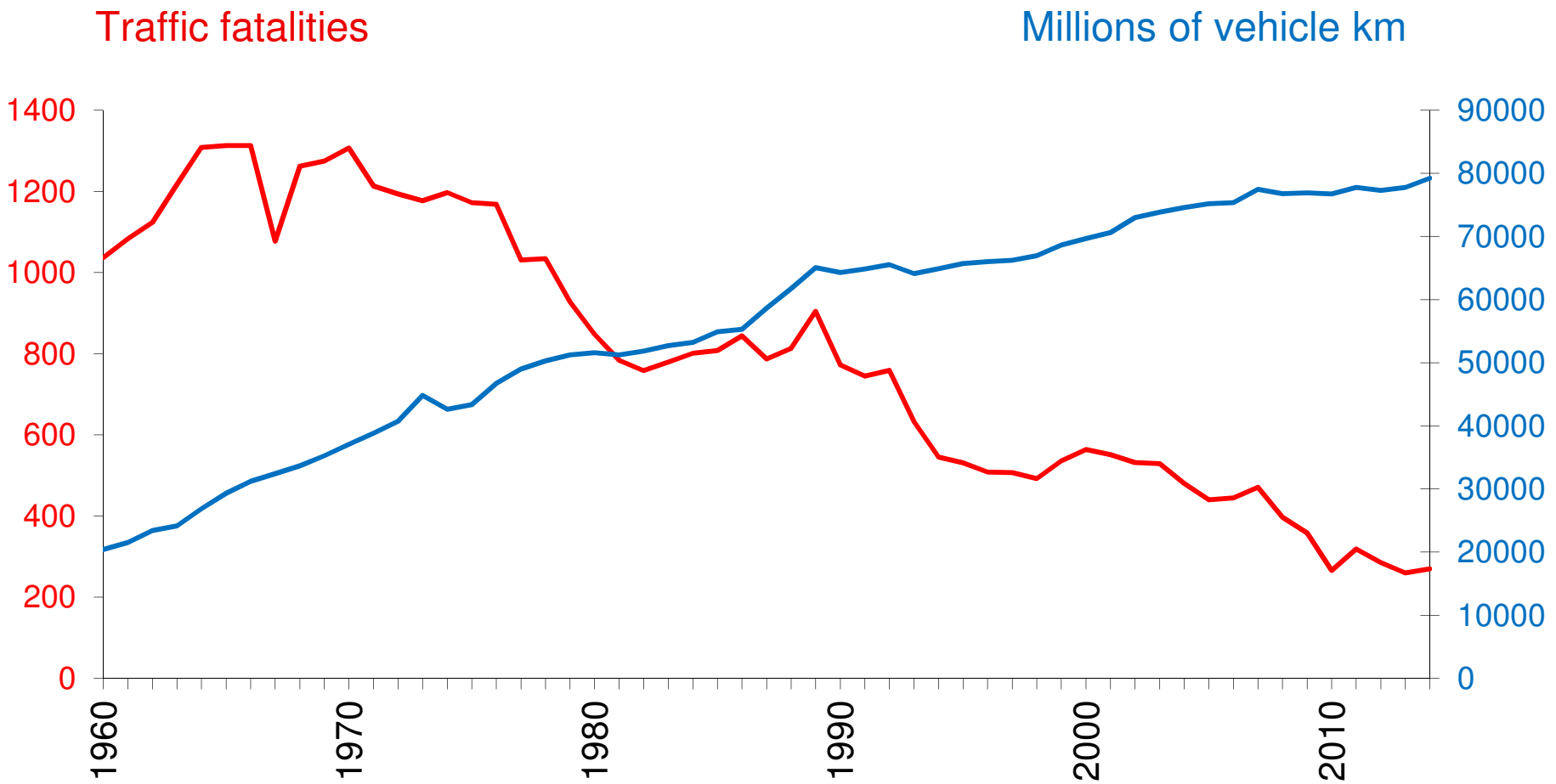


Content

- Vision Zero and consequences
- New speed limits
- Safety cameras

Traffic safety development In Sweden

Road mortality
(deaths/million pop.)
2015: 26



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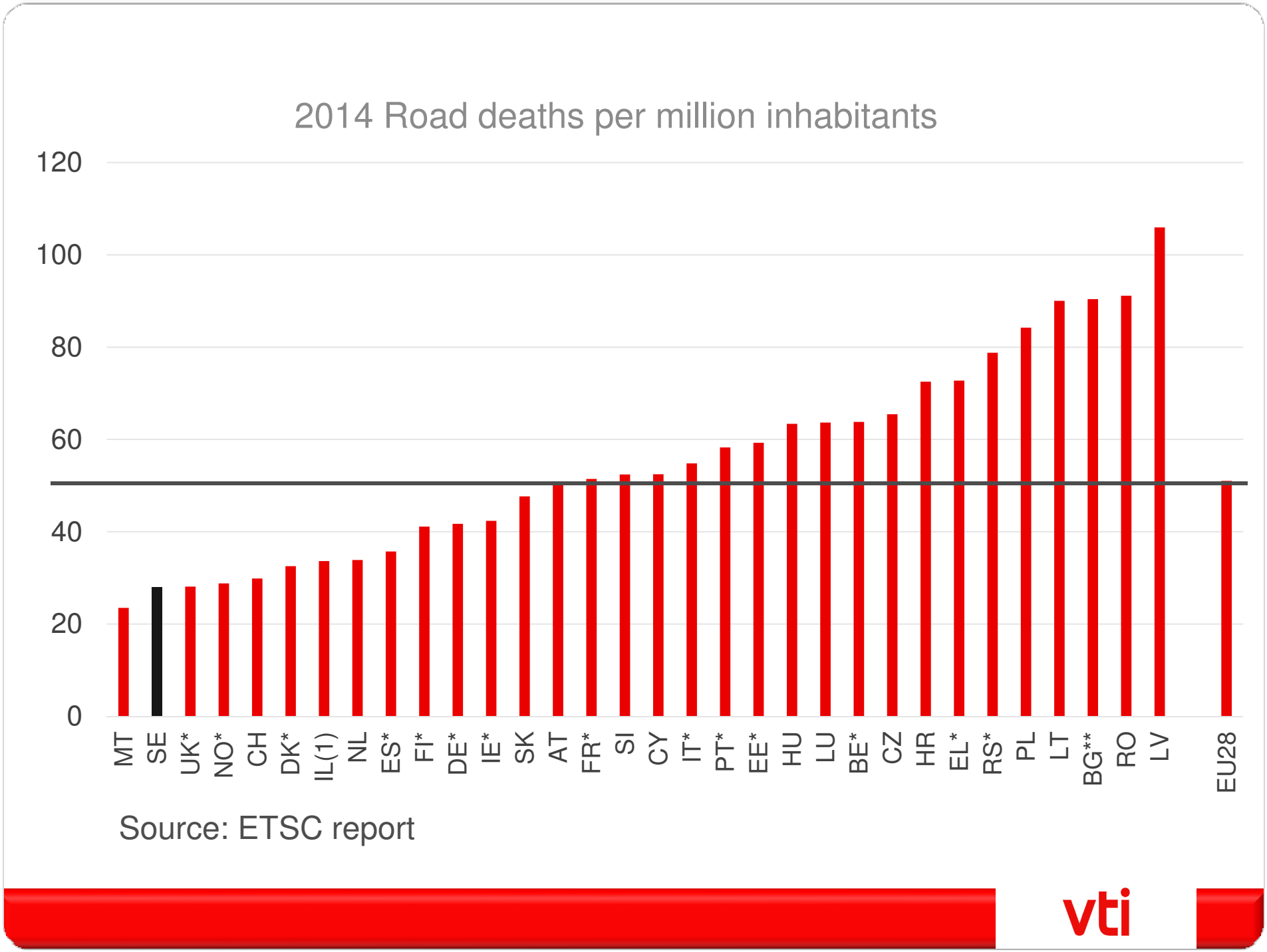
2014 Road deaths per million inhabitants
120
100
80
60
40
20
0
MT
SE
UK*
NO*
CH
DK*
IL(1)
NL
ES*
FI*
DE*
IE*
SK
AT
FR*
SI
CY
IT*
PT*
EE*
HU
LU
BE*
CZ
HR
EL*
RS*
PL
LT
BG**
RO
LV
EU28
Source: ETSC report
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Vision Zero

In 1997, Swedish government pledged:
That no one should die or be seriously injured in traffic due to common human error.

