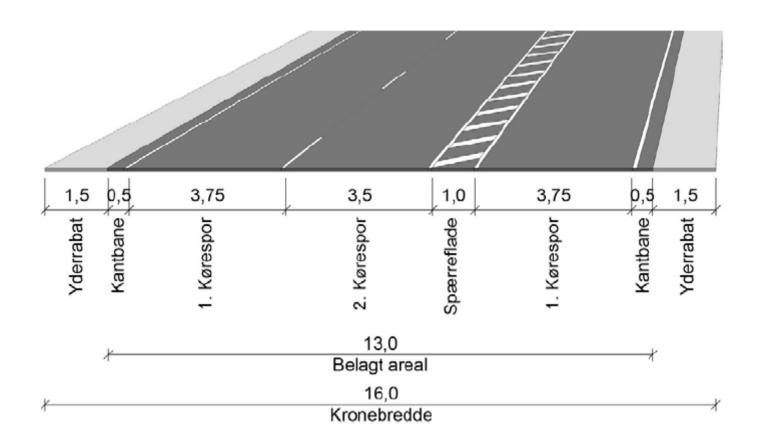


HIGH SPEED 2+1 ROADS

KENNETH KJEMTRUP

DANISH 2+1, 90KM/H, NO CYCLISTS





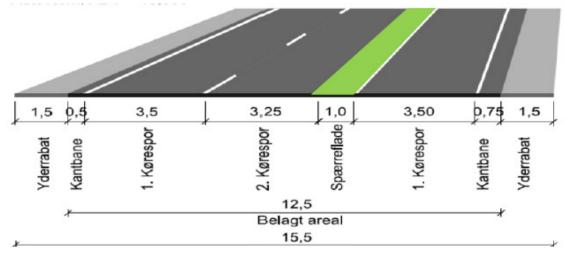
DANISH 2+1, 100KM/H?

• Guard rail or no guard rail between opposing traffic?

