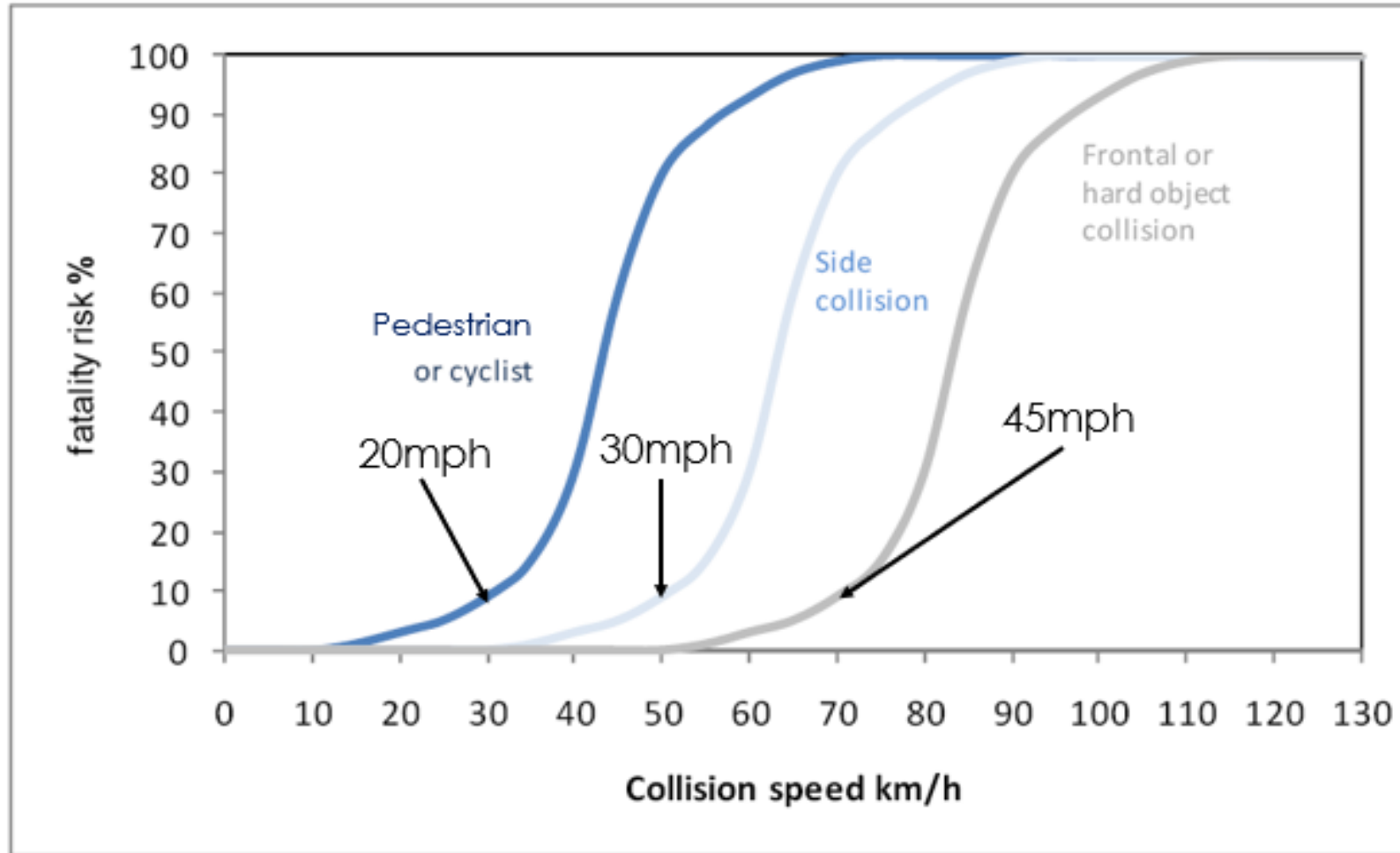


Combining Safe Speeds and Safe Infrastructure



Dr Suzy Charman, Executive Director, Road Safety Foundation

Survivability and Safe Speeds (Wramborg, 2005)



Run-off Road Crashes



- Severity determined by
 - Speed
 - Distance to object
 - Type of object
 - Angle

