

## **Presentation HVG Strategy Copenhagen**

**“The facts of blind spot accidents and measures for the short and long run in the Netherlands”**

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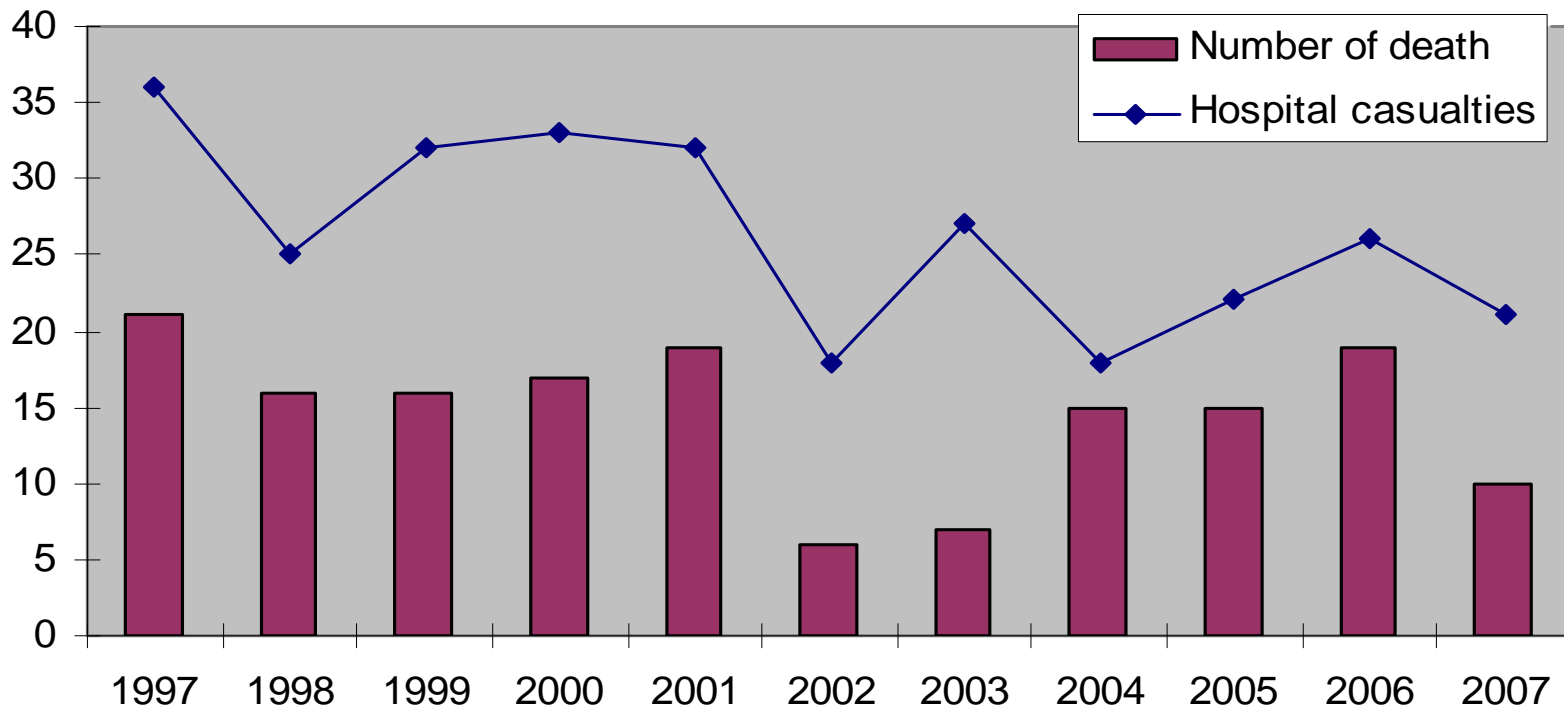
*4 March 2009*

