HGVs and Vulnerable Road Users

Introduction

Many different types of large vehicles, including skip lorries, dumper trucks, box vans, concrete mixer trucks, articulated HGVs and so on, share the road with pedestrians, pedal cyclists and motorcyclists. Although, there are relatively few collisions between large vehicles and these vulnerable road users, when they do occur, they often result in serious or fatal injury.

Vulnerable road user casualties in reported road accidents involving at least one HGV: GB, 2015[1]

Severity	Pedestrian	Pedal cyclist	Motorcyclist 50cc and under	Motorcyclist over 50cc
Fatal	55	20	0	21
Serious	131	87	4	110
Slight	310	270	18	170
Total	**496**	**377**	**22**	**301**

Cyclists

Cyclists are less likely to be involved in a collision with an HGV than a car but when they are, they are more likely to be killed or seriously injured. In 2015, 107 pedal cyclists were killed or seriously injured on British roads in accidents involving at least one HGV. HGVs present a particular danger to cyclists when turning left - 55% of cyclists who were seriously injured by HGVs in London were hurt when the driver turned left across their path. Between 2009 and 2013, lorries were involved in almost a quarter of cyclist deaths despite comprising only 5% of traffic. Cars, in comparison, accounted for 78% of traffic, but 58% of cyclist fatalities.[2]

Pedestrians

More pedestrians are killed or injured casualties in collisions with HGVs than cyclists. In 2015, 186 pedestrians were killed or seriously injured on British roads in accidents involving at least one HGV.[1] A review of 200 accidents in which a pedestrian was killed in London between 2006 and 2010[3] found that 56% of the pedestrians were struck by a car, 17% by a bus or coach and 14% by an HGV. 27 pedestrians (15 male and 12 female) were killed in collisions with HGVs, almost two-thirds of whom were aged over 60 years old. Most of the collisions were on 30 mph A roads.

Over half of the HGVs which hit a pedestrian were moving off when they struck the pedestrian, and almost all the pedestrians were crossing the road in front of the HGV at the time of the collision. In some cases the driver failed to stop because they had not realised that a collision had occurred. The report concluded that improving the forward vision to enable the driver to see pedestrian in front, ensuring, and side vision, ensuring that mirrors and/or sensors are fitted and used, and educating pedestrians about the dangers of crossing the road directly in front of an HGV may have avoided the majority of HGV collisions.

[1] Data from Reported Road Casualties Great Britain 2015, supplied by the DFT
[2] Focus on Cycling in "Reported Road Casualties Great Britain 2013", Department for Transport, 2014
[3] "Analysis of police collision files for pedestrian fatalities in London, 2006-10" TRL Published Project Report PPR620, 2012

Motorcyclists

Slightly more motorcyclists are killed or injured casualties in collisions with HGVs than cyclists. In 2015, 135 motorcyclists were killed or seriously injured on British roads in accidents involving at least one HGV. Almost all of the motorcyclists were on motorcycles over 500cc (only four of the seriously injured riders were on 50cc and under machines.[4]

A review of 94 fatal road accidents in which a motorcyclist was killed in London between 2006 and 2009[5] found that 44 of the motorcyclists (47%) were struck by a car, 14 (13%) by an HGV, including 1 skip lorry and 1 mobile crane, and 2 (2%) by a bus or coach. The most common manoeuvres were a HGV turning right across the path of the motorcyclist, turning left into a motorcyclist's path, overtaking and lane changes.

In recent years, most attention, especially in the media, has focussed on cyclists and HGVs, than on pedestrians or motorcyclists and HGVS. However, as can be seen in the table above, far more pedestrians are killed or seriously injured by HGVs than cyclists, and the number of motorcyclist casualties is about the same as pedal cyclists.

This 'Inventory' summarises the different measures that are in place to reduce the risk of HGV collisions involving pedestrians, pedal cyclists and motorcyclists, to help identify areas where future progress could be pursued.

