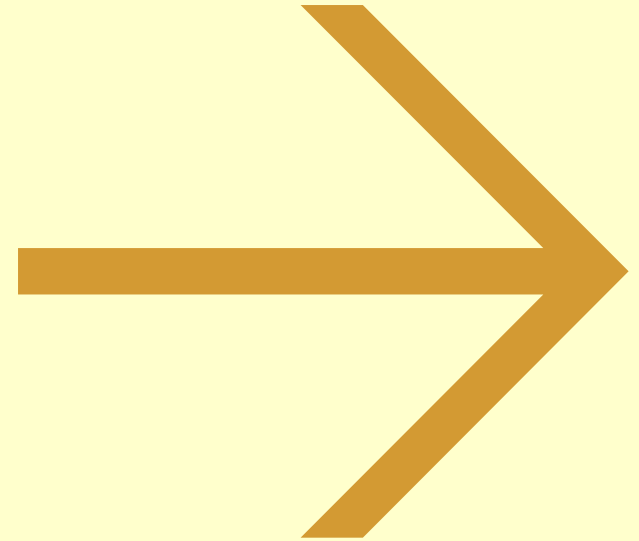


Application of Low Noise Road surfaces in the Netherlands:

Excellent results but not enough
to meet the legal targets

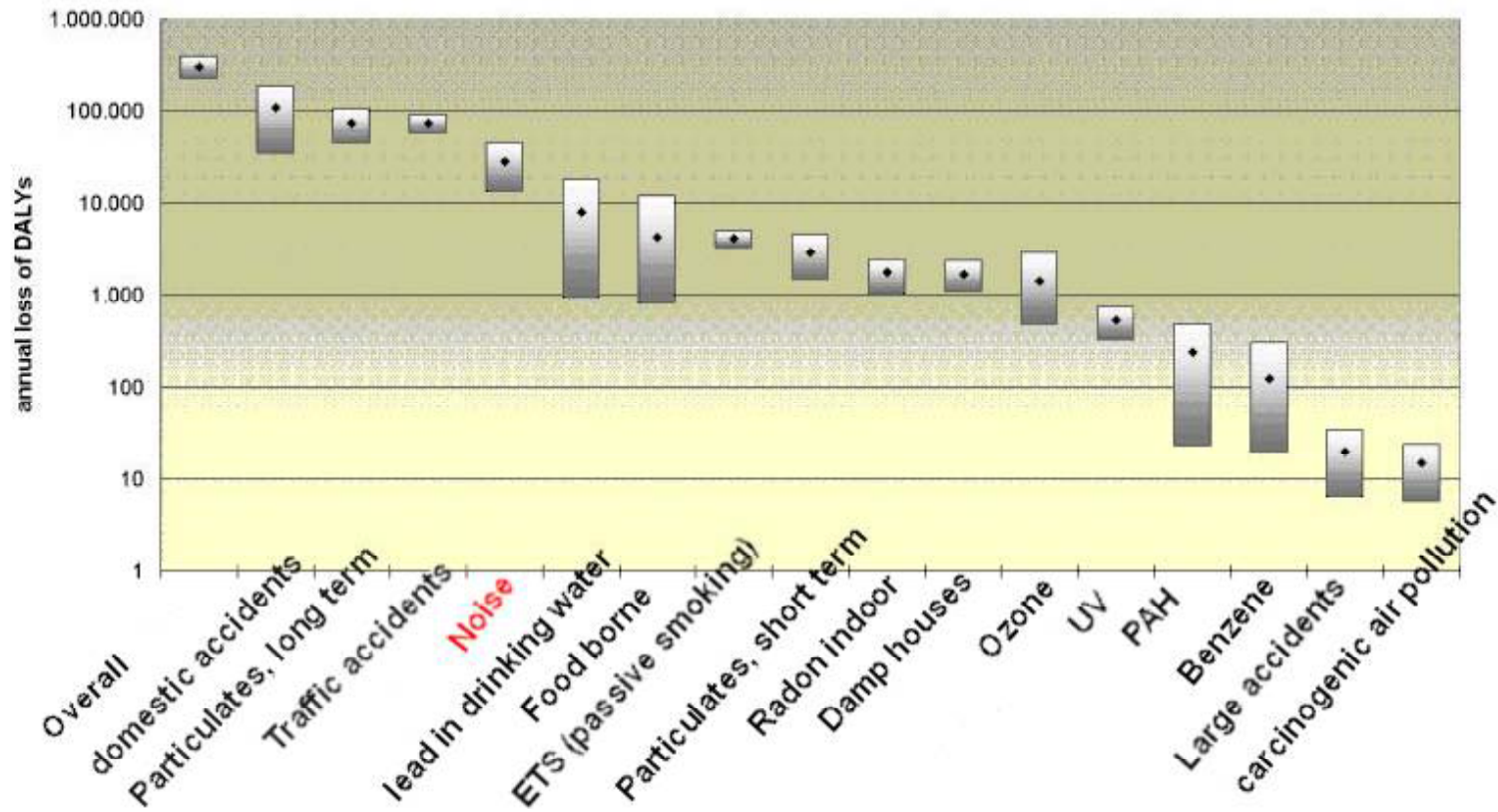


Prepared by the Netherlands
For GRB 44 Sept 2006 Geneva