- So no simple rule for this crash type

Roadside Severity – Object	Vehicle occupant run-off	Motorcyclist run-off	Bicyclist run-off
Safety barrier – metal	12	30	30
Safety barrier – concrete	15	25	25
Safety barrier - metal motorcyclist friendly	12	20	20
Safety barrier - wire rope	9	30	30
Aggressive vertical face	55	55	55
Upwards slope (15 ° to 75°)	45	45	45
Upwards steep slope (>75°)	40	40	40
Deep drainage ditch	55	55	55
Downwards slope	45	45	45
Cliff	90	90	3000
Tree (>=10cm diameter)	60	60	60
Non-frangible sign/ post./pole (>=10cm diameter)	60	60	60
Non-frangible structure/bridge or building	60	60	60
Frangible structure or building	30	30	30
Unprotected barrier end	60	60	60
Large boulders (>= 20cm tall)	60	60	60
None (or object >20m from road)	35	35	35

Survivability and Safe Speeds (Tingvall and Howarth, 1999)



<i>Types of road infrastructure and traffic</i>	<i>Safe speed (km/h) (m/ph)</i>	
Locations with possible conflicts between cars and pedestrians/cyclists	30,	20
Junctions with possible car-to-car side impacts	50,	30
Roads with possible car-to-car frontal impacts	70,	45

The Safe System

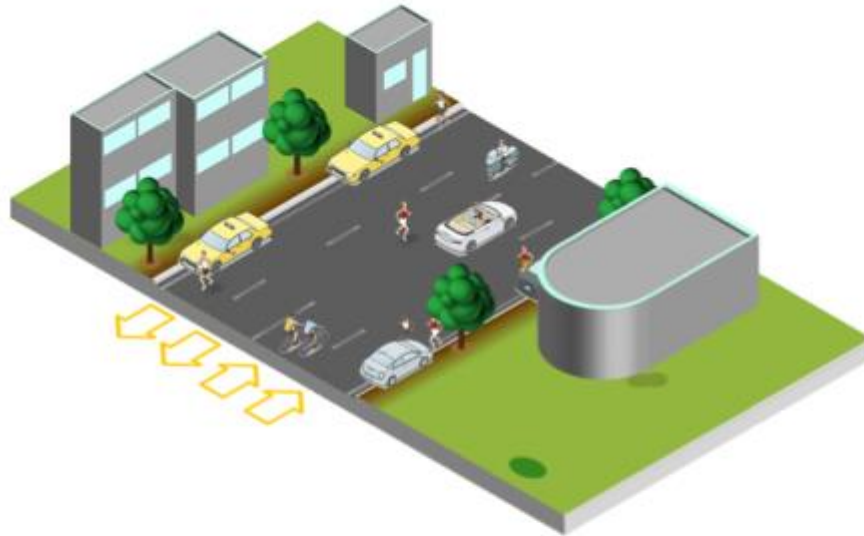


All roads are safe at 'a speed'

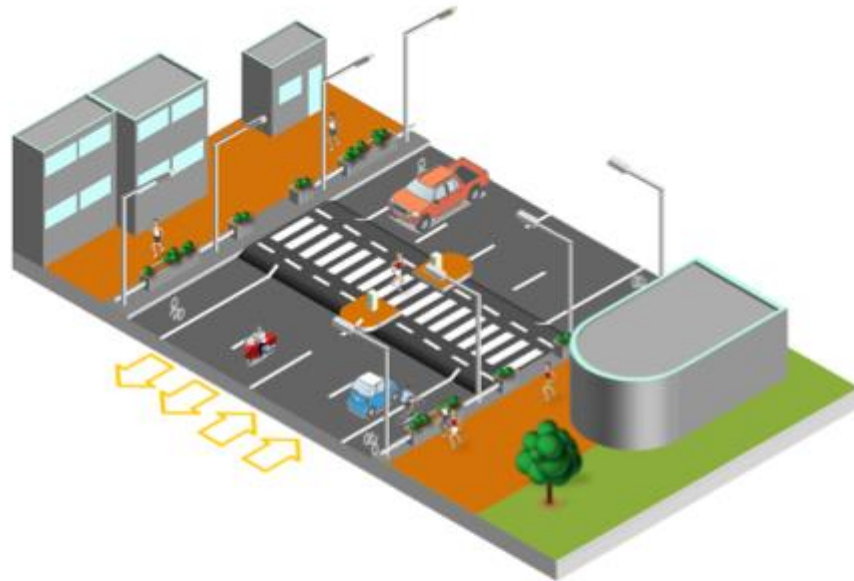
i.e. if there was a crash at that speed no one would be killed or seriously injured