# SWOV-research blind spot accidents (2008)

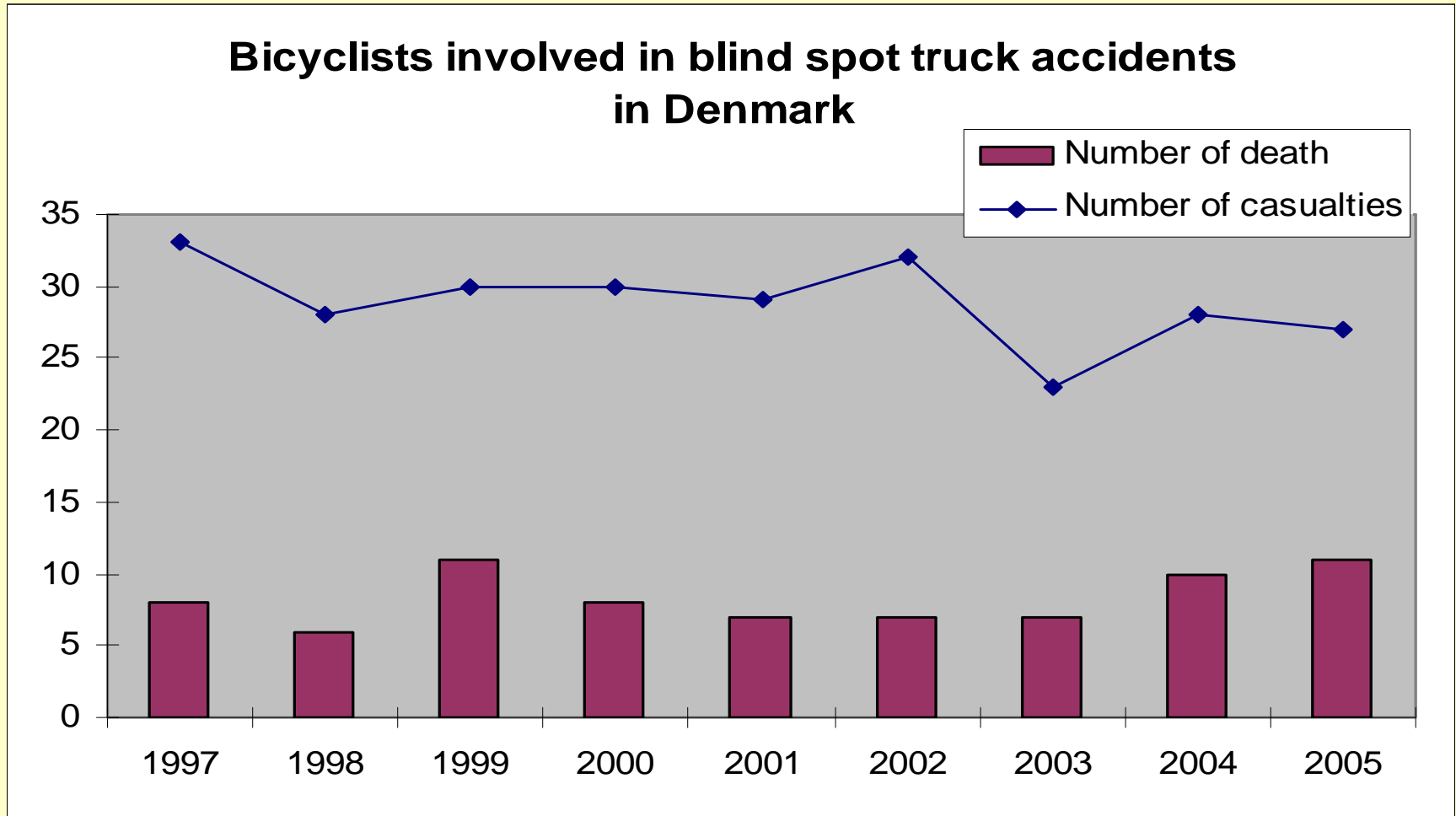
- Investigation accident characteristics (death and hospital casualties 1997-2006)
- Detailed crash data from police reports (2006-2007)
- Interviews and questionnaires cyclists and truck drivers deal with the blind spot problem and accidents
- Observations in the cab concerning the driving behaviour of truck drivers