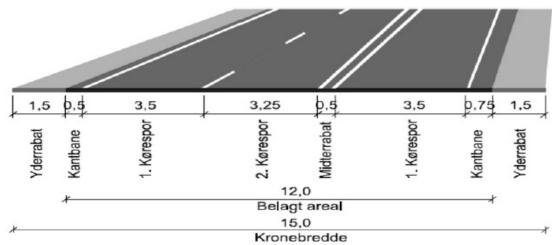


GERMANY, 2+1, 110KM/H AND 100KM/H

EKL 1, 100km/h

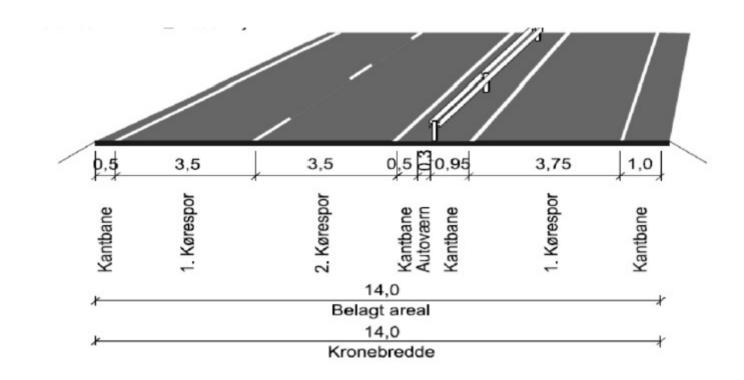


• EKL 2, 100km/h



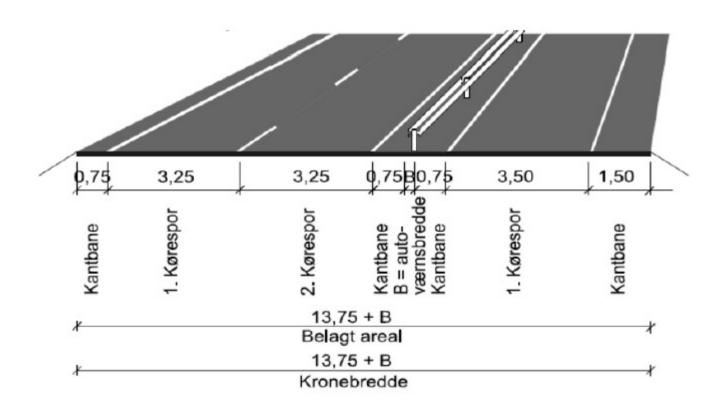


SWEDEN, 2+1, 100/110KM/H



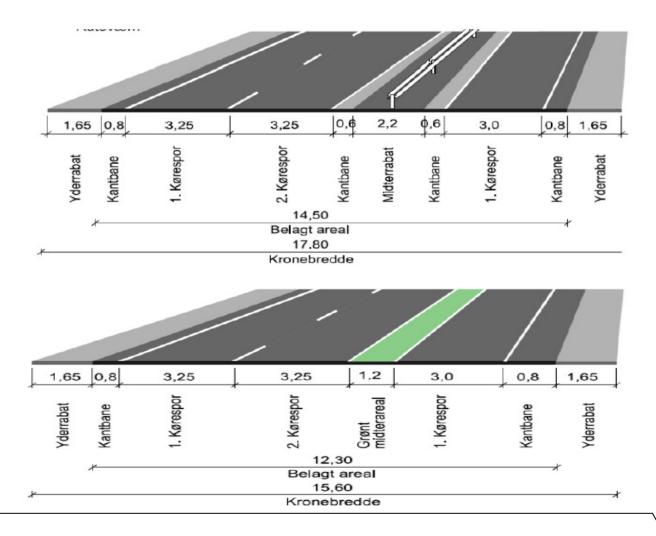


NORWAY, 2+1, 90KM/H





THE NETHERLANDS, 2+1, 90/100KM/H





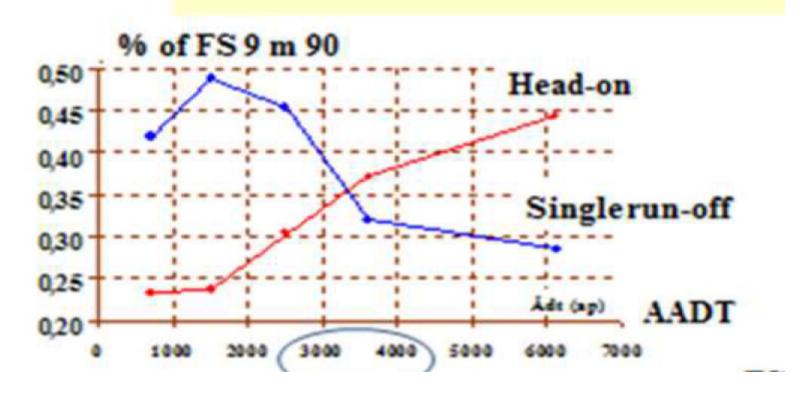
RISC FOR HEAD ON COLISSIONS?

- Sweden: Guard rail for ADT> 4000 v/d
- Norway: Guard rail for ADT> 8000 v/d
- Germany: Guard rail considered for ADT 12.000-22.000
 v/d
- The Netherlands: Guard rail, normally and no ADT limit for 2+1 roads.
- Denmark: ADT> 8000- 16000 v/d