[4] Data from Reported Road Casualties Great Britain 2015, supplied by the DFT

[5] "Analysis of Police collision files for motorcyclist fatalities in London, 2006-09", Published Project Report PPR621, 2013

The Regulatory Regime for HGVs

The use of HGVs on our roads is governed by a comprehensive regulatory regime. A considerable amount of work is also underway, particularly with good practice management schemes and technological solutions. In recent years, there has been considerable focus on understanding the risk to cyclists and developing measures to reduce this risk. However, there has been less attention paid to the risk to pedestrians.

The Operator ('O') Licensing system for HGV Operators

A goods vehicle operator's licence is required to operate a goods vehicle of over 3.5 tonnes gross plated weight or an unladen weight of more than 1,525kg to transport goods for hire or reward or in connection with a trade or business. It is an offence to operate a goods vehicle without a valid 'O' licence if one is required. Full details can be found at "Being a Goods Vehicle Operator".

Standard 'O' licence holders must have at least one transport manager, who can be the operator themselves or a qualified person(s) employed in this role. Operators and transport managers must be of good repute and satisfy the requirement of professional competence. Transport managers must hold a Certificate of Professional Competence (CPC) or an acceptable equivalent.

There are some exemptions to the requirement to hold an operator's licence. In 2015, the DfT consulted on removing the exemptions from certain types of large vehicles, which RoSPA and the National Road Safety Committee supported (www.rospa.com/rospaweb/docs/advice-services/road-safety/consultations/2015/goods_vehicle_operator_licensing_exemptions.pdf).

Operators must ensure that their vehicles are kept in a fit and serviceable condition at all times, and adequate systems are in place, including management structures, monitoring, recording and reporting systems, to make sure that they and their staff are able to obey road traffic laws, driver licensing and driver CPC rules, drivers' hours rules and the Working Time Directive.

The licensing provisions can be found in the:

- Goods Vehicles (Licensing of Operators) Act 1995
- Goods Vehicles (Licensing of Operators) Regulations 1995
- Road Transport Operator Regulations 2011
- Goods Vehicles (Licensing of Operators) (Fees) Regulations

Guidance for large vehicle operators is available in "Being a Goods Vehicle Operator", and "Good Vehicle Operator Licensing: A Guide for Operators."

Similar rules apply to buses and coaches, and guidance for Public Service Vehicle Operators is available at "PSV (Public Service Vehicle) Operator Licences"

Traffic Commissioners

The operator licensing system in Great Britain is divided into eight traffic areas, each of which has a Traffic Commissioner who is responsible for issuing operator licences in their area. Their function is to ensure that only safe and reliable operators of goods and passenger vehicles are licensed, Traffic Commissioners have powers to take regulatory action, including revoking or suspending an operator's licence, reducing the number of vehicles, their weight or hours of operation. They also have powers to take action against an Operator's Transport Manager, including declaring them unfit and invalidating their CPC.

Further details of the role of Traffic Commissioners can be found at
https://www.gov.uk/government/organisations/traffic-commissioners

The Driver and Vehicle Standards Agency (DVSA)

The Driver and Vehicle Standards Agency (DVSA) ensures that operators of heavy goods and passenger vehicles comply with legislation relating to drivers' hours, roadworthiness of their vehicles, operator licensing and safe loading. The DVSA employ Examiners who have the power to inspect any goods or passenger-carrying vehicle and to issue a prohibition notice, or impound or confiscate the vehicle or its load if a safety defect is found or the driver has breached the driver's hours rules. They can also enter the Operator's premises to investigate their vehicle maintenance regime and records of tachographs, etc. DVSA Examiners can issue fixed penalty notices for certain offences and instigate prosecution proceedings.

The DVSA uses the Operator Compliance Risk Score (OCRS) system to decide which operators should be inspected. This calculates the risk of an operator not following rules on roadworthiness and drivers' hours, and helps the DVSA to target its inspections. Operators with higher OCRS scores are more likely to be inspected.