## Accidents 1997-2007

### Bicyclists involved in blind spot truck accidents in the Netherlands



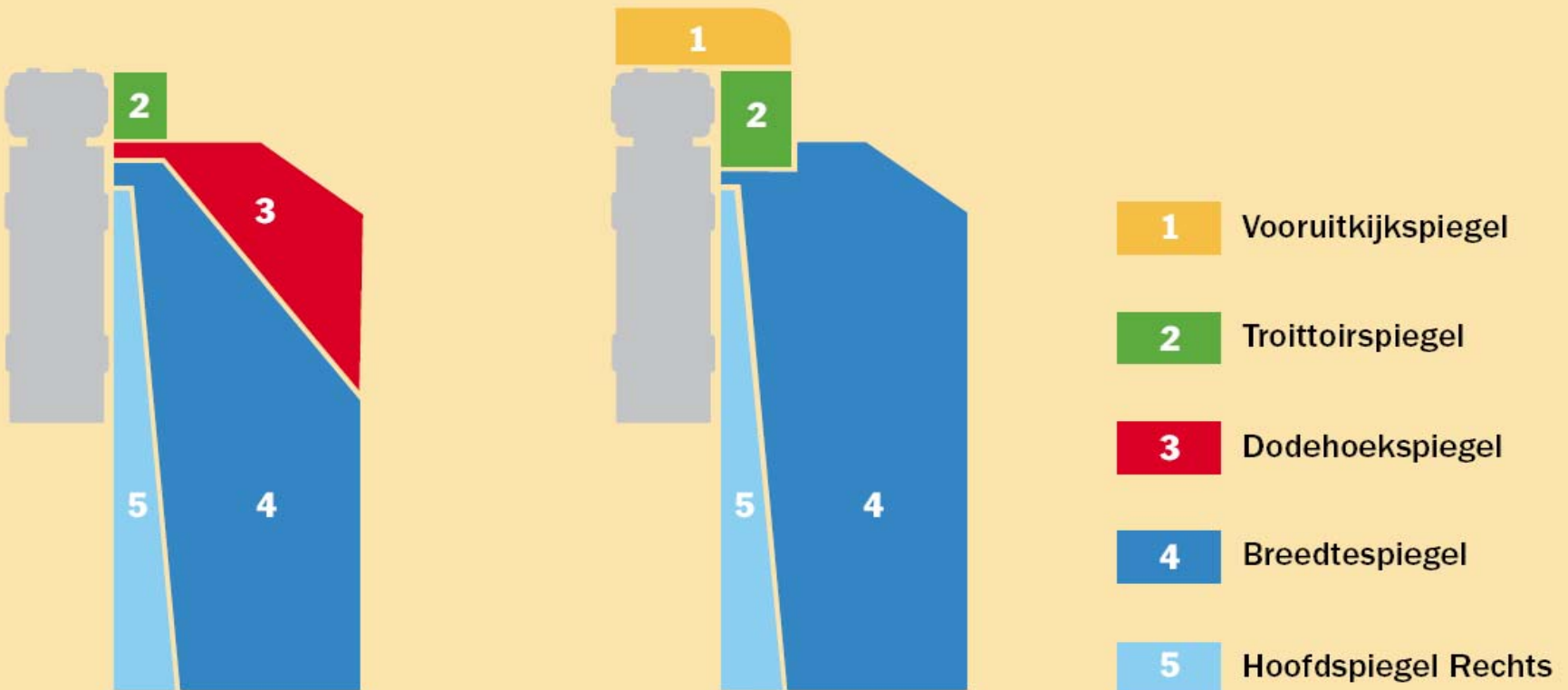
## Figures Denmark



# Legal obligation of mirror fields of view in the Netherlands and Denmark in 2003/2004 (left) and in the EU in 2007 (right)

Verplicht zichtveld voor bestaande NL vrachtauto's van voor 2003

Verplicht zichtveld voor NL vrachtauto's vanaf 2007



## Objects of the investigation

- a. The circumstances of blind spot accidents
- b. The characteristics of the accidents (truck drivers, cyclists, infrastructure and vehicles)
- c. Determine measures with a distinction in short and long run

# Some results from accident analyses in the Netherlands

All accidents with trucks and vulnerable road users:

- Cyclists: 63%
- Pedestrians: 18%
- Mopeds and light mopeds: 19%

→ Focus on cyclists

(N= 4.951; death and hospital casualties; 1997-2006)

All accidents with trucks and cyclists

- Blind spot: 40%
- Others: 60%

→ Focus on blind spot accidents

(N= 420; death and hospital casualties; 1997-2006)

## Most important characteristics of blind spot accidents

- Low risky circumstances:
  - daylight 90%
  - dry 90%
- The problem concerns cities:
  - Urban areas 90%
- Not a specific group of casualties:
  - equal distribution for age classes
  - equal distribution for gender

N= 420 (death and hospital casualties; 1997-2006)