Why should we reduce noise? Noise = Health

DALY= Disability Adjusted Life Years





Noise abatement

Health → Laws → Levels of protection

Conventional way: barriers and insulation.

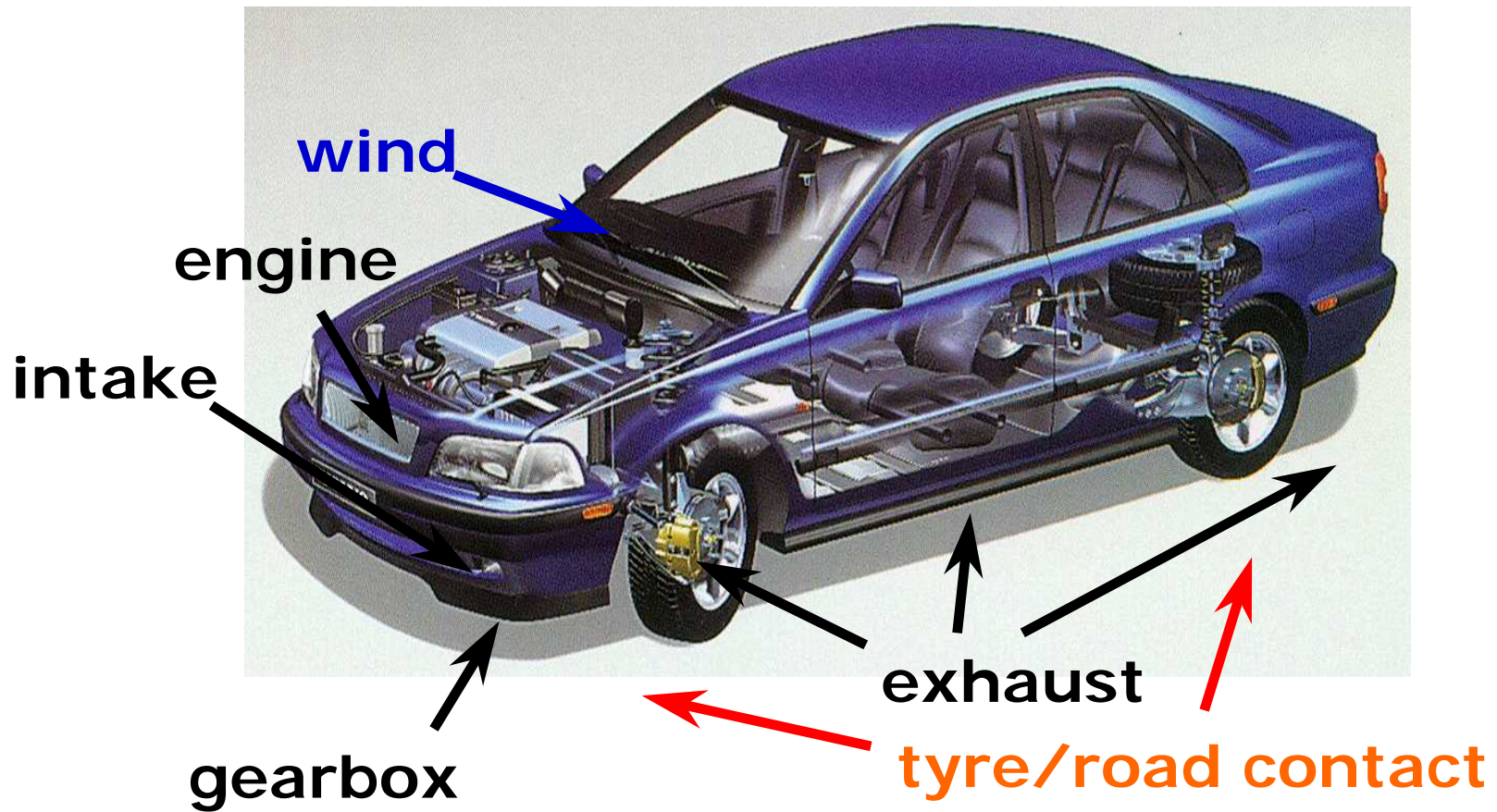
High growth of traffic → uncontrollable rise of cost

