Measuring direct vision for truck cabs

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Agenda

• Direct vision of truck (and other vehicle) cabs
• Why direct vision? Why now? Why trucks?
• Volpe contribution and future work
• Assembling an advisory group and stakeholders
Direct vision
Direct vision
Why direct vision?

50% faster reaction time through direct vision

Credit: TfL
Why trucks?

- **4%** Vehicle Fleet
- **7%** Pedestrian Fatalities
- **11%** Bicyclist Fatalities
- **12%** Car/Light Truck Fatalities

Credit: FMCSA
WHY TRUCKS: CRASH CAUSATION (UK)

Due to the difficulties in ascertaining the exact cause of an accident after the fact these data must be treated with caution.

However, vision related causal factors account for nearly 37% of all accidents involving a truck and a pedestrian and 33% involving a truck and a cyclist.

This trend was consistent whether at a National level or purely in London.
Direct Vision Standard (DVS)

Alina Tuerk and Vicky Sims
Transport for London
Why Now?
Direct Vision Standard (DVS)

• TfL world’s first Direct Vision Standard for HGVs
• Objective measurement of the ‘volume of space’ weighted by risk to other road users
• This measurement is converted to a “star rating” from zero (worst) to five (best)

• UNECE to support the minimum 1 STAR definition in all new trucks by 2024 and all trucks on the road by 2028
• An EU impact assessment has shown that this could save 550 lives every year in Europe

Sensors  Cameras  Sideguards  Mirrors  Audible warning  Driver training

EVERY JOURNEY MATTERS
Volpe contribution and future work

- **TfL-Volpe DVS info exchange**
  - 2017

- **NACTO best practice report**
  - Mid 2018

- **NYC Fleet announcement on high vision cabs**
  - Late 2018

- **VIEW blind spot app development (w/ Olin/Santos)**
  - 2017-18

- **VIEW demo video with Republic Services**
  - Late 2018
VIEW Blind Spot Measurement App: DATA COLLECTION

1. Place the height measurement pole & camera stand
2. Take vehicle measurements
3. Capture field of view photo
Measurements are taken from the pole to the front bumper, from the bumper to the camera lens, and from the ground to the camera lens.
IMAGE
PROCESSING
WEB APPLICATION

- Upload panoramic photo
- Outputs visibility percentage
- Option to add truck information to database

https://blindspotcalculator.herokuapp.com/
BLIND AND TOTAL VOLUMES
Blind Spot Comparison

71% visibility

57% visibility
Volpe contribution and future work

London DVS takes effect 2019

Volpe VIEW app technical development, fleet testing 2019+

EU DVS takes effect 2024
Stakeholders, awareness and next steps

Is this an issue you were aware of or thinking about?

What other stakeholder agencies or organizations are working in this space? (beyond the table)

What is the path forward to understanding and managing direct vision as an emerging issue?

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<th>OA / Office</th>
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<tbody>
<tr>
<td>FMCSA Technology Division</td>
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<tr>
<td>FMCSA Vehicle and Roadside Operations Division</td>
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<tr>
<td>NHTSA HF</td>
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<td>FHWA Safety and Human Factors</td>
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Thank you

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