

Date: 28 September 2017

Item: Direct Vision Standard for Heavy Goods Vehicles

This paper will be considered in public

1 Summary

- 1.1 In September 2016 we launched the world's first Direct Vision Standard (DVS) for Heavy Goods Vehicles (HGVs) designed to reduce the danger posed by HGVs to cyclists and pedestrians.
- 1.2 The Mayor made a public commitment to use DVS to ban or restrict the most unsafe 'zero star' rated HGVs from London's streets by 2020, and allow only vehicles with 'good' three star direct vision ratings from 2024.
- 1.3 The purpose of this paper is to inform the Panel about the DVS scheme and progress towards delivering this commitment.

2 Recommendation

- 2.1 **The Panel is asked to note the paper**

3 Background

The need for a Direct Vision Standard

- 3.1 One of the Mayor's top priorities is the safety of Londoners. No loss of life is inevitable or acceptable. This is why the Mayor has set out his commitment to a Vision Zero approach to road danger in his draft Mayor's Transport Strategy.
- 3.2 Vision Zero is an ambitious target and to succeed all aspects of road danger need to be addressed, including the danger posed by HGVs to vulnerable road users
- 3.3 HGVs make up less than 4 per cent of the miles driven in London but are involved in 58 per cent of cyclist and 22.5 per cent of pedestrian fatalities. Between 2013 and 2015, 116 cyclists and pedestrians were killed or seriously injured in a collision with a goods vehicle.
- 3.4 Restrictions in the HGV driver's field of vision, or 'blind spots', are a significant contributory factor in HGV and vulnerable road user collisions.
- 3.5 Blind spots are acknowledged by vehicle manufacturers and the bodies responsible for regulating the design of vehicles. The regulatory solution to the blind spot problem to date has been to add mirrors to improve indirect vision. Six mirrors are fitted to HGV cabs and many operators fit further cameras and sensors to further aid the driver.

- 3.6 Significant progress has been made in recent years to improve the safety of HGVs and to help protect vulnerable road users through TfL's award winning Fleet Operator Recognition Scheme (FORS) and the Construction Logistics and Community Safety (CLOCS) programme. There are over 4,500 safer operators accredited to FORS, and 48,000 drivers have received on-cycle hazard awareness training to improve awareness of vulnerable road user safety.
- 3.7 However, progress in terms of vehicle safety has generally been through the retrofitting of safety equipment to existing HGV designs. The CLOCS programme, led by freight industry working groups, identified the need for a fundamental redesign of HGV cabs to reduce the reliance on retrofit equipment and stimulated activity by manufacturers around higher vision cab designs.
- 3.8 Research indicates that drivers react more quickly and are less likely to be involved in a collision when they can see vulnerable road users directly through the windows rather than through indirect vision aids such as mirrors and cameras.
- 3.9 Drivers' increased direct vision from HGV cabs has the potential to save lives as part of a holistic approach to reducing road danger to improve the safety of vehicles, drivers and quality of HGV operations.

4 Developing a Direct Vision Standard for HGVs

- 4.1 Currently there is no standard or regulatory requirement for measuring the amount a driver can see directly from an HGV cab. We have developed the world's first Direct Vision Standard for HGVs.
- 4.2 The DVS is an objective measurement of the 'volume of space' directly visible to the driver around the HGV cab. This measurement is converted to a simple star rating for the level of direct vision from zero (poor) to five (excellent).
- 4.3 There are a number of design features that influence the amount of direct vision, such as the size and shape of the windows, but the most important is the height of the HGV cab. The higher the cab, the less the driver is able to see directly.