NL: 4 bln EURO for national infrastructure alone

All studies: source abatement is most effective and most cost efficient
(max 1 bln EURO)



Sources of road traffic noise





Source related noise abatement in the road sector

- Direct noise abatement at the source
 - Vehicles (power train and wind noise)
 - Tires
 - Road surfaces
- Indirect noise abatement at the source:
 - Town & infrastructure planning
 - Traffic management
 - Speed & Driving behavior
 - Restriction of vehicles allowed in areas or time

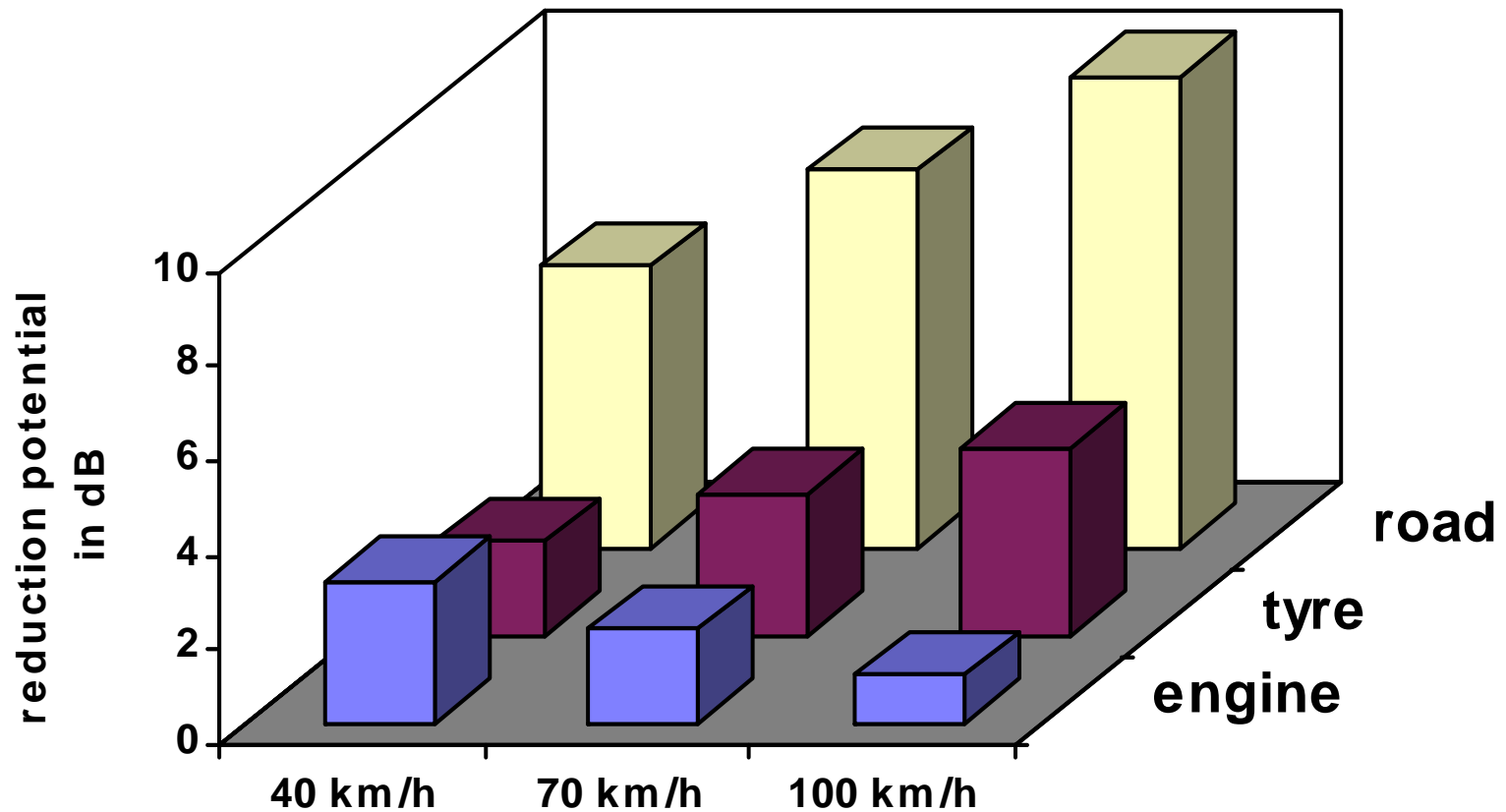


Responsibilities

- Vehicle Noise limits: EU and UN/ECE
- Tire Noise limits: EU and UN/ECE
- Road surfaces: national or local



Potential of traffic noise reduction *engine, tyre and road surface*





Porous asphalt:

Since 1940? reduction of splash & spray on airport runways

Since 1980: application as low noise road surface (-3 dB at 120 km/h)





Acoustic optimisation of porous asphalt

1990: Two layered porous asphalt with improved surface texture

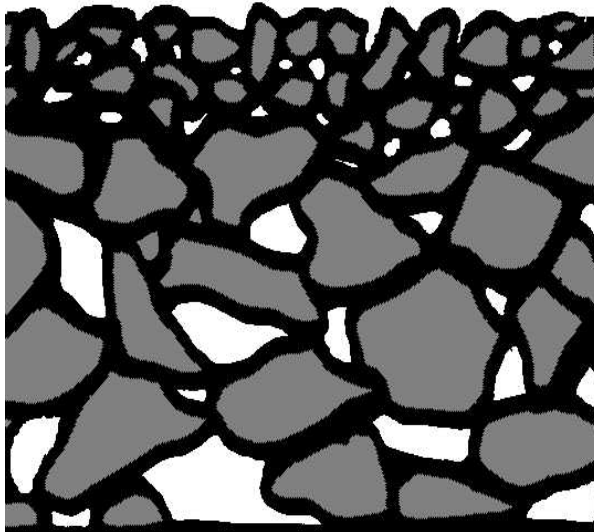




new types of silent Roads

2000: application of semi porous thin layers (very smooth surface texture)