However in many cases this would be lower than the current posted speed limit and/or actual speeds

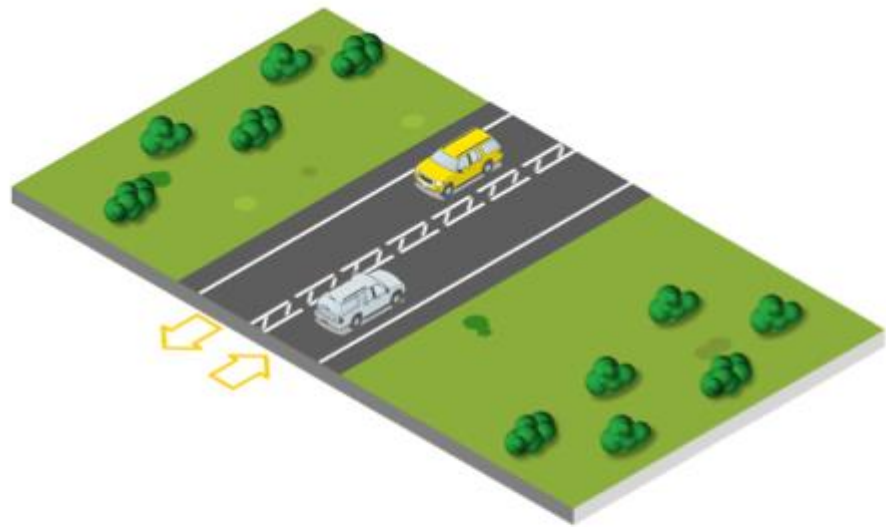
The Safe System



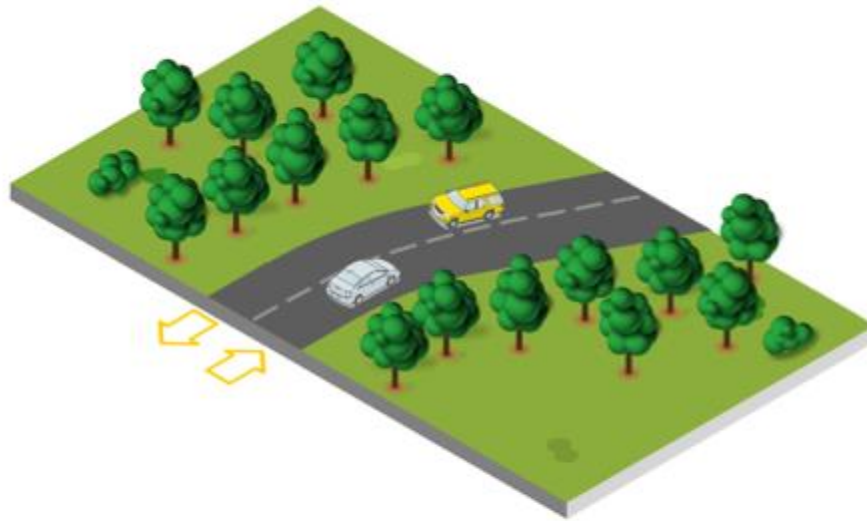
The Safe System



The Safe System



The Safe System



The Safe System



How does speed management fit in?



85th percentile speeds indicative ...