1. One vision for many stakeholders
2. Ethical platform (right to survive)
3. Shared accountability
4. Safety philosophy (failing human)
5. Driving force for change

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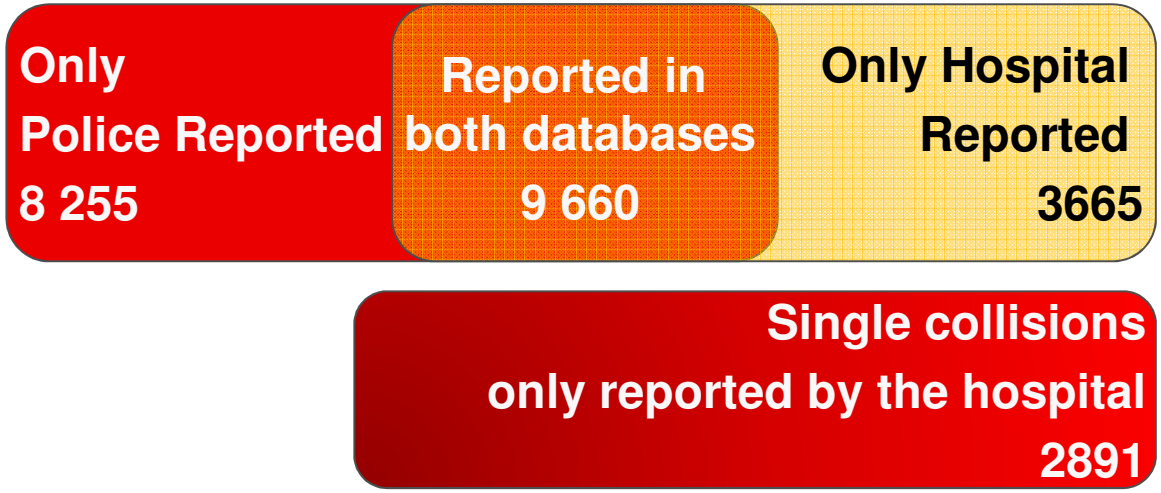
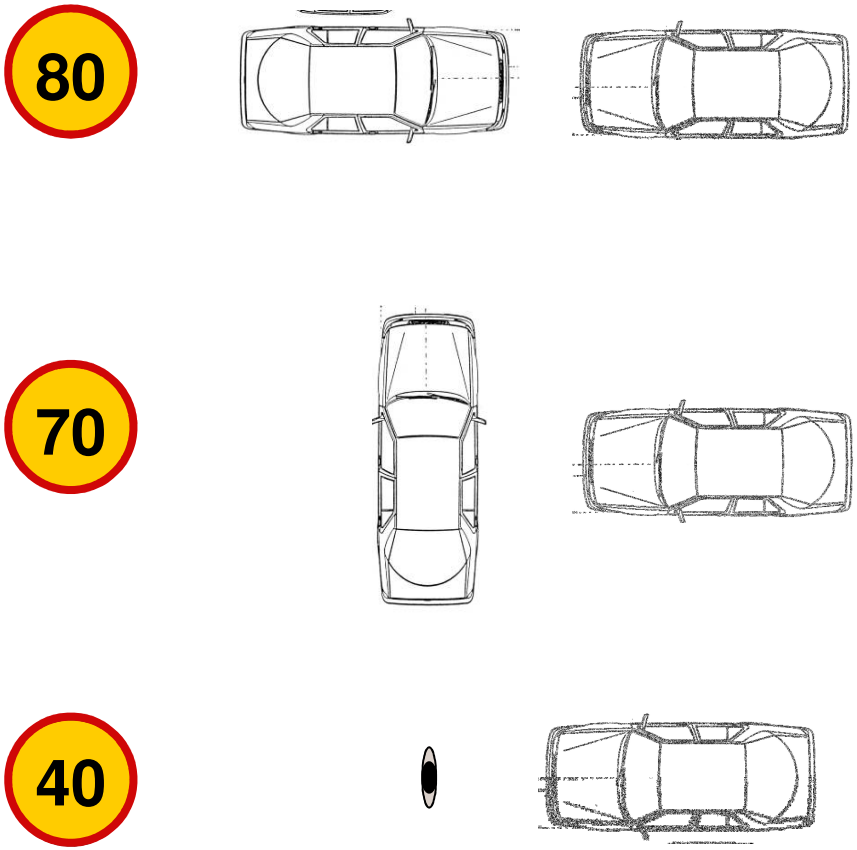
Crash and injury data is a key element

- Since 2000, Sweden has been including hospital and police data in a national programme for traffic safety investigations.
- Gothenburg (2000–2007), 24 471 people injured in the road network.