Two-layered Porous Asphalt

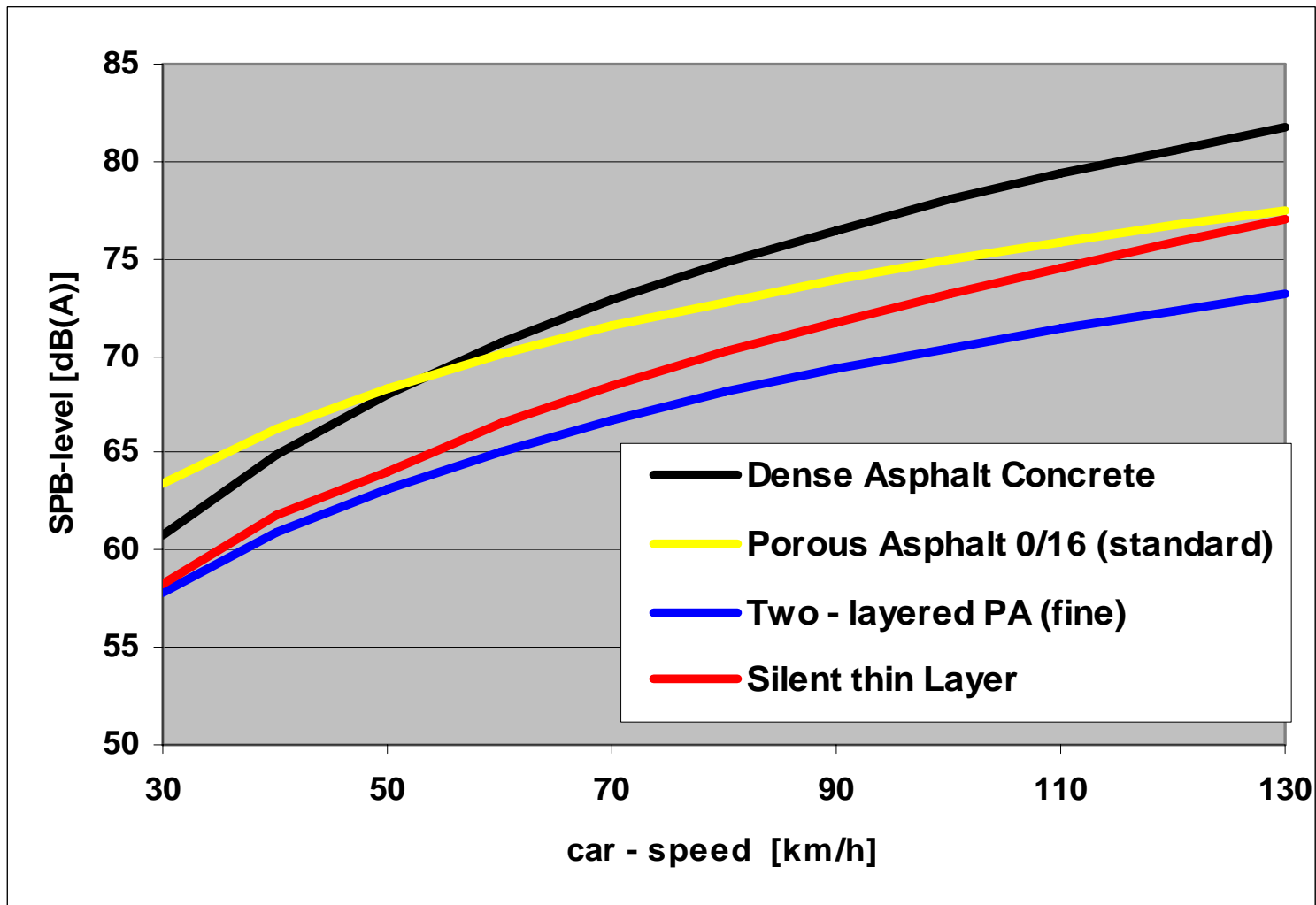


Thin Layer (semi porous)



