HGV Direct Vision Standard

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London has a particular problem with HGVs and VRUs

- In London, HGVs were involved in 136 fatalities between 2010-2016
  - Most (107) were with larger HGVs

- HGVs are disproportionately involved in fatalities with pedestrians and cyclist in London
  - HGVs make up 4% of road kms
  - But were involved with over 70% of cyclist and 20% of pedestrian fatalities over the past three years
  - London much worse than rest of UK urban areas

- Analysis of UK accident database (STATS 19) shows that poor vision is a commonly cited cause of HGV incidents
Mitigating the risk

To reduce road danger so that no deaths or serious injuries occur on London’s roads by 2041

People make mistakes. A **safe system** approach can be used to accommodate human error and ensure impact energy levels are not sufficient to cause fatal or serious injury.

Vision Zero for London

<table>
<thead>
<tr>
<th>Safe Speed</th>
<th>Safe Roads</th>
<th>Safe Vehicles</th>
<th>Safe Behaviours</th>
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</table>

**Freight safety**

- **Safer supply Chains**: Using buying power and planning to manage road risk in supply chains
- **Safer Operations**: Encouraging, supporting and recognising safe and compliant fleets
- **Safer People**: Improving driver and manager knowledge, skills and performance
- **Safer Vehicles**: Stimulating innovative HGV design and providing evidence for change

EVERY JOURNEY MATTERS
# The case for improving direct vision

<table>
<thead>
<tr>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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**Safer Trucks**

- Construction Logistics and Cyclist Safety
- Blind-spot technology and driver cognitive workload
- Evaluating HGV blind-spot safety devices
- HGV blind-spot modelling
- Understanding off-road capable HGVs
- Definition of direct vision standards for HGVs
- Independent test protocol for HGV blind-spot safety devices
- Road safety benefits of eye contact between drivers and vulnerable road users
- Cost-benefit analysis for mandating HGV direct vision requirements (Phase 1)
- High vision HGV fleet evaluation
- Direct Vision Standard rating of HGVs
- DVS Cost and Business Impact Assessment
- DVS Casualty Impact Analysis
- DVS Integrated Impact Assessment (IIA)

**Investigation & evaluation**

- Understanding regulatory non-compliance in London
- CLOCS programme evaluation
- FORS safety training and toolkits evaluation
- Road safety standards for construction and waste sites
The case for improving direct vision

TfL commissioned research to exploring the road safety benefits of direct vision

Indirect vision has a 0.7s slower response time
Risk increases with speed as more distance travelled
Extra distance in urban environment especially high risk

<table>
<thead>
<tr>
<th>Speed</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 mph</td>
<td>4.7m</td>
</tr>
<tr>
<td>10 mph</td>
<td>3.1m</td>
</tr>
<tr>
<td>5 mph</td>
<td>1.5m</td>
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</table>

Bigger collision risk
Indirect vision resulted in increased incidence of simulated pedestrian collisions by 23%

Limits to technology benefits
Drivers processing a cognitive task increased simulated collision by 40%
The case for improving direct vision

‘I feel much more confident driving in the higher vision cab. I don’t want to go back to a standard tipper’

“I’d say just give it a go, it’s opened my eyes. I didn’t see how it could be improved before”

‘You just need to sit in one of the old cabs then get in the new one to realise how important this change is’

‘As a lorry driver, it pains me to say this, but its actually pretty good’
A collaborative approach

- **Academics and Consultants:** Independent and objective
- **Vehicle Manufacturers:** Technical input and innovation
- **Regulators and Government:** International, national and regional
- **Vulnerable Road User Groups:** Road user voices
- **Trade Associations:** Industry voice

Development of DVS
Developing a Direct Vision Standard (DVS) for HGVs

A measure

- The world’s first and only HGV Direct Vision Standard
- It’s an **objective measurement** of the visible ‘volume of space’

A rating

- This measurement is converted to a “star rating’ from zero (worst) to five (best)
- Loughborough University have worked with the principal manufacturers

Application of DVS

- Informs operator purchasing decisions - most suitable vehicle for the city environment
- Manufacturers can use it to improve future designs
- Future European regulations governing HGV designs – an **International DVS**
- Accelerated adoption of safer HGVs in London:
  - DVS based restriction/ban
  - GLA/TfL contracts
Proposal for London

An HGV Safety Permit – London-wide, operating 24/7

- Current HGV fleet has poor direct vision: Safety Permit aims to improve the overall safety of existing HGVs
- From 2020, all HGVs over 12 tonnes would require a permit to enter Greater London

Safety Permit requirement

1. Meet the minimum DVS star rating to be granted a permit (1 star and above from 2020, 3 star and above from 2024)

2. If a vehicle does not meet the minimum DVS star rating, “Safe System” requirements must be met for a permit to be granted

Safe System requirements

- Blind spot elimination and minimisation
- Warning of intended manoeuvre
- Minimising physical impact of a hazard
- Driver safety training: highly recommended, but not mandatory