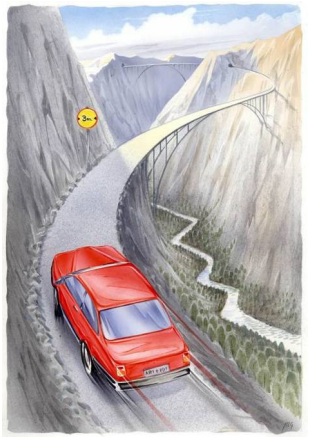


Guiding principle when designing the road system: Human biomechanical tolerance levels



$$\frac{mv^2}{2} = mgh$$

Velocity (km/h)	Height (m)
40	6
70	19
80	25



Why is speed so important?

The double attribute of speed

The speed of a vehicle will influence both:

- the likelihood of a crash
- the injury severity

Speed limit, road design and car design goes hand in hand

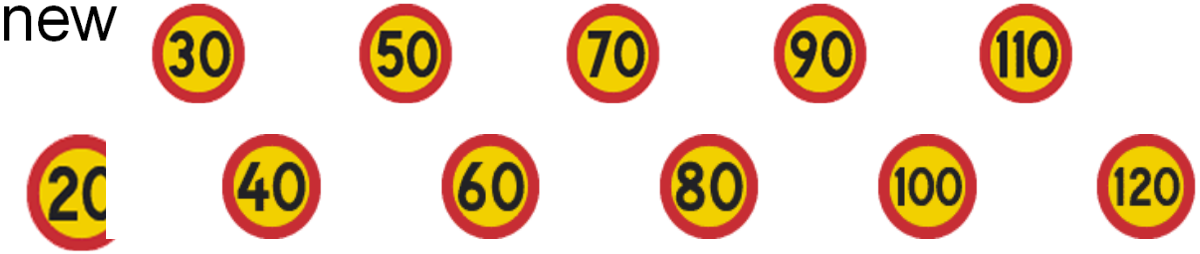
Crash test 90km/h into guard rail

Crash test 90km/h into tree

Suitable speed limits

Vehicles, roads and speeds must match

Introduction of new speed limits (Sept 2008)



Long term goal; speed limits on rural roads

70 km/h: default speed limit on rural roads

80 (90) km/h: 2-lane roads (milled rumble strips in middle of road)