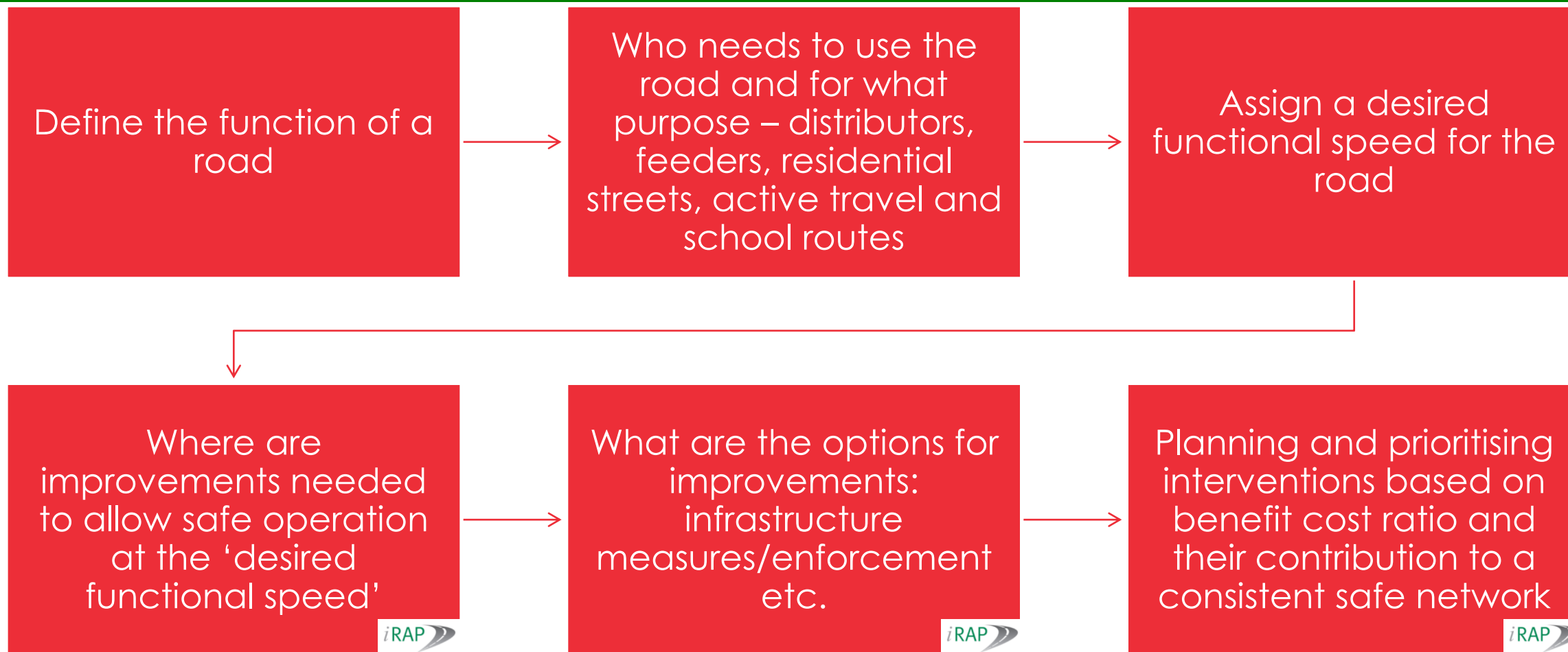
The Safe System



- If you have signed up to adopting a Safe System or Vision Zero this means:
 - Preventing opportunities for there to be non-survivable crashes
- Challenges:
 - Higher speeds viewed as offering 'better' mobility
 - We are used to moving around faster than what is ultimately entirely 'safe' for everyone
 - Upgrading roads so they are safer at higher speeds can be costly and difficult to achieve
 - We need better research/data to base decisions on
 - To really reach our goal we will have to have a radical re-think ...