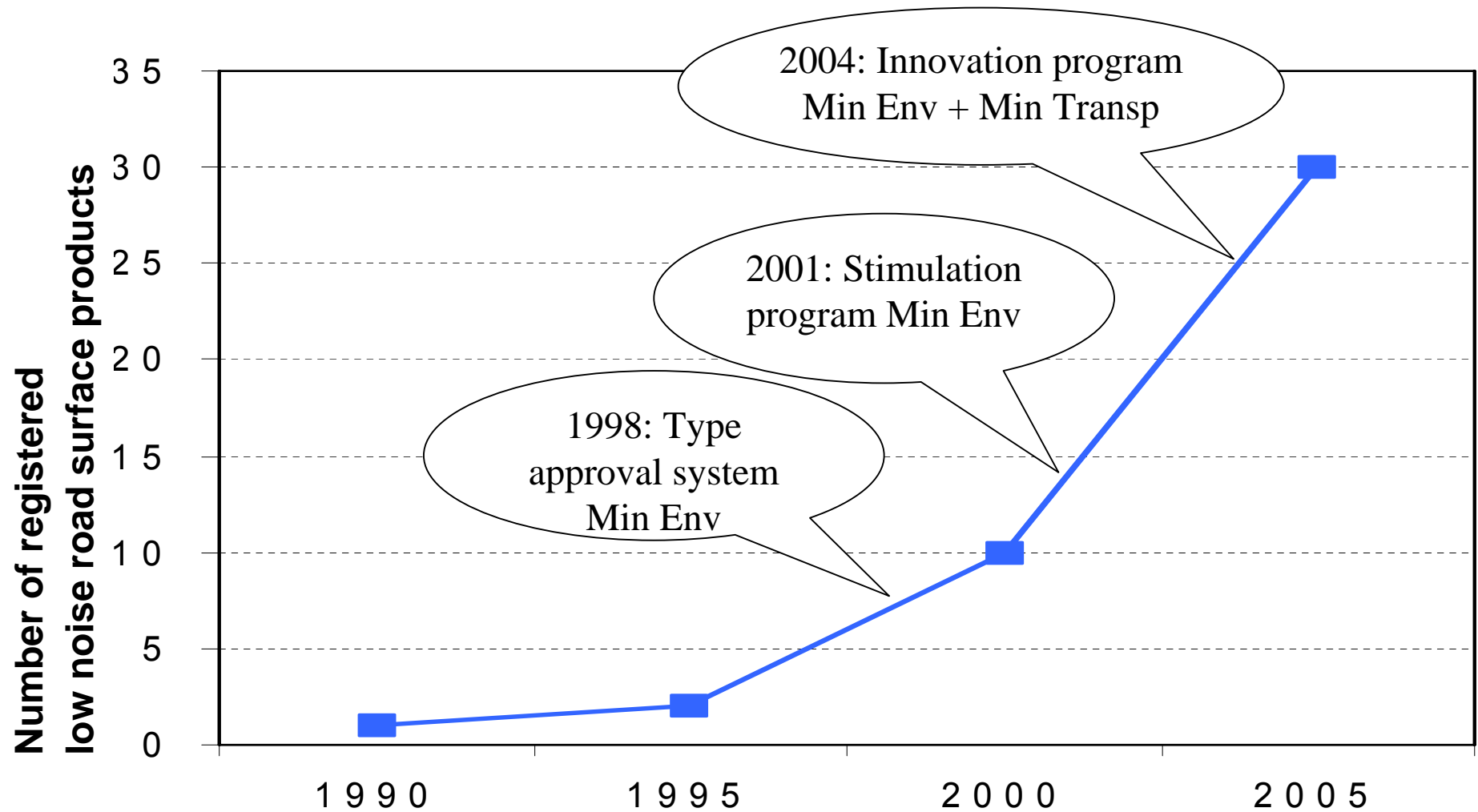


Noise reducing Asphalt Layers



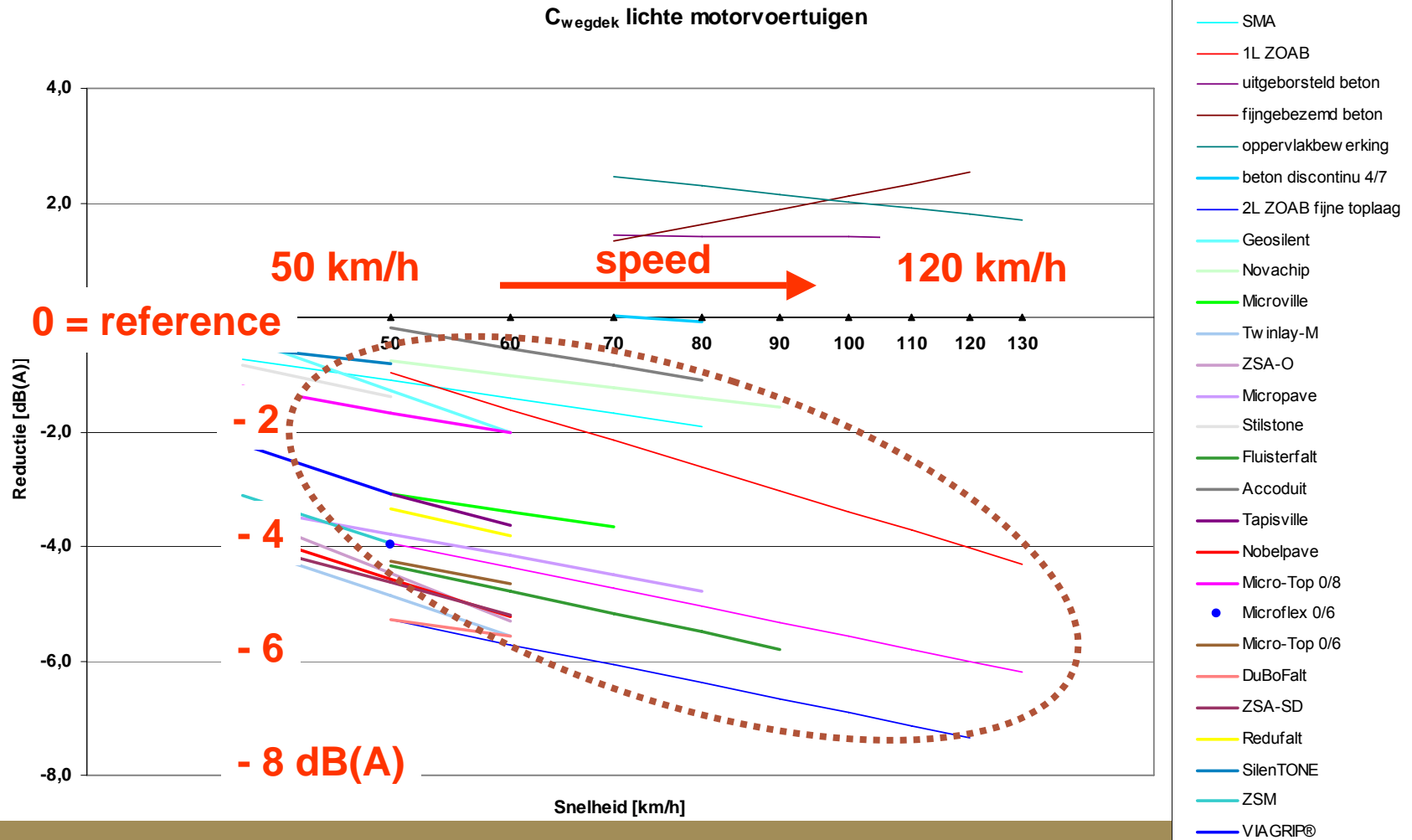


History of low noise road surfaces in the Netherlands





