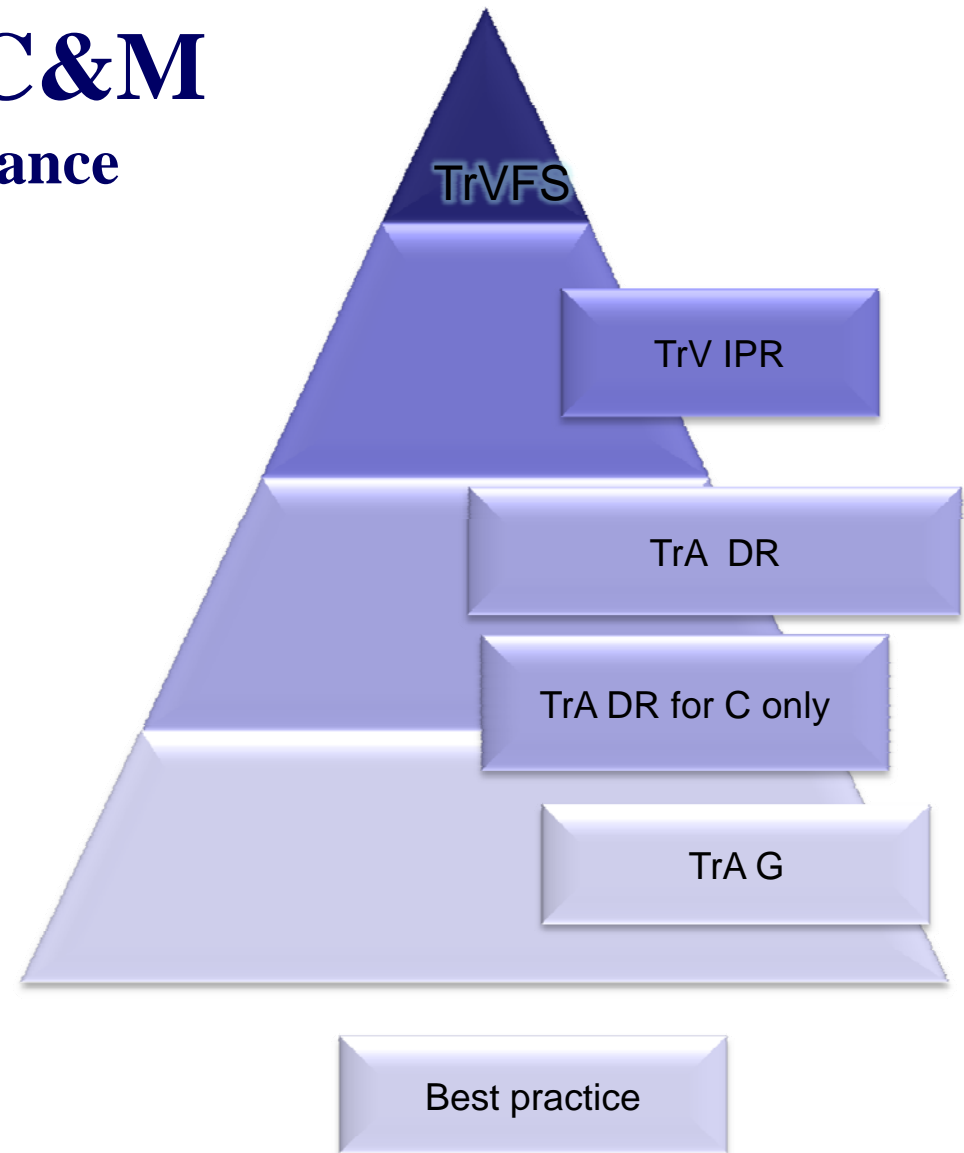


TrA structure D&C&M

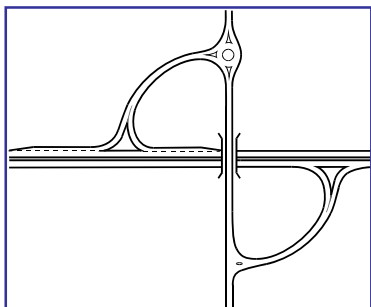
internal and external governance

- **Legal regulations**
 - **Internal principal requirements**
- **Detailed requirements**
 - **Guidelines how to fullfill DR**



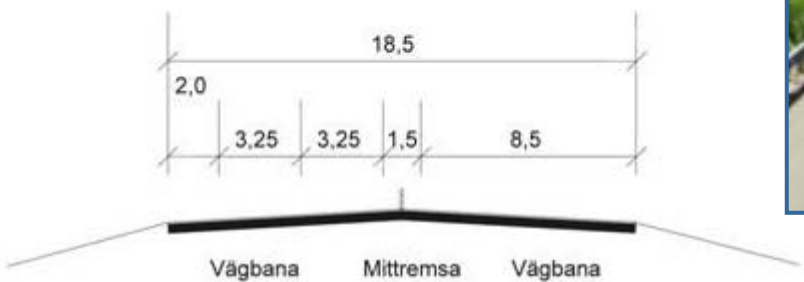
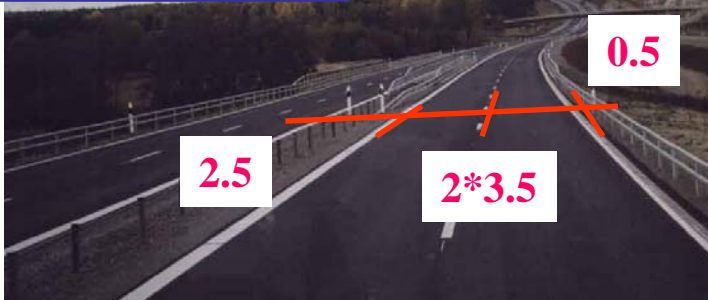
- **Narrow high speed 4-lane sections**
- **Lane width and overlay wear**
- **Two-lane road centre line systems**
- **Rural speed limits by road and vehicle types ?**
- **Guard-rails versus clear zones**
- **”1-1”-sections**
- **Negative cross-fall in curves**
- **EU infra structure directive and guideline production**
- **The motor cycle issue and design guidelines**
- **Design guidelines and LCC**

Narrow high speed 4-lane sections ?