Dealing with High Priority Roads



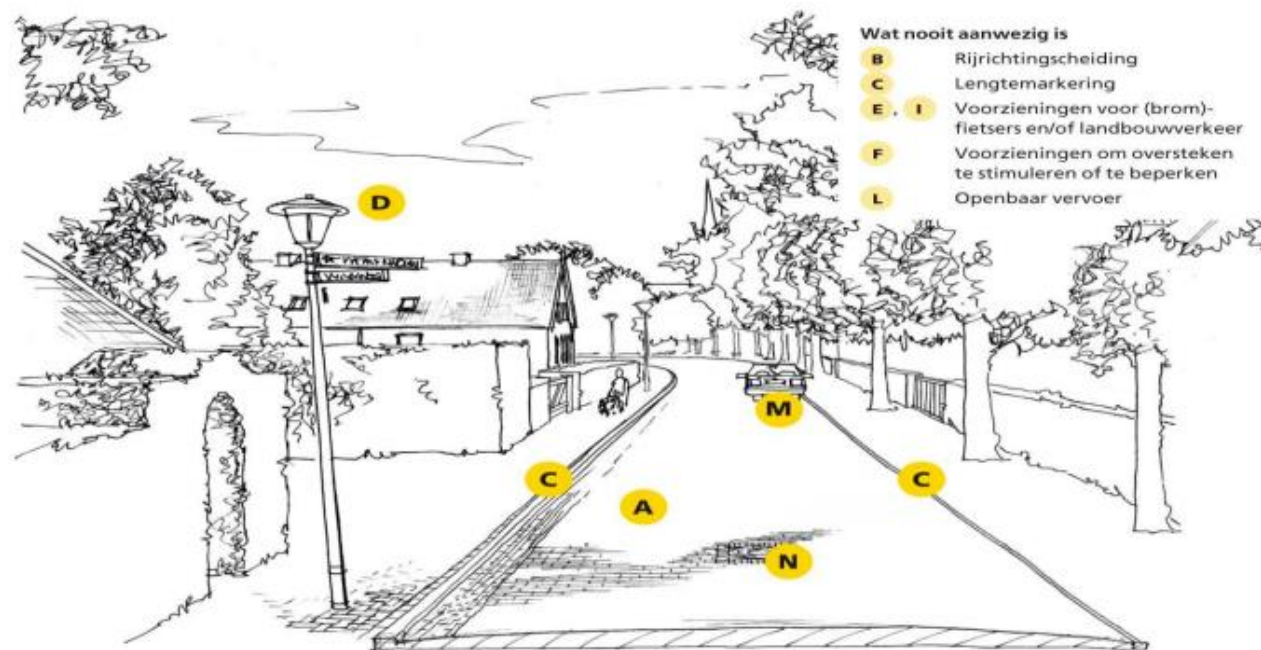
Taking a More Strategic Approach

- OK and a reasonable approach BUT
- Credibility is all about consistency
- Functional hierarchies ideally need to be defined at the national level
 - For consistency
 - To allow us to take advantage of the national speed limit system
 - The opportunity to communicate key changes with the public
- We might look to the Dutch Sustainable Safety initiative for inspiration
 - Blue prints and long term planning

Road Type Blue Prints



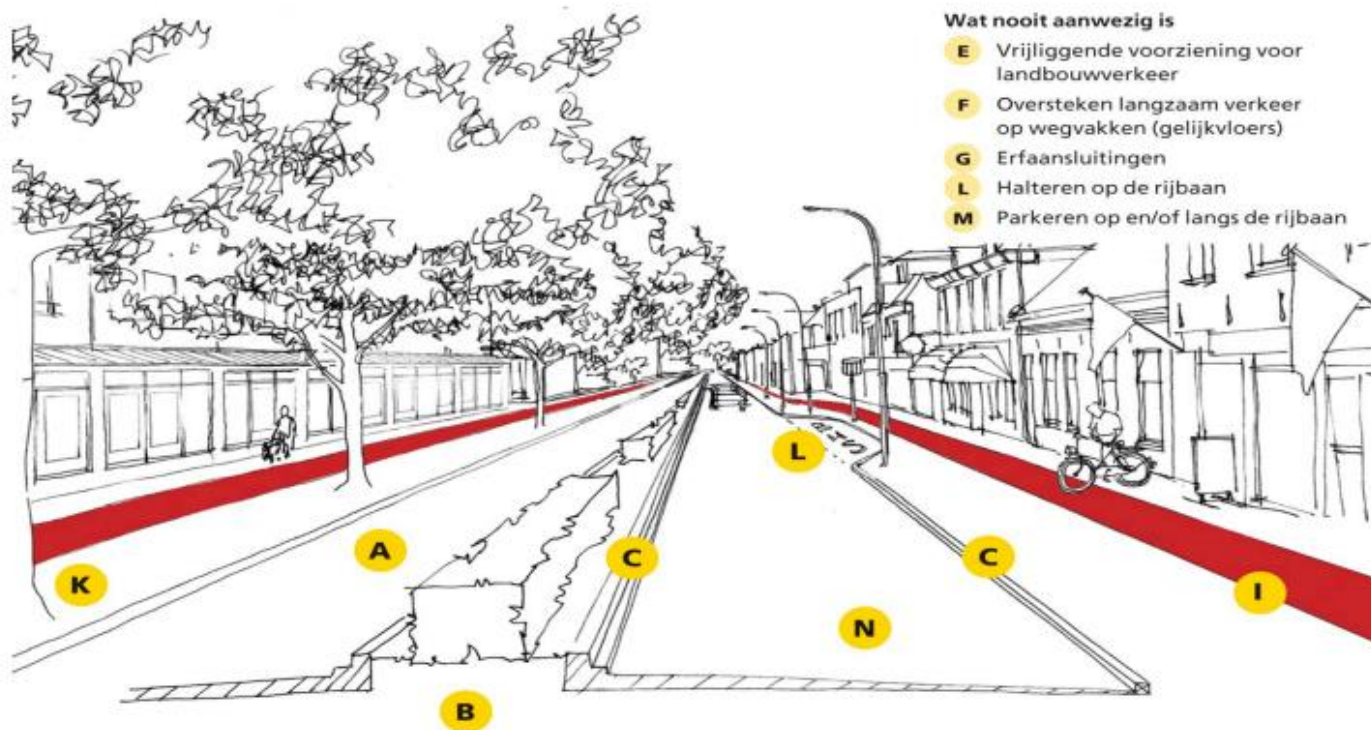
Urban access road (30km/h ideal)