Croad for light vehicles





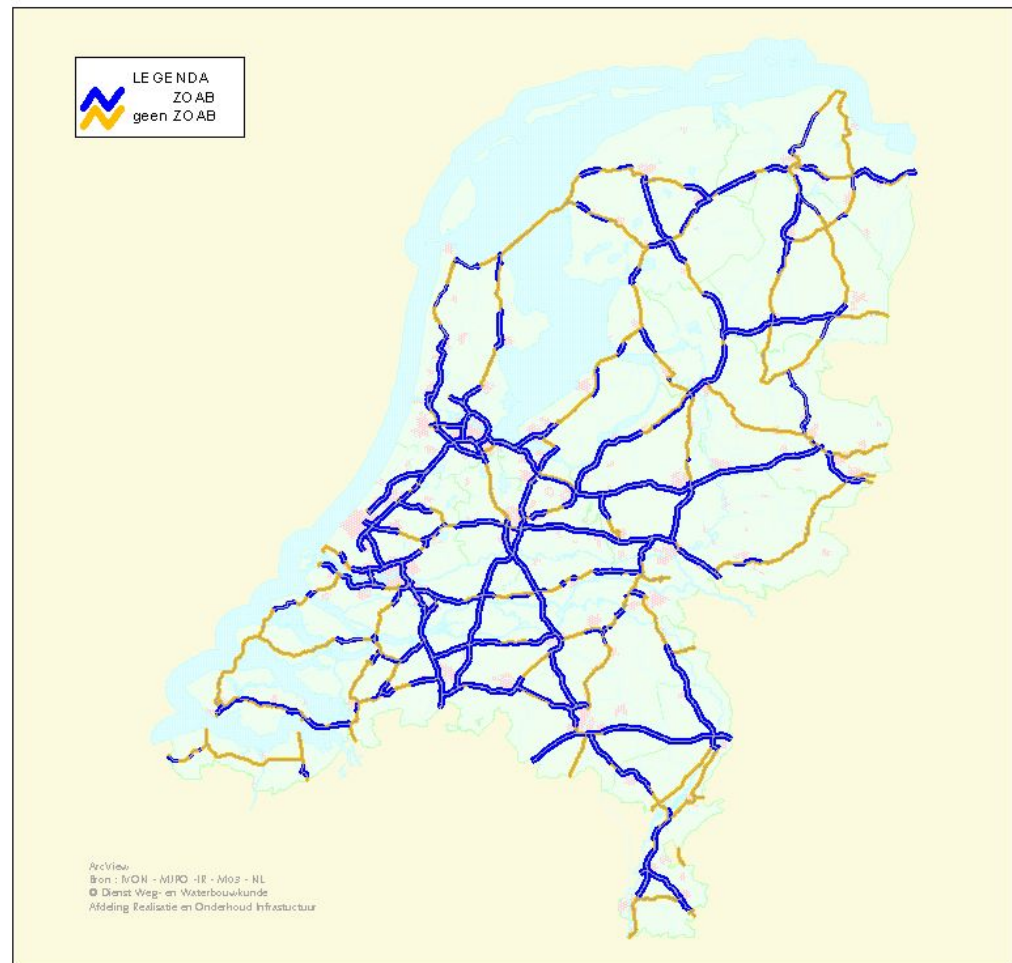
Status low noise surfaces in the Netherlands 2006

Highways:

- 60% single layer porous
- 3% double layer porous
- Pilots on thin layers

Future

- Double layer = standard in high noise regions





Can we sit back and relax now?

