

# ETSC PIN online workshop

14 Dec 2020

# WHO WE ARE





# T&E:

26 Countries

61 Members

5 National experts



# What can a driver see out of the windows?



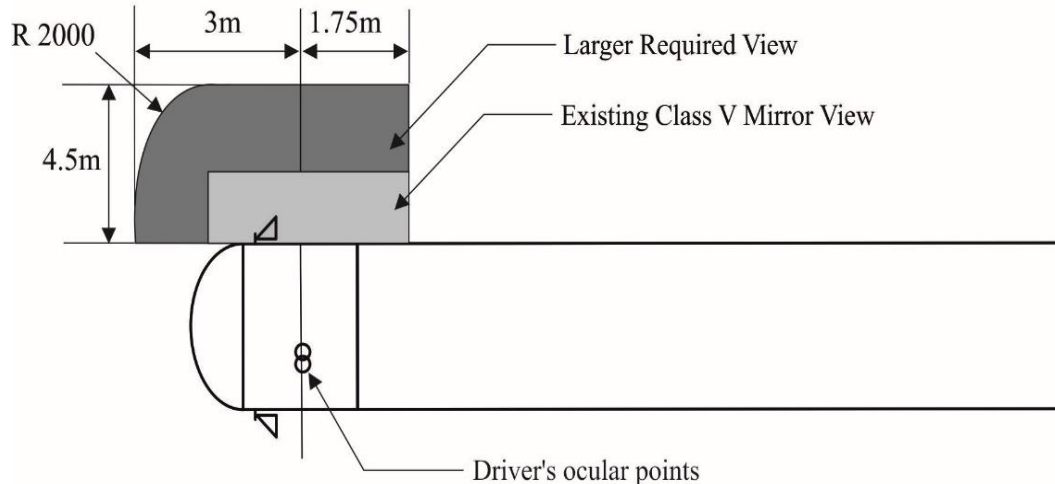
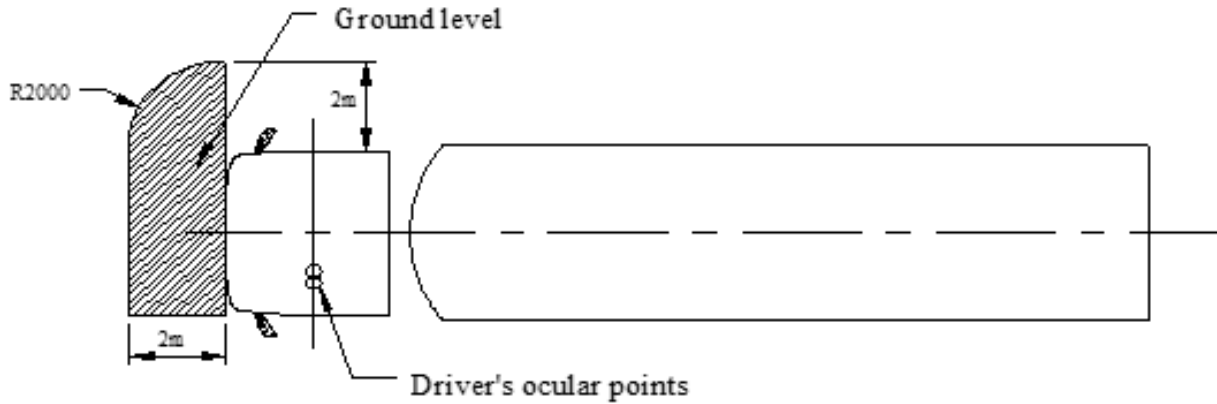
- Height of the drivers seat position + height of lower edge of windscreen create a blind spot in front of the vehicle.
- Similar to the side of the vehicle
- Collisions occur when
  - HGVs are stationary (e.g. at traffic lights), pedestrian crosses in this blind spot, lights go green and driver moves off from rest because they can see no reason not to
  - HGVs turn across the path of a cyclist going straight ahead at a junction

# How big is the problem?

- Evidence from London (Knight et al, 2018) suggests around 50% of relevant fatalities occur at the front of the vehicle, 40% at the passenger side and 10% at the drivers side.
- Trucks only make up 2% of vehicles but are involved in 14% of fatal collisions
- These collisions result in around 3,300 deaths each year in Europe, almost 1,000 of whom are pedestrians, cyclists or motorcyclists, who are frequently invisible to the truck driver due to the vehicle's design.
- For every person killed, around five more suffer serious injuries with life-changing consequences.



# Don't mirrors solve this problem?



- UNECE R46 requires class VI frontal and Class V passenger side mirrors to mitigate the problem
- Must enable an area on the floor 2m to the front and 4.5m to the passenger side to be seen

# Why is direct vision still needed?



- Complete blind spot can still exist between mirror and direct view
- Eliminating that blind spot is still not enough. Mirror views have limitations e.g.
  - Class V/VI mirrors are hard to adjust properly
  - Driver must actively search mirror
  - Mirror located in counter intuitive position – look up and to right to see feet of pedestrian walking at edge of mirror zone
  - Convex mirror required to cover area – small images, distorted near edge of view
  - Significant brain processing time required
- Simulator trials show drivers detect hazards more quickly in direct vision
  - Motion at full size triggers peripheral vision – active searching less needed
  - Life size images, correctly orientate, easy recognition
  - Minimise brain processing time

# GSR Text agreed by EU legislators

“Vehicles of categories M2, M3, N2 and N3 shall be designed and constructed so as to enhance the direct visibility of vulnerable road users from the driver’s seat, by reducing to the **greatest possible extent the blind spots in front and to the side of the driver**, while taking into account the **specificities of different categories** of vehicles”