- Wat nooit aanwezig is
- B** Rijrichtingscheiding
 - C** Lengtemarkering
 - E, I** Voorzieningen voor (brom)-fietzers en/of landbouwverkeer
 - F** Voorzieningen om oversteken te stimuleren of te beperken
 - L** Openbaar vervoer

SWOV
WETENSCHAPPELIJK
ONDERZOEK VERKEERSVEILIGHEID

Urban distributor (50km/h ideal)

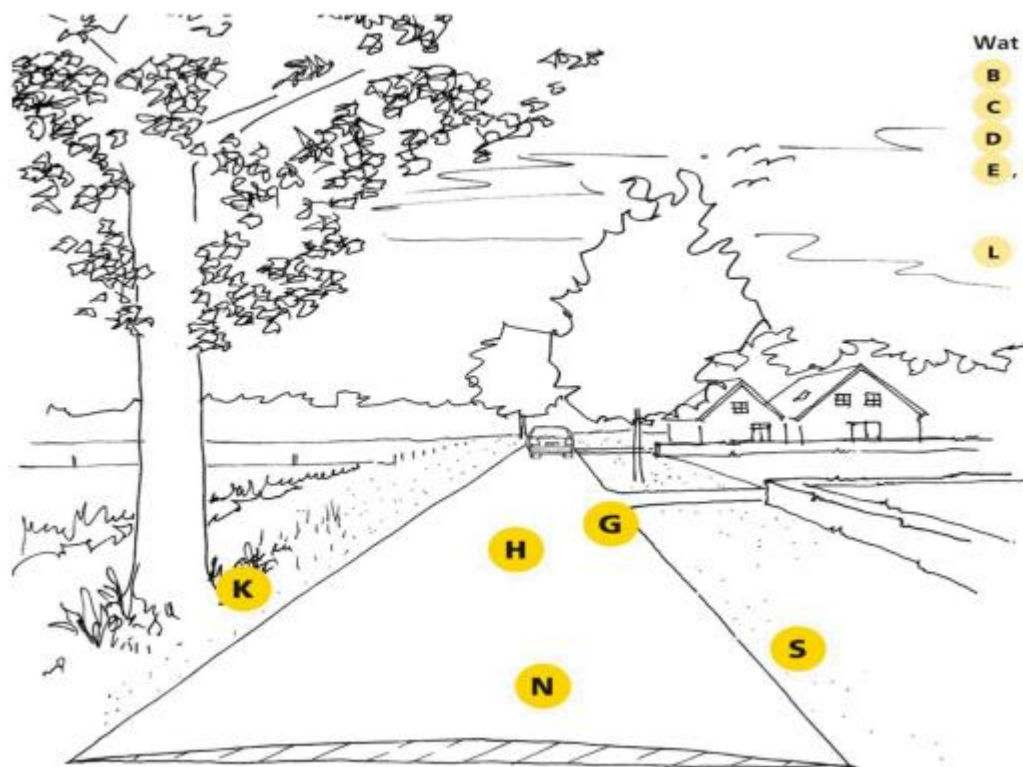


Wat nooit aanwezig is

- E** Vrijliggende voorziening voor landbouwverkeer
- F** Oversteken langzaam verkeer op wegvakken (gelijkvloers)
- G** Erfaansluitingen
- L** Halteren op de rijbaan
- M** Parkeren op en/of langs de rijbaan