Inhabitants of EU15 exposed to road traffic noise
(data from 2000):

	>55 dB(A)	>65 dB(A)	>75dB(A)
Percentage of population	32%	13%	2%
Number of inhabitants (mln)	120	49	8

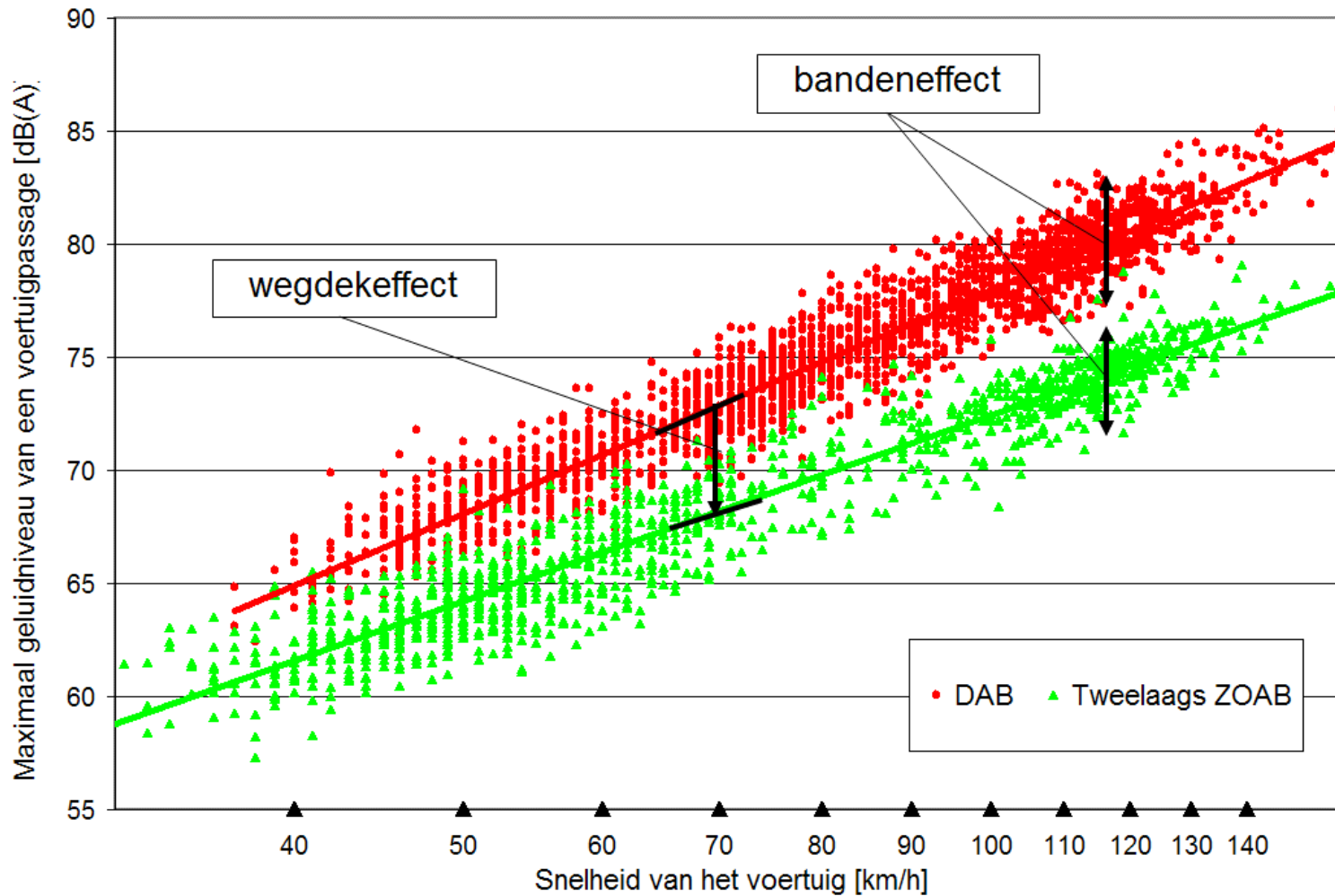
Conclusion: NO!

**the necessary reduction is much bigger than
the 5 dB we get from road surfaces**





Spread in vehicle noise levels build up of two components: road surface effect, tyre/vehicle effect





What if we do not achieve the vehicle/tire targets?

Health targets are often not reachable

Local situations will enforce more often drastic measures

- drastic reduced speed
- Toll tunnel
- total vehicle ban

Final cost for society is much higher than necessary

The end

Thank you for your attention