100 km/h: 2+1 roads with median barrier

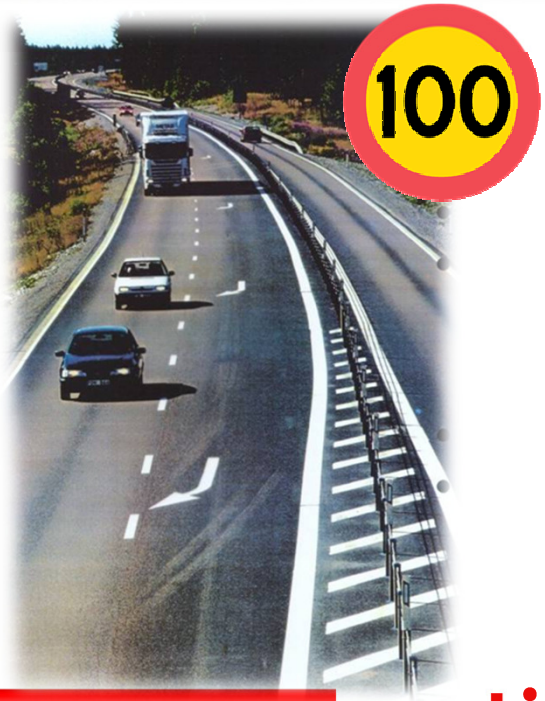
110 km/h: motorways

120 km/h: motorways with high standard and low traffic flow

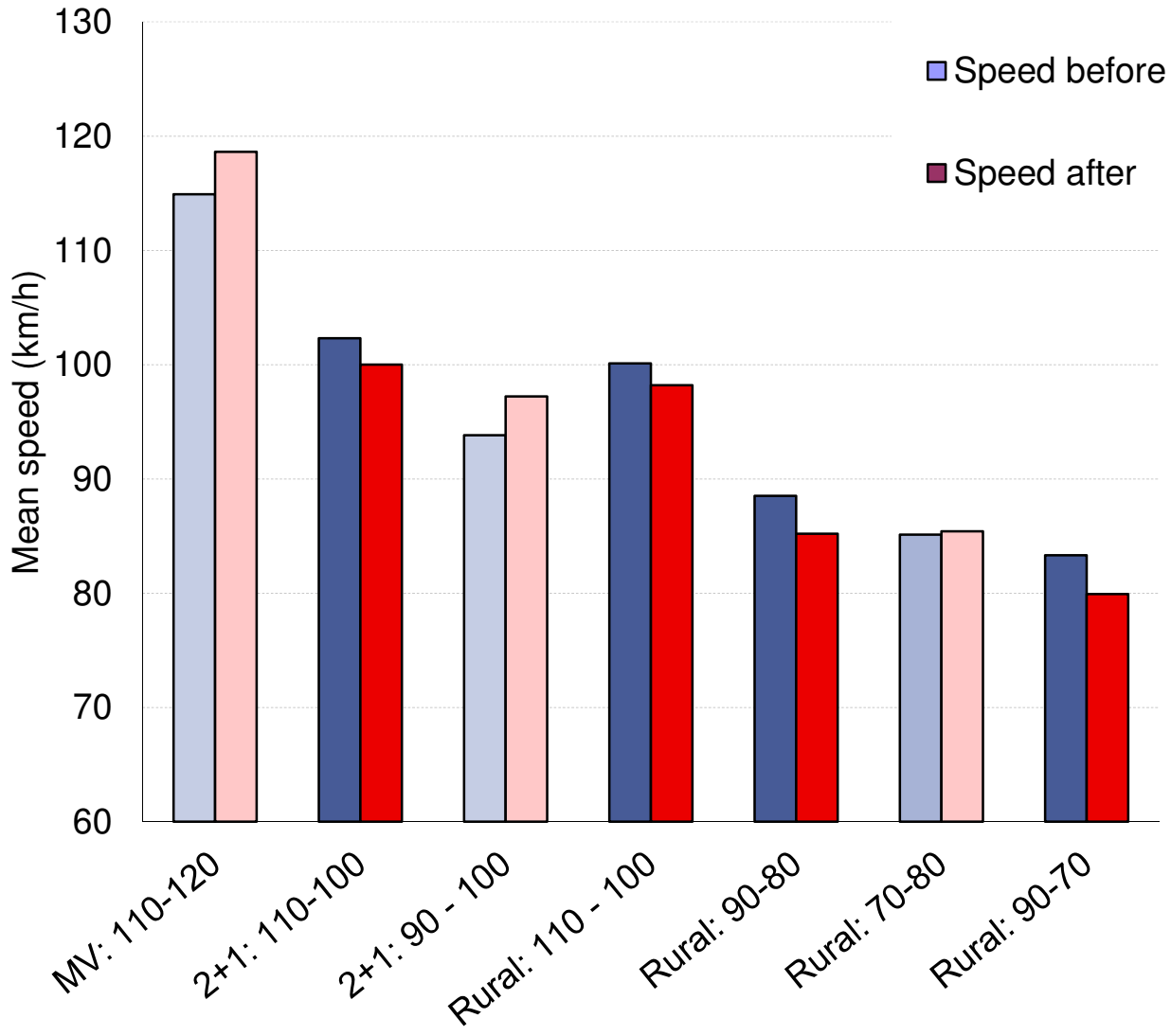
Implementation 2008 and 2009

Reductions mainly at 2-lane roads with poor safety standard

Increases mainly on 2+1 roads to 100 km/h, and on motorways with high standard to 120 km/h



Results: Mean speed passenger cars



- All changes (except 70-80) statistically significant
- No significant changes for trucks with trailers
- No significant changes in mean speed on controls