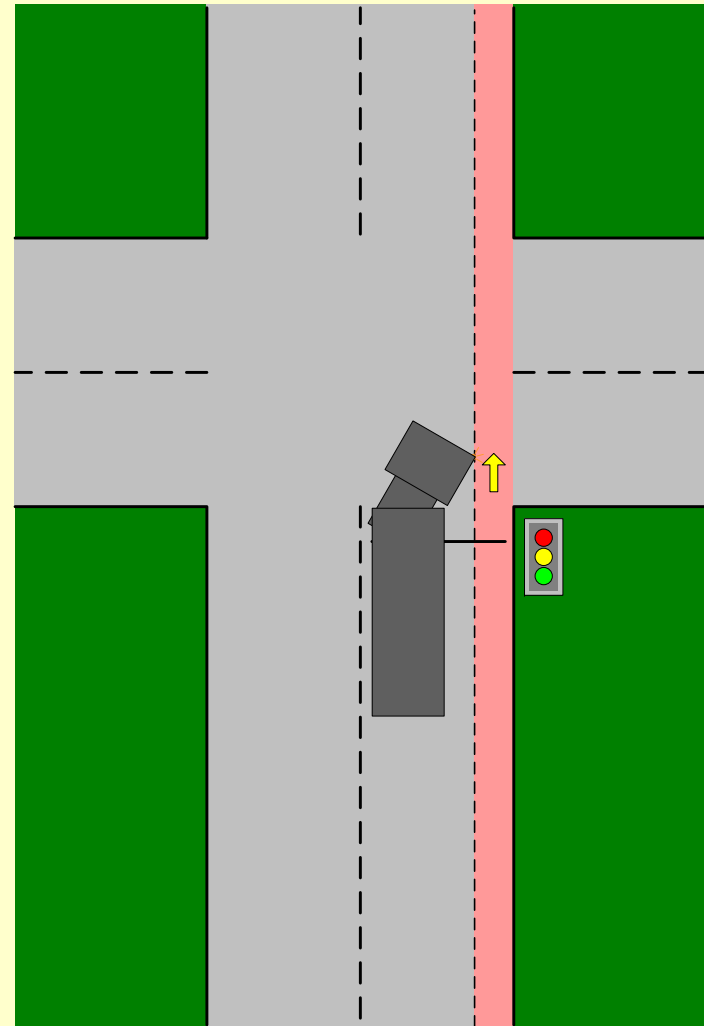
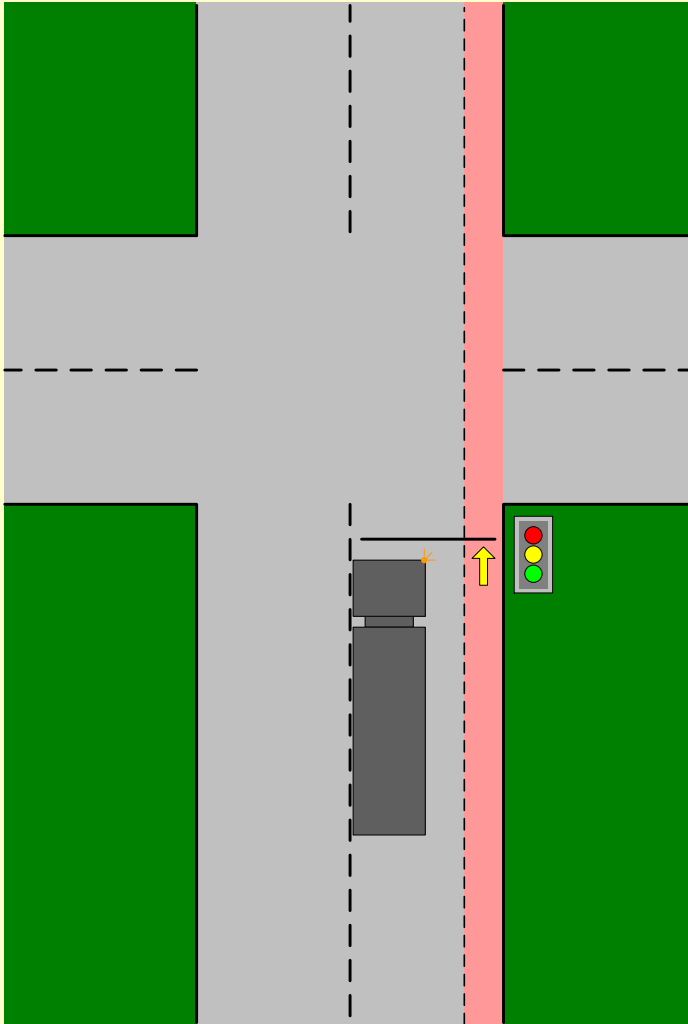
## Accident locations of blind spot accidents