SWOV
WETENSCHAPPELIJK
ONDERZOEK VERKEERSVEILIGHEID

Rural access road (60km/h ideal)



Wat nooit aanwezig is

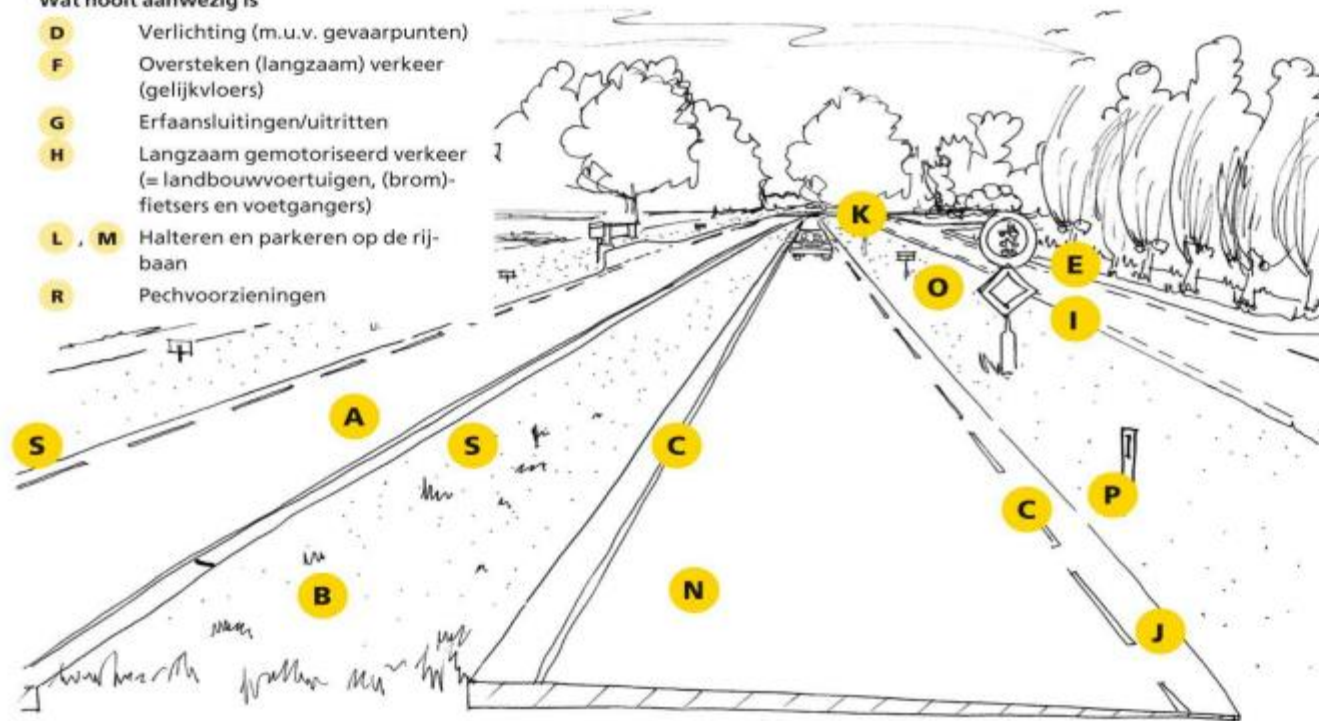
- B** Asmarkering, rijrichtingscheiding
- C** Kantmarkering
- D** Verlichting (m.u.v. gevaarpunten)
- E, I** Vrijliggende voorzieningen voor (brom)fietsers en/of landbouwverkeer
- L** Openbaar vervoer/buslijn

SWOV
WETENSCHAPPELIJK
ONDERZOEK VERKEERSVEILIGHEID

Rural distributor (80km/h ideal)