HGV Drivers

Lorry drivers must:

- Have a full car (category B) licence
- Have a category C (for vehicles over 3,500kg) or C1 (for vehicles weighing between 3,500 and 7,500kg) licence
- Be over 18 years old (with some exceptions)
- Meet the medical standards for driving a Group 2 vehicle
- Hold a Driver Certificate of Professional Competence (CPC)
- Take 35 hours of periodic training every 5 years to stay qualified
- Sign a declaration every 5 years until aged 45 years, and then every year from age 65 years, that they still meet the medical standards for driving a Group 2 vehicle
- Provide a medical report every 5 years after the age of 45 years, and then every year from 65 years of age, stating that they still meet the medical standards for driving a Group 2 vehicle.

Further details of the requirements for holding a goods vehicle or passenger carrying driving licence can be found at "Become a Lorry or Bus Driver".

Drivers Certificate of Professional Competence (CPC)
Drivers must do 35 hours of periodic training every 5 years to keep their Driver Certificate of Professional Competence (CPC), and must carry their Driver Certificate of Professional Competence (CPC) card when driving a lorry, bus or coach professionally. It is an offence, with a penalty of a fine of up to £1,000, to drive a goods vehicle professionally without a Driver CPC. The syllabus for Driver CPC periodic training courses is specified in the European Directive 2003/59/EC, and includes defensive driving, anticipating danger and making allowance for other road users. Courses must be approved in order to count towards periodic training. The DVSA are the competent authority responsible for the approval of training centres and periodic training courses.

In 2013, the London Mayor and Transport for London (TfL) proposed that a mandatory road risk module, including minimising road risk to vulnerable road users, particularly in the urban environment, be included in the syllabus. Following consultation, the Government requested the DVSA to ensure that periodic training takes account of other road users, particularly those that are vulnerable. Therefore, all CPC courses seeking approval from April 2015 should include reference to vulnerable road user safety training. The DVSA's National Standards for driving lorries and buses includes advice about how to interact with vulnerable road users. Further details can be found at "Driver CPC training for qualified drivers" and the "National standard for driving lorries (category C)."

Drivers' Hours
Drivers of goods vehicles or passenger-carrying vehicles must follow Drivers' Hours Rules which set limits on how many hours they can drive and the breaks they must take. Operators must ensure that their drivers comply with these rules. These rules are extremely important as they reduce the risk of drivers falling asleep when driving. There are three sets of rules that could apply, depending on the type of vehicle and the journey:

- EU rules
  EU rules apply if the maximum permissible weight of the vehicle is more than 3.5 tonnes and it is being driven in the EU (including the UK), an European Economic Area (EEA) country or in Switzerland

- AETR rules
  AETR (European Agreement Concerning the Work of Crews Engaged in International Road Transport) rules apply if your vehicle will pass through an AETR country.

- GB domestic rules
  GB domestic rules apply if the maximum permissible weight of the vehicle is under 3.5 tonnes and the vehicle is exempt from EU rules when driven in the UK

An approved analogue or digital tachograph must be used when driving under EU or AETR drivers' hours rules to record how many hours the driver has driven, their breaks and rest periods, the vehicle's speed and the distance the vehicle has travelled. This enables compliance with the rules to be monitored. Operators must ensure that tachographs have been calibrated, inspected and re-calibrated. They must also ensure drivers are properly trained and instructed on the rules relating to drivers' hours and the correct use of tachographs, and that work schedules and payment regimes are set so that drivers can comply with the rules.

For further details see:
- **Drivers' Hours**
- **Goods vehicles: rules on drivers' hours and tachographs**
- **Passenger vehicles: rules on drivers' hours and tachographs**
- **Emergency exemption and temporary relaxation of drivers' hours and working time rules**

HGV Design and Construction

Operators and drivers are responsible for ensuring that their vehicles are safe and roadworthy. This includes the operator ensuring that they implement an appropriate inspection and monitoring regime, including regular MOTs, services, and recording of defects. Drivers must do daily inspections of their vehicles.

Both the Fleet Operators Recognition Scheme (FORS) and the Construction Logistics and Cyclist Safety (CLOCS) initiatives include rules about vehicle safety with which large vehicle operators must comply order to be accredited by these schemes.