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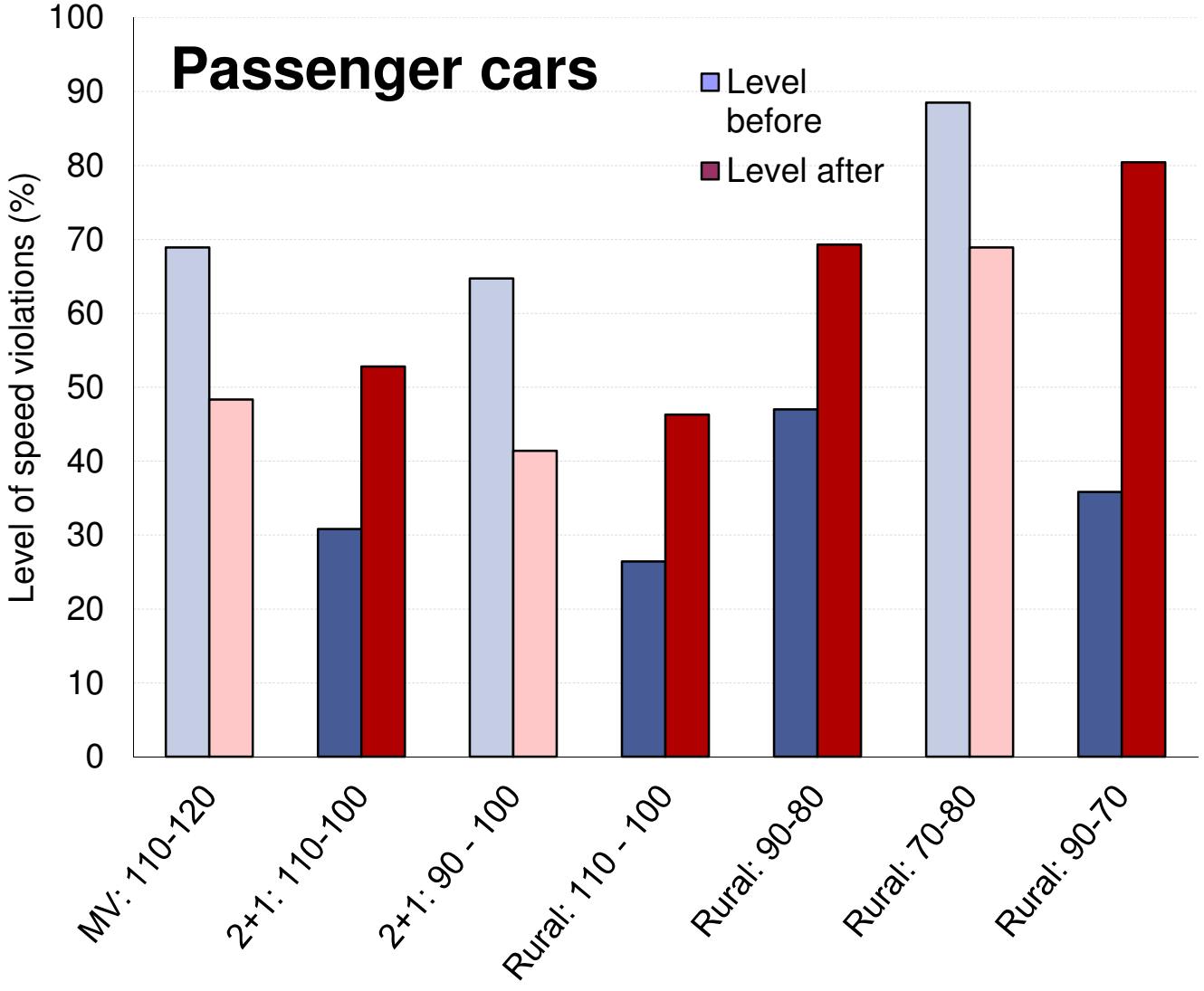
Results: percentage of speed violations