- Crossings (truck turning right)
  - proportion 63%
- Crossings (truck cross a cycling path)
  - proportion 19%
- Roundabouts
  - proportion 13%
- Other 5%

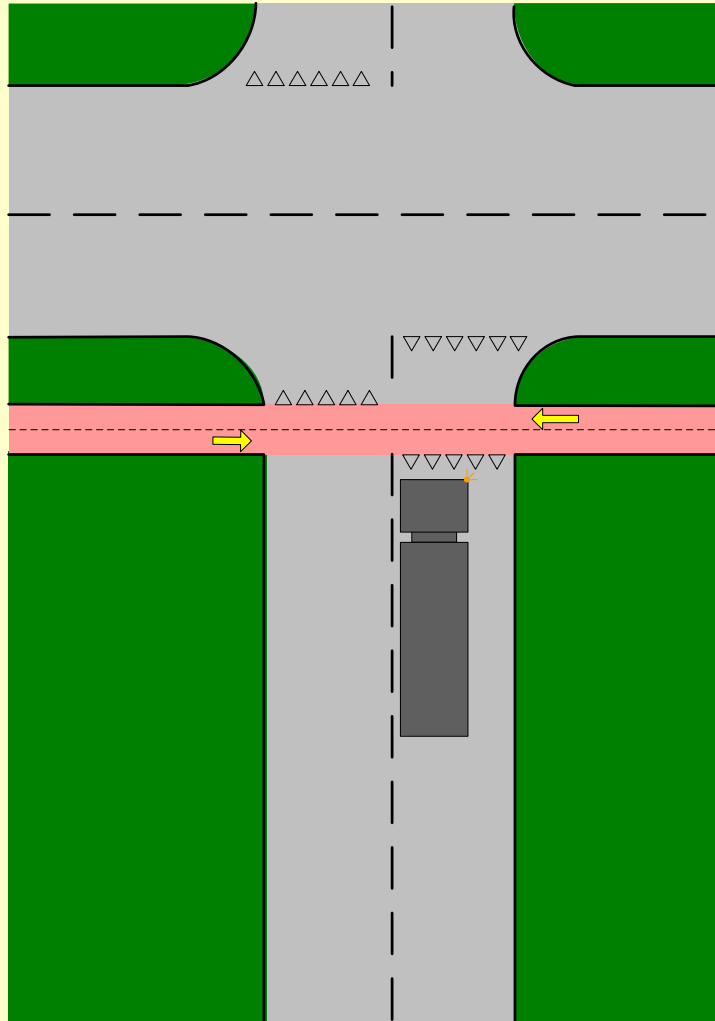
In all cases the cyclist had priority !

(N= 420; death and hospital casualties; 1997-2006)