The CLOCS Standard for construction logistics requires operators to fit certain safety equipment to their vehicles, including:

- Warning signs to alert other road users not to get too close to the vehicle
- Side-guards, including on vehicles that have previously been exempt from fitting them
- Mirrors to eliminate or minimise blind spots and sensors, audible alerts and cameras
- Audible vehicle manoeuvring alerts

Full details are available in the CLOCS Guide - Vehicle safety equipment and the Standard for construction logistics: Managing work related road risk, which are designed to help operators meet the vehicle safety equipment requirements of the CLOCS Standard.

Driver's Field of View
Large vehicles are required to be fitted with Class V mirrors to minimise blind spots immediately to the side and front corner of the passenger door, and Class VI mirrors to minimise the blind spot immediately in front of the driver's cab. However, there are still blind spots in which cyclists and pedestrians can be hidden from the driver's view directly in front of the vehicle and on its nearside, and drivers sometimes put items (curtains, cuddly toys, etc) that can hinder their view.

Cameras and sensors are often used to help drivers to see into the blind spots and to alert the driver if a road user enters a blind spot.

Cab Design
The London Cycling Campaign has developed a Safer Urban Lorry design, which it has called for the construction industry to adopt. The design includes a lower seating position, larger windows and early warning cameras and sensors, to give the driver a much clearer and easier view of what's happening immediately around their vehicle. It also includes lower front bumper and sideguards to reduce the risk of a cyclist being dragged under the vehicle in the event of a collision. Further details can be seen at http://lcc.org.uk/articles/lcc-challenges-construction-industry-to-adopt-its-safer-urban-lorry-to-reduce-lorry-cyclist-deaths

TfL Direct Vision Standard
The Direct Vision Standard will use a 'star rating' from 0 to 5 stars to rate construction and other HGVs based on the level of vision the driver has directly from the cab. The Mayor of London has proposed that zero star-rated 'off-road' HGVs will be banned from London's streets by January 2020, and only HGVs with 3 stars or above will be allowed on London's roads by 2024.

A research report[6] analysed 19 of the most popular HGV designs, including construction, distribution and long haul vehicles with both high and low cab designs to determine which vehicle designs affect the size of blind spots, and whether vulnerable road users in the direct vision blind spots could be seen by the driver through mirrors. The study concluded:

- All standard vehicle configurations have blind spots which can hide vulnerable road users from the driver's direct vision
- The height of the cab above the ground is the key factor which affects direct vision and indirect vision blind spots but the window apertures and the driver's location can reduce the size of the blind spots.
- However, different vehicle designs with the same cab height can have different blind spots due to window design and the position of the driver's seat
- Low entry cabs demonstrated real benefits in terms of reducing direct vision blind spots
- The cabs in construction vehicles are on average 32% higher than those in distribution vehicles
- For construction vehicles the distance in front of the vehicle in which a pedestrian can be hidden from the driver's view is on average nearly three times greater than for distribution vehicles. The distance in which a cyclist on the passenger side of the vehicle can be hidden is on average more than twice that of distribution vehicles.

The study highlighted the need for a new standard to define what should be visible through direct vision from the vehicle.

Collision avoidance technology

As with other types of vehicles, technology for HGVs is developing rapidly. As mentioned above, the use of cameras and sensors to improve the driver's field of vision is now commonplace. In addition, collision avoidance technology is being developed and introduced. This uses sensors to detect the presence of a cyclist on the HGV's nearside and software that predicts the path and speed of the cyclist and the HGV. If it predicts the HGV is going to hit the cyclist when it turns, it automatically applies the HGVs brakes to bring it to a stop. An analysis of 19 fatal accidents involving a cyclist and a left-turning HGV concluded that 15 of these would have been completely avoided and 3 would have been less severe with the new system. It is currently undergoing field trials.

Autonomous emergency braking

Autonomous emergency braking is now required as standard on most newly registered HGVs from 1 November 2015. This technology monitors the driving environment for potential hazards, and the likelihood of the driver colliding with another vehicle or object. Typically, it warns the driver of a potential collision, and if the driver does not brake (or does not brake hard enough) or take avoiding action, it brakes harder, or executes an emergency stop, without the driver's input. However, Automatic Emergency Braking systems do not necessarily bring the vehicle to a complete halt, but down to 5 mph.