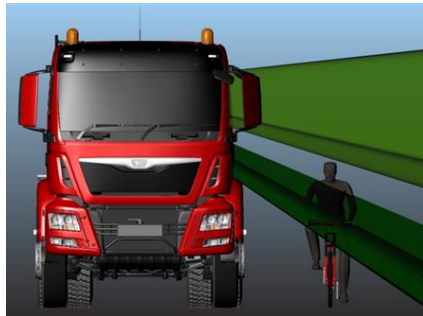
Timeline :

- 2026 all new types
- 2029 all new vehicles



# What improvements are possible?

- Low entry cabs almost eliminate close proximity blind spots – already available today
- Traditional designs can still improve substantially
  - Reduced height
  - Improve window lines, narrower A pillars
  - Replace mirrors with camera monitor systems
  - Lower door windows



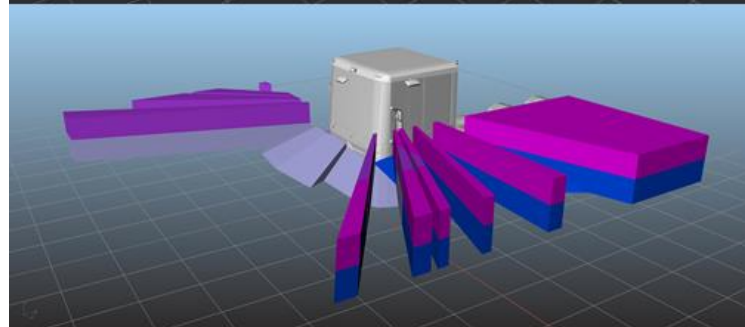
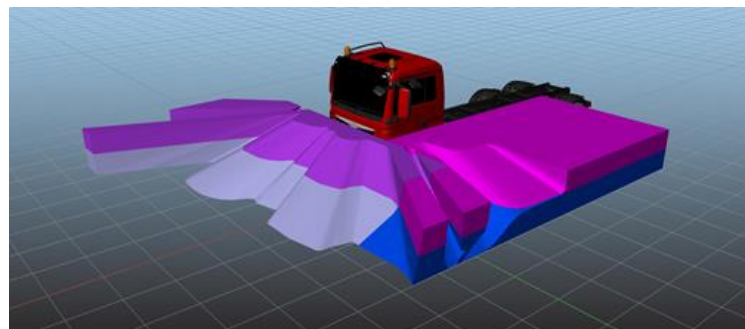
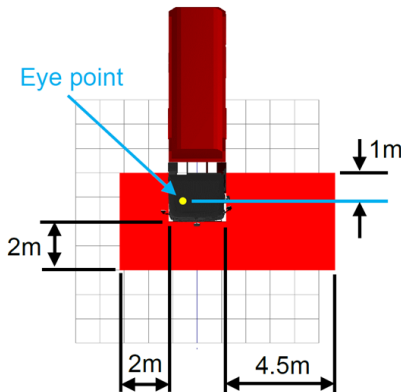
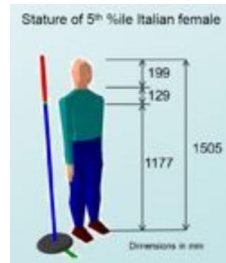
# The case to differentiate

- Casualties occur mostly in cities (almost 60% of relevant GB fatalities in top 5 cities, 37% London alone)
- Industry argues:
  - Long haul trucks operate mainly outside of cities so less benefit to improve vision
  - Long haul needs height between chassis & cab (powertrain, driver comfort)
  - Off-road vehicles do enter cities but must be capable of operating on difficult sites
  - Off road needs height between chassis & ground (manoeuvrability)
- **Proposed solution: differential limits**
  - Category A: regularly enter urban areas (distribution, utility, N3 construction); *see top right image*
  - Category B+: Other trucks with moderate off-road capability (most N3G); *see middle right image*
  - Category B: Seldom enter urban areas (long-haul, extreme off-road); *the bottom right image is a long haul truck*



# What's proposed?

- Measurement technique based on volume visible in a safety critical area around the cab
- Concept is visibility of any area in that zone is a safety benefit – allows industry to innovate e.g. lower door windows
- Limit values proposed by industry much lower than those proposed by safety advocates – will still allow substantial blind spots, particularly at front of vehicle



Right: area of colour is not directly visible.

Upper image shows the (lack of) direct vision from a typical truck today.

Category	ACEA/OICA (Applied whole zone) M <sup>3</sup>	Safety Advocates (limits applied to each side) M <sup>3</sup>
A	8.5	11.4
B+	7	TBC
B	6	8.2

# Next Steps

- Industry to assess economic implications of proposals – which truck makes, models, specifications could not be sold any more without fundamental re-design?
- Details of vehicle type definitions to be resolved for defining cat A, B, B+
- Contracting Parties to make a decision on limit values
- Finalisation of principles of physical test method
- Drafting of regulatory text



# Towards a progressive UNECE standard

## *Political positions at UNECE*

- Progressive: UK, followed by Denmark
- **Regressive/negative:** Germany
- **Overall position not yet shared:** France, Sweden, the Netherlands, Japan

## *City letter*

- London, Paris and Copenhagen have agreed to sign a letter calling for a progressive reform
- Please email me (address on next slide) if you know of other cities





# Thank you

[james.nix@transportenvironment.org](mailto:james.nix@transportenvironment.org)