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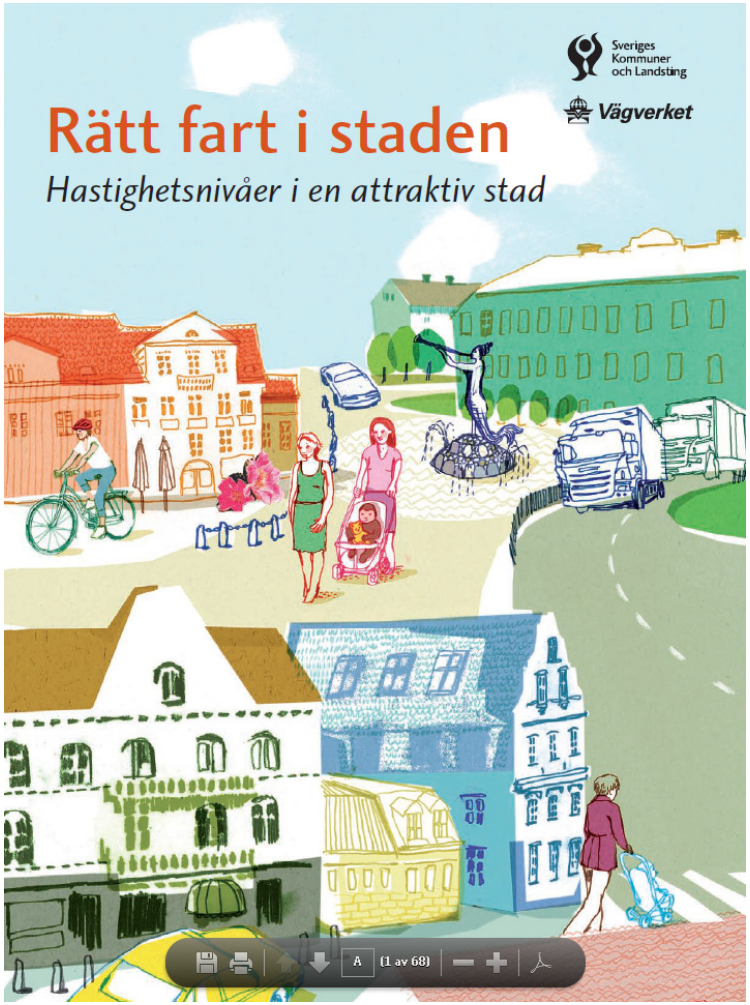
Results: Traffic Safety

- Reduction of 17 fatalities per year.
- Main reduction of traffic deaths on rural roads 90 - 80 km/h (no other traffic safety measures are performed).
- Severely injured on motorways 110 – 120 km/h increased by 15 per year.

Speed limits in urban areas

Guidelines considers:

1. City's character
2. Accessibility
3. Security
4. Traffic Safety
5. Health and Environment



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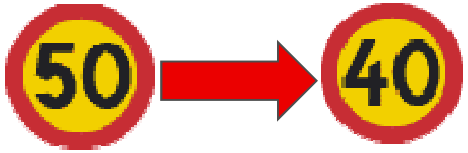
Example: Recommendations Traffic Safety

Safety Level	Conflicts VRU-car	Conflicts car-car (intersections)	Conflicts car-obstacle	Conflicts car-car (oncoming traffic)
High	≤ 30 km/h	≤ 50 km/h	≤ 60 km/h	70 km/h
Medium	40 km/h	60 km/h	70km/h	80 km/h
Low	≥ 50 km/h	≥ 70 km/h	≥ 80 km/h	≥ 90 km/h

Evaluations of new speed limits in urban areas



- Mean speed decreased: 2 – 3 km/h
- Mean speed before the change: 43 km/h
- P85 decreased: 2 km/h
- An increase of speed violations in the short term
- Long term?

Traffic Safety Cameras

New system 2006

- 1300 cameras 2015
- 15 mobile cameras
- 3000 km covered
- 260 000 offenders/year
- Highly automatic
- Sign before the camera

Evaluation: Speed effects

- Mean speeds decreased by 4 - 5 %
- Largest impact on roads with 70 km/h
- Percentage drivers exceeding speed limit decreased by 35%

Traffic safety effects

- Number of fatalities decreased by 30%
- Number of seriously injured and fatalities decreased by 25%

Publication:

The effects of automated road safety cameras on speed and road safety- *Road safety cameras installed during 2006,* Swedish Road Administration (Vägverket) publication 2009:162

Thank you for your attention!

astrid.linder@vti.se