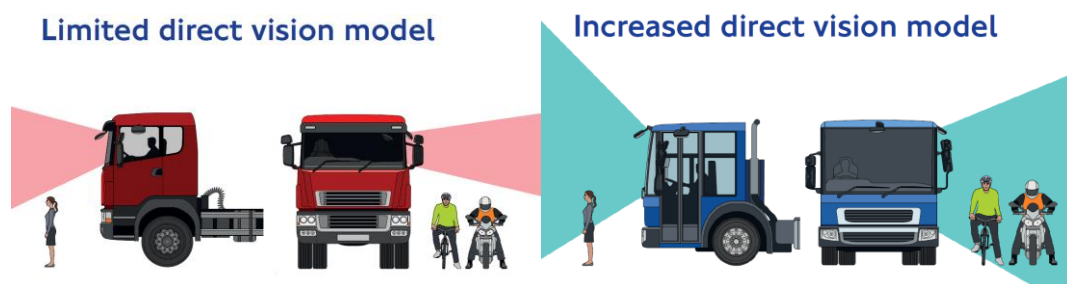


Figure 1: Example of 'zero' star and 'five' star rated vehicles

Opportunities to use the DVS

- 4.4 There are a number of opportunities for using the DVS in the short, medium and longer term, including:
- (a) Influencing voluntary purchasing decisions in the short term and to apply pressure to longer term design of vehicles through:

- (i) Objectively categorising HGVs by direct vision for the first time.
 - (ii) Informing operator purchasing decisions so they can buy the 'best in class' vehicle fit for use in an urban environment, such as London.
 - (iii) Encouraging manufacturers to voluntarily promote higher star rated vehicles to their customers and to guide their future designs.
- (b) Accelerating the adoption of safer vehicles in the short to medium term through:
- (i) Enabling client organisations and projects that employ HGV operators to specify the use of vehicles with improved direct vision in procurement contracts.
 - (ii) Allowing authorities and enforcement agencies to use the DVS within planning policy and regulation and to take action against HGVs with the poorest levels of direct vision.
- (c) Influencing more ambitious design changes in the longer term by
- (i) Lobbying for direct vision to be included within future international regulations governing HGV designs.

Influencing voluntary change

- 4.5 In response to our work on HGV safety, a number of vehicle manufacturers have worked with us to adapt existing vehicle designs and specifications to improve direct vision.
- 4.6 Mercedes Benz and Dennis Eagle are the most advanced vehicle manufacture in the area of five star high vision cab design and developed 'Econic' and 'Elite' cabs over 10 years ago for use in the municipal waste sector. In 2014, we were told that it was 'impossible' to use these HGV cabs in other sectors, such as construction, because of restrictions on weight and payload.
- 4.7 However, by 2015/16 both manufacturers had developed the cabs as skip loaders and 20 tonne tippers as an output of the CLOCS programme. Volvo has also brought its low-entry, high vision cab option back to market which is now on sale in the UK. They have been taking orders despite the premium of £16,000 - £20,000 per vehicle and we now have more than 70 on London's roads.



Figure 3: HGV construction cab compared to Mercedes Econic, five star HGV cab

4.8 We have produced a film demonstrating the differences in direct vision between five star and zero star rated HGVs which is available here: <https://tfl.gov.uk/info-for/deliveries-in-london/delivering-safely/safer-trucks>

4.9 Vehicles are now available that meet each of the star ratings but the premium exists for four and five star vehicles, because they are produced in small volumes and in short supply. Some higher star rated vehicles are also unable to operate in certain environments, for example on construction or waste sites, because the current designs mean the cabs are too low to the ground and unable to deal with irregular ground conditions. We have produced a set of 'site standards', which are being used voluntarily and that we proposed to include in the new London Plan to help improved site conditions to enable to the use of safer vehicles.

Public commitment

4.10 In the medium term, it is possible to accelerate the adoption of safer HGVs with improved direct vision through the use of buying power and local regulatory measures. In September 2016, the Mayor made a public commitment:

- a) For TfL and the GLA group to 'lead by example' and include the DVS within future procurement contracts; and
- b) To use the DVS to restrict the most unsafe 'zero star' rated HGVs from London's streets by 2020, and allow only vehicles with 'good' three star direct vision ratings from 2024.

4.11 We are the first client authority to include requirements for our suppliers to use vehicles with higher DVS ratings in our contracts with other major projects, including Tideway Tunnel, following our lead.

4.12 However, the number of vehicles we can directly influence in this way to reduce road danger is limited as we estimate that only four per cent of HGVs in London currently work in our supply chains.

4.13 Measures to ban or restrict HGVs, using the DVS, have more potential to reduce road danger in the short to medium term and our progress towards delivering this commitment is discussed in more detail in section 5.