## Truck turning right / cyclist straight on: proportion 63%



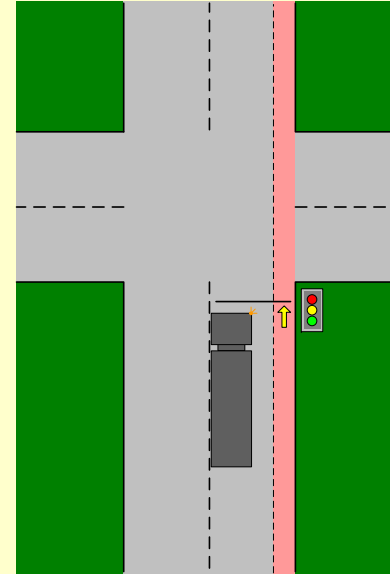
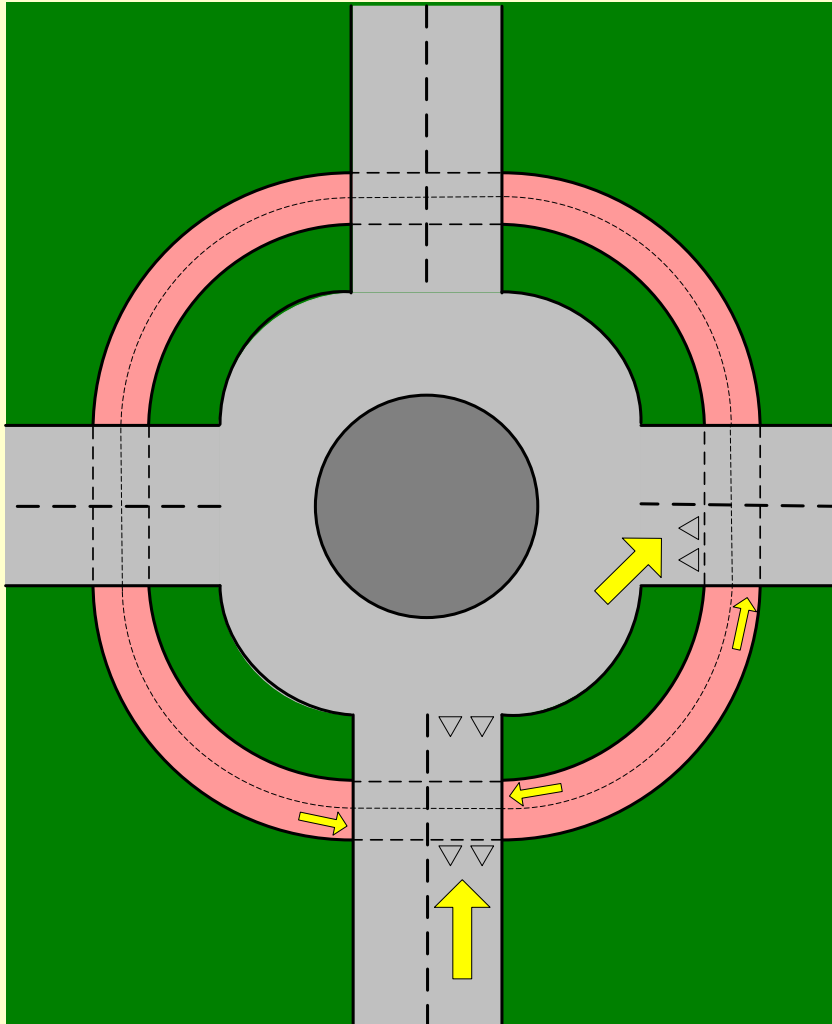
# Truck cross a cycling path: proportion 19%



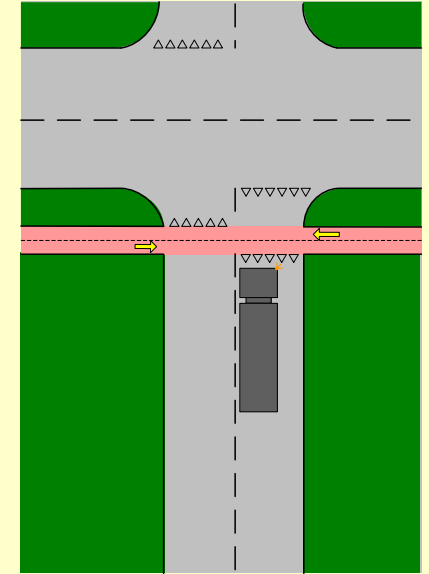
# Roundabouts: proportion 13%

Situation 1: turning right

Situation 2: cross over



Situation 1



Situation 2

## Analysis of in-depth police reports

- Point of crash contact truck – cyclist:
  - front (62%).
  - cabin right side (21%)
  - side of trailer (17%).
- Check adjustment of mirrors (N=19):
  - in 7 cases wrong
- Obstruction of the view of the driver due to things / tools on the dashboard or behind the windscreen
- Many crashed cyclists coming quickly up from behind the truck to catch the green light

(N = 53 seriously accidents; 2006 and 2007)

## The 3 main causes of blind spot accidents

1. Cabins of trucks are too high in urban areas; only drivers with a front mirror have sight on cyclists in front of their cab.
2. Drivers fail to notice cyclists on the right side of their cab:
  - they do not use their right mirrors properly
  - or these mirrors are ill-adjusted
  - partly due to the traffic density.
3. Cyclists have priority
  - they claimed their right of way, being either aware or unaware of a truck turning right
  - a code of conduct for cyclists is missing telling them how to handle with turning trucks.

The best sight for truck drivers is direct sight.

## High cab / Evolution of the city bus



## Example of a truck with more sight



# Measures

## Two types of measures

- A. Long term: structural measures
- B. Short term: a package with 4 measures

## A. LONG TERM MEASURES

### *Structural traffic measures*

Take care of a structural separation of heavy trucks and light traffic like cyclists:

- Heavy trucks only will be admitted to a main road network which gives access to distribution centres, terminals, and so on.
- Light trucks for the distribution will be admitted on the secondary road network.