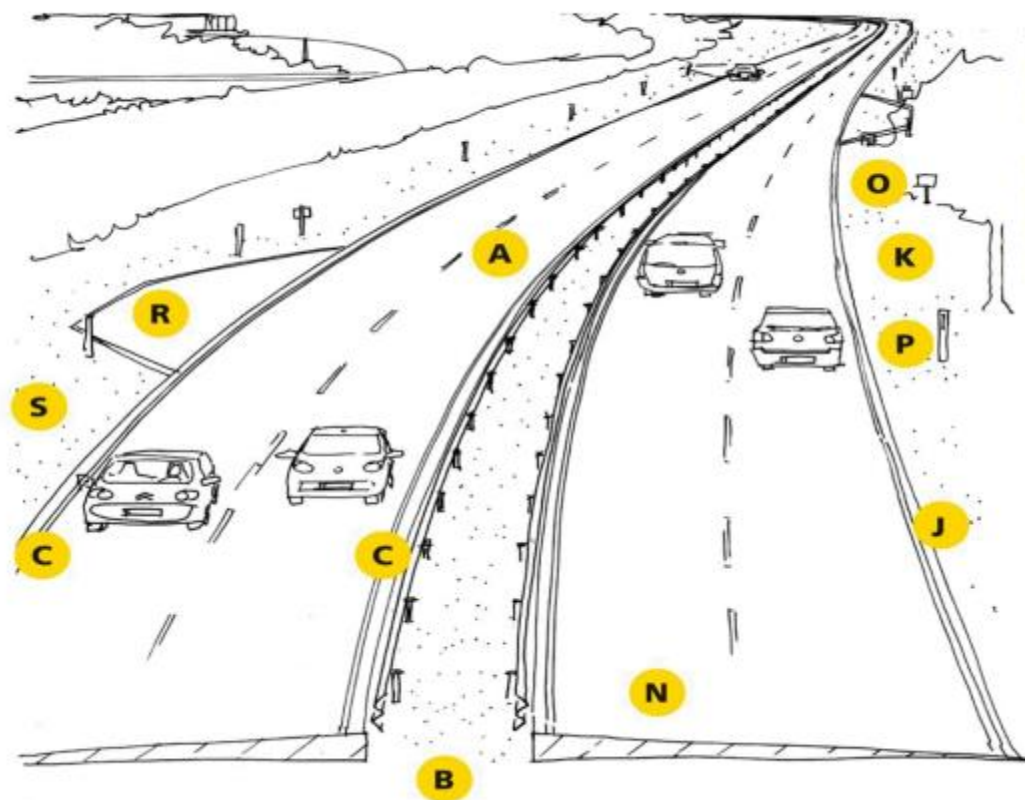
Wat nooit aanwezig is

- D** Verlichting (m.u.v. gevaarpunten)
- F** Oversteken (langzaam) verkeer (gelijkvloers)
- G** Erfaansluitingen/uitritten
- H** Langzaam gemotoriseerd verkeer (= landbouwvoertuigen, (brom-)fietsers en voetgangers)
- L** **M** Halteren en parkeren op de rijbaan
- R** Pechvoorzieningen



SWOV
WETENSCHAPPELIJK
ONDERZOEK VERKEERSVEILIGHEID

Rural regional freeway (100km/h ideal)



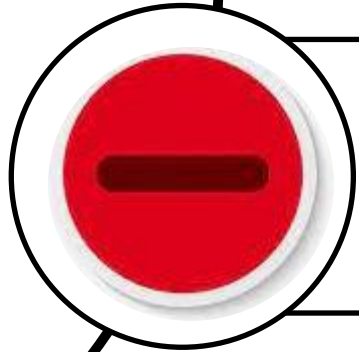
Wat nooit aanwezig is

- D** Verlichting (m.u.v. gevaarpunten)
- F** Oversteken (langzaam) verkeer (gelijkvloers)
- G** Erfaansluitingen
- H** Langzaam (gemotoriseerd) verkeer
- L** Halteren op de rijbaan
- M** Parkeren op of naast de rijbaan

Pros and Cons of the Dutch Approach



Simple easy to understand road hierarchy
Safety of all road users taken into account in the blue prints
Better compliance because of improved credibility/consistency
Opportunity to talk at a national level about speed and speed limits/road types



Planning considerable
Agreement needs to be reached
Long term solution
Cost

Are we ready for a re-think?



- Do we realise how 'unsafe' current speeds are for the road environments we have?
- Can we invest in defining the functional hierarchy of our roads afresh and can we reach agreement on this?
- Over time can we move towards greater consistency and distinct road types?
- Are we prepared to lower speed limits (even national ones) for roads that do not have a city to city or town to town function?
- Can we invest in safer provision on roads that need to have traffic moving relatively fast?
- Can we invest in better facilities for vulnerable road users particularly where speeds are above 20/30mph?