Lobbying for regulatory change

- 4.14 Direct Vision from the majority of current HGV designs is poor and there is potential to go further in the longer term to influence the next generation of cab design.
- 4.15 Manufacturers support the principle of improving the driver's direct vision and the setting of a more ambitious safety standard in European regulations, which allows them time to incorporate improved direct vision into the next generation of vehicle design.
- 4.16 The European Commission (EC) is currently reviewing the regulations governing the design of vehicles sold in Europe. There is a 'once in a generation' opportunity to lobby for our DVS to be included in these regulations (see section 5).
- 4.17 Any design changes would not become mandatory until 2028, and we are also lobbying for this date to be brought forward.

5 Progress towards meeting the Mayoral commitment to ban or restrict the most unsafe HGVs

Phased approach to consultation and implementation

- 5.1 The implementation of measures to ban or restrict the most unsafe zero star vehicles requires close working with the UK Government and the European Commission, including compliance with relevant UK and European law requirements.
- 5.2 We must carry out a careful examination of the likely impacts covering issues such as road-user safety; the social, environmental and economic benefits to society of reduced fatalities and injuries; the wider impacts on equalities, traffic movement and congestion, the construction industry, London's economy and business generally, and related practical and logistical implications. A reasonable lead-in period to 2020 will be required to allow time for necessary adjustments.
- 5.3 We are following a phased consultation and engagement process in order to consider these wide ranging impacts and help develop a scheme proportionate to the problem of HGV and vulnerable road user safety.
- 5.4 The Phase 1 consultation ran from January to April 2017, seeking views on the DVS methodology and concept itself. We have been using feedback from this consultation and an Integrated Impact Assessment (IIA) to develop a scheme proposal for banning or restricting the most unsafe HGVs. The consultation document is attached at Appendix 1.
- 5.5 The next phase (Phase 2a) will be a policy consultation on detailed proposals for the HGV Safety Standard Permit Scheme set out below and on the interim DVS ratings of individual Euro VI HGV models (see below). The consultation document will be accompanied by the appropriate impact assessments and will also respond to the issues raised in the Phase 1 consultation.

5.6 Feedback from the Phase 2a consultation will feed into the final scheme design. If matters are then to proceed, a final consultation (Phase 2b) on statutory proposals to implement the HGV Safety Standard Permit Scheme is due in the Spring/Summer of 2018. The start of that consultation will be subject to UK Government and European Commission support and notification. We have been working closely with both regulators to keep them informed of the emerging proposals.

Publication of interim DVS ratings

5.7 In parallel to our work to develop the scheme proposals, we have worked closely with manufacturers, academics and leading technical experts to finalise the method used to rate vehicles and produce a set of interim DVS star ratings. The ratings are interim because the rating methodology and individual model ratings will be included in the policy consultation this autumn.

5.8 The DVS star ratings have been set in a way that reflects the ambition to reduce the risk to vulnerable road users and encourage development of HGV designs with greater direct vision.

5.9 For an HGV to meet a 'one star' DVS rating, at least the head and shoulders of 99 per cent of the European population must be able to be seen within 2m to the front, 4.5m to the near side and 0.6m to the off side of the HGV cab. This distance is linked to where people become directly visible within the area covered by the existing close proximity mirrors and indirect vision becomes complemented by direct vision.

5.10 The two, three, four and five star rating boundaries are set by equally dividing the volume of space over and above the one star measurement to show relative direct vision performance.

Intersection between DVS scheme and the Ultra Low Emission Zone (ULEZ)

5.11 The proposed DVS-based HGV Safety Standard Permit Scheme and ULEZ schemes impact HGV operators within similar timescales and we are considering the combined impacts of both schemes within the integrated impact assessment.

5.12 The first phase of the DVS consultation found that some operators were delaying the purchase of ULEZ compliant HGVs while waiting for DVS ratings.

5.13 On 22 September we published the interim DVS ratings for the majority of new HGVs, which are Euro VI emissions rated to give operators certainty on what to buy to be compliant with both schemes. Ratings for older vehicles will be available later this year to help operators plan the replacement of their older vehicles.

5.14 The interim star ratings showed that direct vision is extremely poor from the majority of the Euro VI HGVs rated to date.