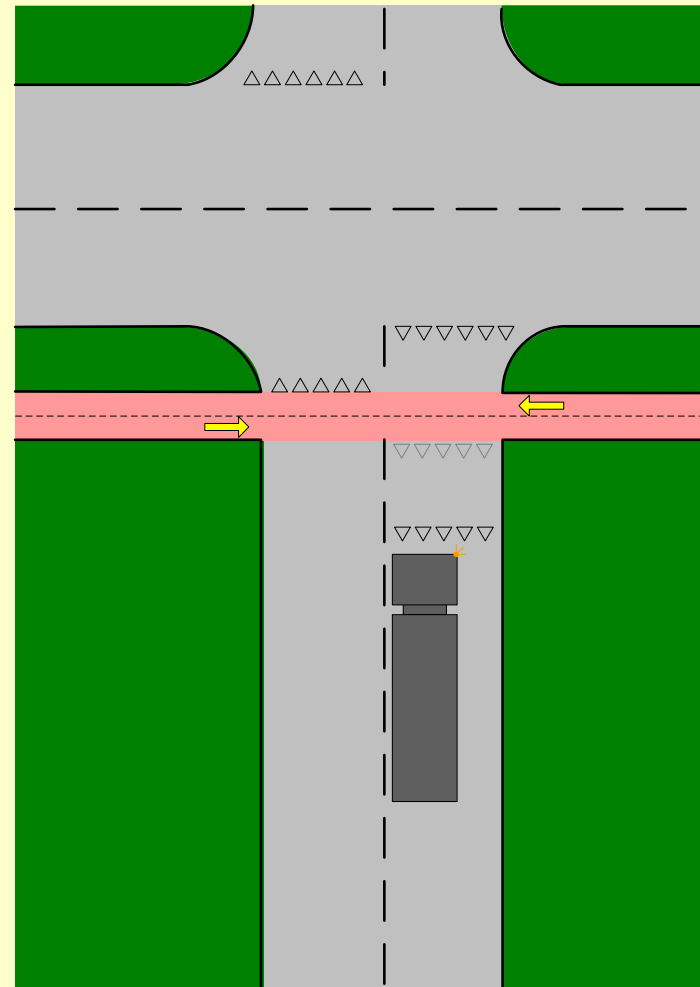
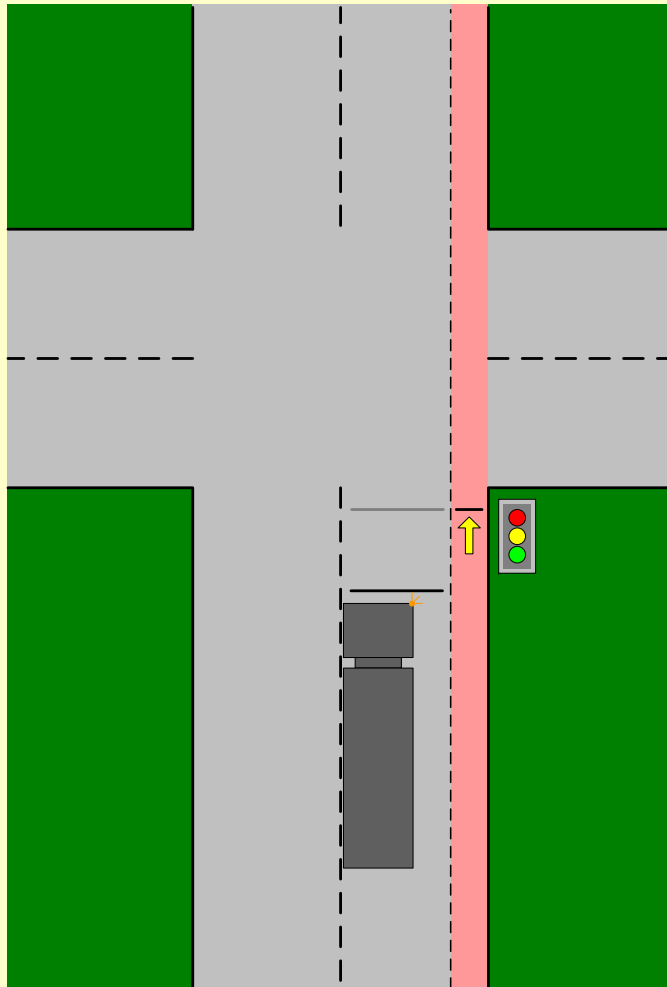
## B. SHORT TERM MEASURES

### 1. *Infrastructure*

1. Separation of cyclists and trucks at locations where trucks can turn right.

## B. SHORT TERM MEASURES

### *ad 1. Infrastructure: trucks more distance to stop line*



## B. SHORT TERM MEASURES

### 2. *A clear code of conduct for cyclists*

- Cyclists must position themselves in front of their own halt line.
  - Cyclists will be the first to depart when the light turns green or when the road is clear
  - Cyclists coming from the rear must remain behind the truck and do not position themselves beside the truck
- A campaign for cyclists to make clear the code.