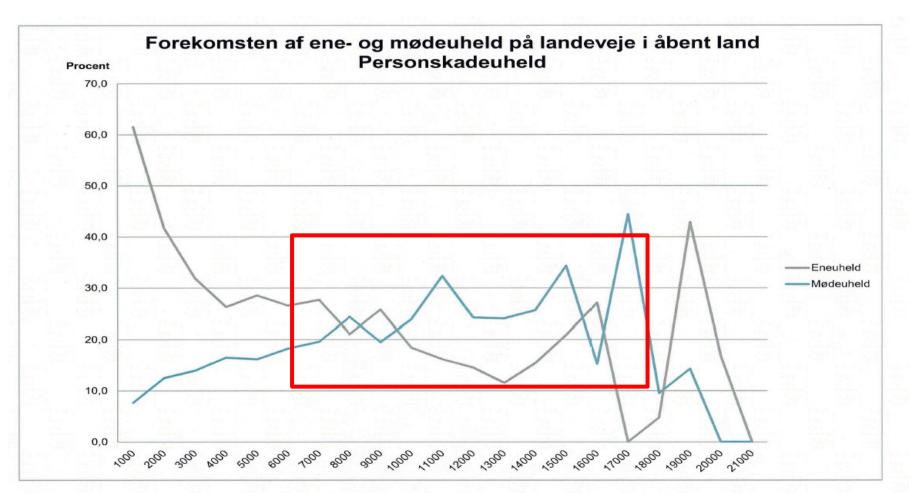
ACCIDENT STATISTICS, SWEDEN

Accident statistics from





ACCIDENT STATISTICS, DENMARK



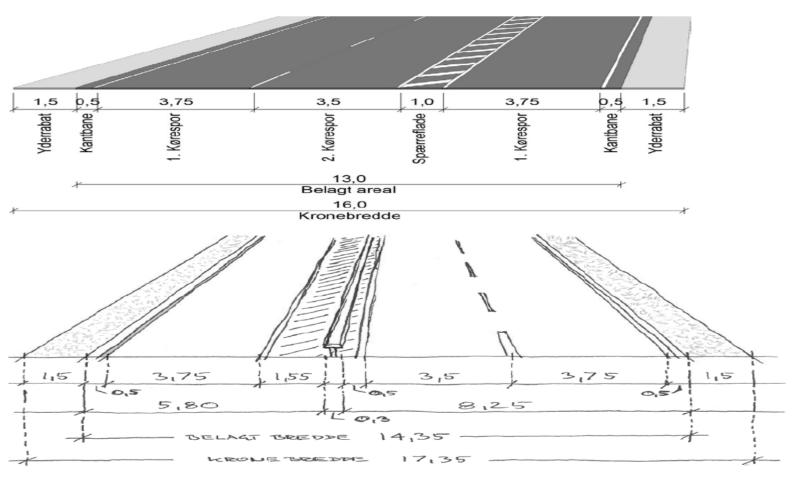


SOCIO ECONOMICAL BALANCE

Based on Swedish accident rates for 2+1 roads with speed 90km/h and 100km/h on roads with level crossings, the socio economical calculation showed that guard rail should be established on 100km/h 2+1 roads with ADT> 5000 v/d



DANISH, 2+1, 90KM/H AND 100KM/H





2+1 ROAD, 100KM/H OR MOTORWAY?

2+1 vej med 90 km/h 3,75 m 1.0 m 3,5 m 3,75 m 0.5 m 1.5 m Yderrabat Kantbane Spærreflade 1. kørespor 2. kørespor 1. kørespor Kantbane''derrabat 13,0 m Belagt areal 16,0 m Kronebredde 2+1 vej med 100 km/h 1,5 m 3,75 m 2,35 m 3,5 m 3,75 m 0,5 m 1,5 m Yderrabat Kantbane 1. kørespor Asfalteret midterrabat 2. kørespor 1. kørespor Kantbane/derrabat 14,35 m Belagt areal 17,35 m Kronebredde 4-sporet motorvej med 110 eller 130 km/h 2.0 m 3,75 m 3,75 m 3,0 m 1,5 m Midterrabat Kantbaine 2. kørespor 1. kørespor Nødspor Yderrabat 12,0 m Belagt areal 14,5 m 1/2 kronebredde



SOCIO ECONOMICAL BALANCE BETWEEN 2+1, 100KM/H AND MOTORWAYS