**26.5 to 18.5 ?
Simple interchanges ?**

No success !



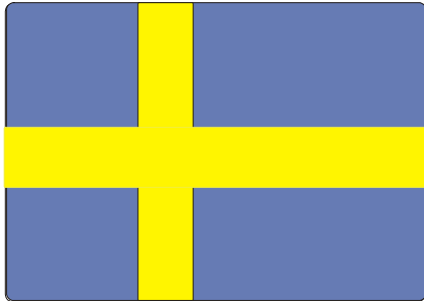
FSI-rate	
Average mw	0.019
Modern mw	0.015
4-lane 18.5	0.023

Lane/lane marking width and overlay wear ??



- 2+1- designs give 30-40 % increased overlay wear – mixture of wear and deformation
- Motorway lane 1:s also increased wear
- Lane marking widths ?
- Guard-rail channelisation ?
- Single-axles ?

Two-lane centre line marking system ?



Only edge markings



5.5-6.5 ?

SOLID:
Only to inform on
overtaking prohibition
at sight hindrances

Administrative decision
on safety problem
+ sign

Single broken and double broken/solid and solid/solid

Rural speed limits by road and vehicle type

	Sweden
Motorway	
car	110
bus	90
truck	90
art. truck	80
Two-lane	speed limit
car	
bus	90
truck	80
art. truck	80

Guard-rails versus clear zones

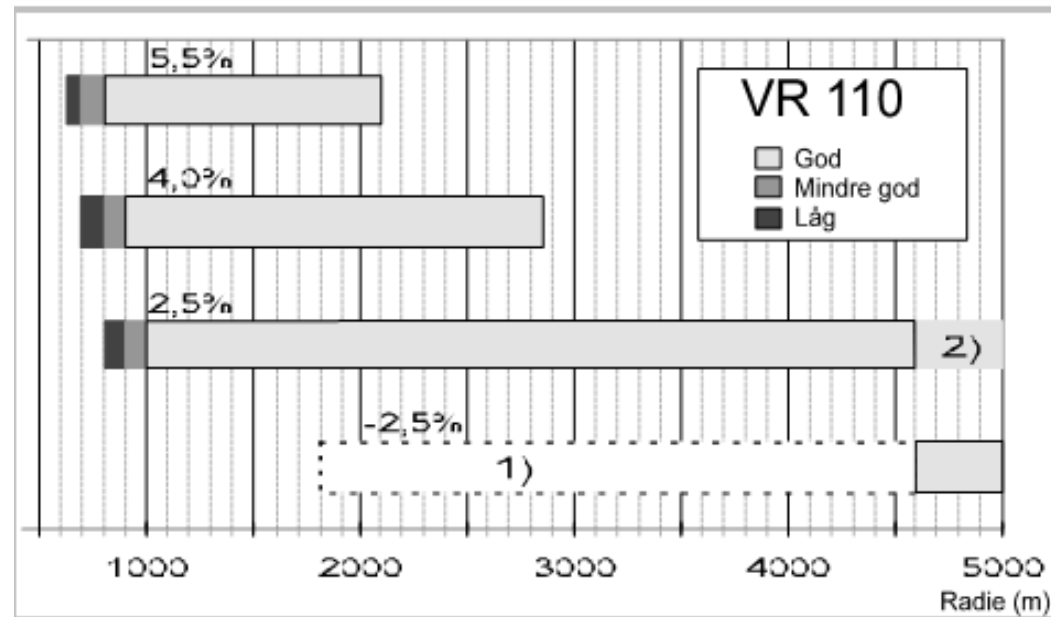
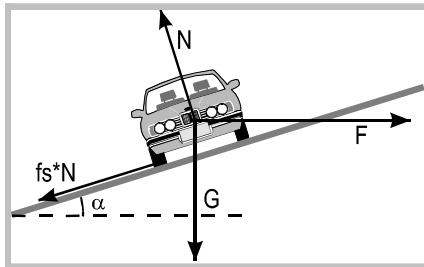


**2009: 9 of 92 fatalities within limits
barrier should have saved all**

”1-1” - sections



Negative cross-fall ?



¹⁾ Skevning i stora radier kan väljas om det ej medför problem med vattenavrinning i skevnings övergångarna

²⁾ Negativ skevning kan väljas i undantagsfall vid vattenavrinningsproblem

- negative cross-fall criteria – side inertia $0.1g$ (comfort) and $0.055g$ (ice)
- any new knowledge ?

EU infrastructure directive

- **Should the guidelines be audited ?**

The motor cycle issue and design

- In what way

Design guide lines and LCC

- **road markings and reflectors ???**
 - **positive effects**
 - **negative/costs wear, washing ...**
- **other ...**