Development of an HGV Safety Standard Permit Scheme following Vision Zero principles

- 5.15 Setting the rating boundaries in a way that seeks to best reduce the risk to vulnerable road users means a large proportion of the HGV fleet entering London will not meet the one star DVS rating by 2020. It is clear that direct vision has important advantages in reducing road danger, and the scheme will ensure that standards of direct vision increase as rapidly as they can across London. As this happens, we want also to recognise the important role that other safety measures can play and ensure that the supply of freight vehicles can continue to meet the needs of a growing city. Following Vision Zero principles in the draft Mayor's Transport Strategy, we are proposing to take a 'safe system' view, as we do for bus safety risk. An opportunity for greater safety benefits exists if the ambition is set wider than looking at DVS alone.
- 5.16 We are proposing to develop and deliver this safe system through a mandatory phased HGV Safety Standard permit scheme. Unlike the Euro emissions standards which exist in European regulations and are included within existing vehicle registration data, the DVS ratings are new and unable to be identified within existing vehicle registration data, and therefore cannot be linked to the number plate. We therefore need to deliver measures to ban or restrict vehicles with unacceptably low direct vision under a permit scheme, where we assess HGVs for compliance before issuing a permit.
- 5.17 In broad terms it is proposed that all HGVs over 12 tonnes working in or entering London from 2020 would require a safety permit to operate, regardless of how good their DVS rating is.
- 5.18 In phase one of the permit scheme, zero star HGVs would be banned from entering London by 2020 unless they can demonstrate compliance with other measures in a recognised 'safe system'. Specific measures will be linked to existing HGV industry recognised safety standards, e.g. fitting indirect vision and sensors that detect cyclists/pedestrians; audible warnings to vulnerable road users; and driver training. This means the most unsafe zero star HGVs would be banned if unable to improve their safety. HGVs rated one star or above would automatically receive a safety permit, allowing them into London.
- 5.19 Phase two of the scheme would look to ban or restrict HGVs rated two star and below from entering London by 2024, unless they prove a 'progressive safe system'. This approach allows us to strength the definition of 'safe system' to include proven future safety technology solutions as they emerge.
- 5.20 We will consult in detail on both the HGV Safety Permit Scheme and the 'safe system' during the Phase 2a consultation in the autumn.

Influencing more ambitious change through regulations

- 5.21 If implemented, our two phased HGV Safety Standard permit scheme proposals will encourage vehicles in London to be among the best available on the market, but because the current levels of direct vision are so poor, the next generation of cab design must be fundamentally better.

- 5.22 As detailed in Section 4, manufacturers support the principle of a more ambitious Direct Vision Standard, providing it is set in European regulations – allowing them time to incorporate it into next generation vehicle design.
- 5.23 Part of the reason direct vision from vehicles is so poor is because of the restrictions in vehicle length imposed by the regulations. The cabs are narrow, with the driver positioned high up over the engine in order to maximise the payload at the back.
- 5.24 We have already had success in influencing regulatory change in Europe with our lobbying in part leading to the revision of the Weights & Dimensions Directive. This now allows vehicles to be longer if they meet safety improvements, including direct vision, that are detailed in the General Safety Regulation (GSR).
- 5.25 The GSR is currently under review by the EC. We have already submitted evidence to support the inclusion of direct vision requirements and the European Commission is open to using our DVS to set a future direct vision standard in the regulations, subject to an analysis of the costs and benefits.
- 5.26 We are proposing to approach the DfT and EC to develop a joint specification for how London's DVS can be adapted for use within the regulations.

6 Next steps

- 6.1 Autumn 2017: Launch a policy consultation (Phase 2a) on proposals for the HGV Safety Standard permit scheme, 'safe system and interim DVS ratings and methodology, to be accompanied by an integrated impact assessment and response to the issues raised in the Phase 1 consultation.
- 6.2 Autumn 2017: Publish interim DVS star ratings for HGV models older than Euro VI.
- 6.3 Winter 2017- 2018: Analyse responses to the policy consultation, refine scheme proposals and update the appropriate impact assessments and analysis.
- 6.4 Spring/Summer 2018: Launch a statutory consultation (Phase 2b) on the appropriate regulatory measure to enable any ban or other restriction, subject to Government and European Commission support.
- 6.5 Pre-2020: a lead-in period to allow necessary adjustments and preparation for compliance.
- 6.6 2020: enforcement of the regulatory measure for the DVS scheme will go live.

List of appendices to this report:

Appendix 1 – Phase 1 Consultation Document

List of Background Papers:

None

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