## Ad 2. Dutch campaign (flyer)

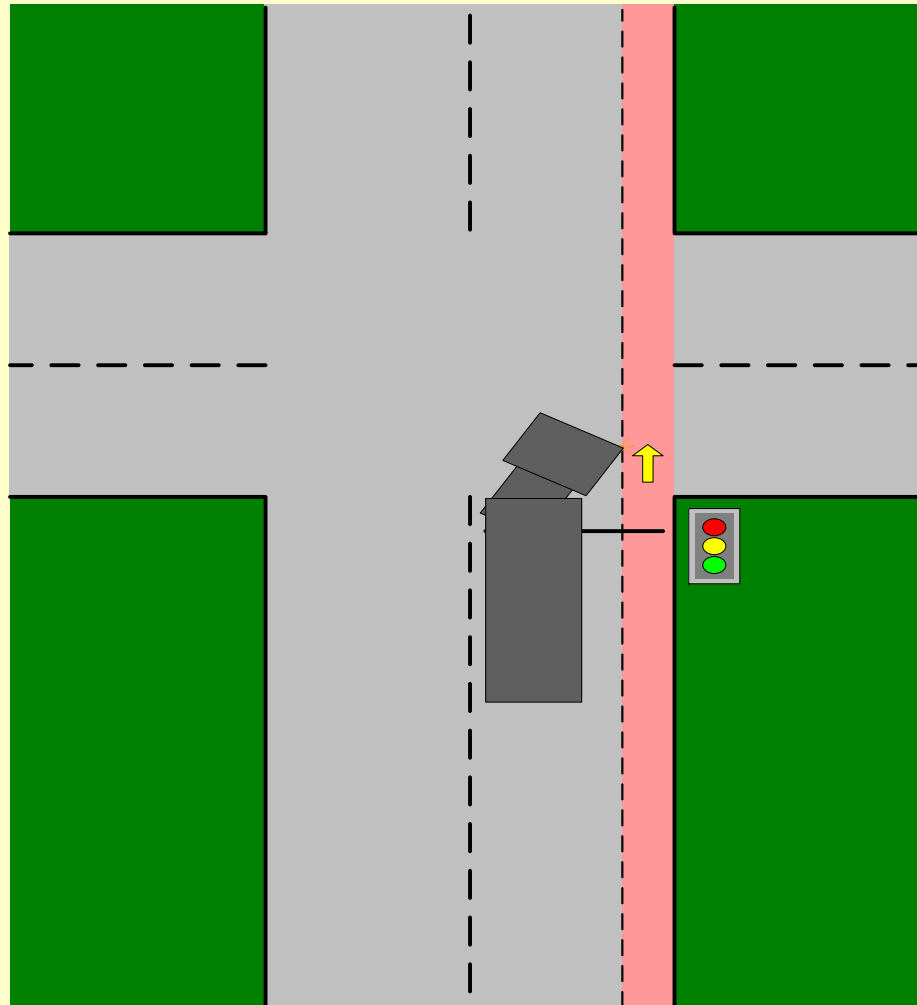


## B. SHORT TERM MEASURES

### 3. *Training for truck drivers*

- Training for taking distance to the stop lines.
- At the location where the truck turns off the driver must carry out an extra check by means of the front mirror.
- These two extra actions needs to be made part of the refresher course for truck drivers (this course is obliged in EU-countries from September 2009).

## Ad 3. A check is compulsory



## B. SHORT TERM MEASURES

### 4. Retrofit of the front mirror

A check on the turning point to right is only possible with a front mirror/camera (compulsory for NEW trucks since 2007).

- SWOV recommend making this system compulsory for all trucks (retrofit for trucks built before 2007).
- An alternative is the electronic detection of cyclists. At this moment an experiment has been carried out in the Netherlands based on the detection of bio mass.

Thanks for your attention