Pedestrian AEB, which is beginning to be introduced, is an improved version of this technology which can detect and respond to the presence of pedestrians and cyclists.

[6] "Understanding Direct and Indirect Driver Vision from Heavy Goods vehicles", Transport for London and Loughborough University, July 2016, http://www.lboro.ac.uk/news-events/news/2016/july/dangerous-hgv-designs.html

Front and Side Under-run Protection

These are intended to prevent vulnerable road users from falling under the wheels of an HGV. With sideguards, tests have shown that the vulnerable road user would be deflected out of the path of the rear wheels 6 times out of 10.[7] These tests did not include collisions where a truck turning left collides with a cyclist or pedestrian because they would be knocked to the ground and the sideguard could pass over the top and the rear wheels could still run them over.

Sideguards are a legal requirement on certain large vehicles and trailers in the UK that weigh more than 3.5 tonnes. However, many types of large vehicles, such as tipper trucks, refuse vehicles, concrete mixers and skip loaders, are exempted from the requirement. A TRL report in 2014 estimated that around 10% of lorries operating in London did not have sideguards fitted.

Although UK Construction and Use Regulations exempt specific vehicle types from fitting sideguards, these have been replaced by EC Whole Vehicle Type Approval, which does not include vehicle specific exemptions. However, it does include a blanket statement exempting vehicles if it is deemed that the vehicle type could not be fitted with sideguards. From October 2015, all new goods vehicles weighing more than 3.5 tonnes (unless covered by single vehicle approvals) must be fitted with sideguards that comply with UNECE Regulation 73.

A report for TfL[8] concluded that it is feasible to fit sideguards to exempt vehicles, even those exempt for reasons of engineering/mechanical obstruction such as tipper trucks, cement mixers, etc,. It recommended that sidequards be a requirement in procurement documents and that large vehicle operators need to act upon the EC Whole Vehicle Type Approval, which does not exempt vehicles from having sideguards fitted.
It is now a requirement in the CLOCS Standard for construction logistics.

In February 2016, the DVSA published new guidance on fitting side guards (known as Lateral Protection Devices) on large goods vehicles (over 3.5 tonnes) and trailers. The new Side Guards (Lateral Protection Device) guidance identifies common errors and simple solutions and illustrates examples of good and bad practice while reinforcing the current required standards. It encourages vehicle builders and owners to adopt best practice before their Individual vehicle Approval (IVA) examination, during which the DVSA check that the sideguards do what they are intended to do and meet the required standards of section 42 (lateral protection) of the IVA inspection manual**.**

[7] "Sideguards on heavy goods vehicles: assessing the effects on pedal cyclists injured by trucks overtaking or turning left", TRL Published Project Report, PPR514, 2010

[8] "Encouraging the Fitment of Sideguards to Exempt Commercial Vehicles: A feasibility study for Transport for London", AECOM, 2012

Road Design

It can often be difficult for cyclists, motorcyclists and pedestrians to interact safely with large vehicles, especially in crowded, busy urban areas. Therefore, it is crucial to design roads and streets to cater for the needs of vulnerable road users.

RoSPA's "Cycling Policy Paper" discusses the importance of producing a safer road environment for vulnerable road users, based on the Safe System Approach. In general, the safe system philosophy identifies ways of separating traffic, and especially separating vulnerable road users from motor vehicle traffic on high speed roads, and where this cannot be achieved, designing roads to reduce traffic speed.

The safe system model includes many measures to prevent fatal collisions from occurring. The two main approaches are separating different road users by physical infrastructure, and where separation cannot be achieved, reducing vehicle speeds to reduce the likelihood of crashes occurring and the severity of any that do occur so they are unlikely to cause fatal injuries. The policy paper reviews research into the effectiveness of different types of cycling infrastructure and makes a number of recommendations, including:

- New cycle infrastructure to be designed in accordance with the principles of the 'Safe System approach.
- 20 mph schemes should be introduced where there is substantial cycling activity, or the potential for substantial cycling activity.
- The design and construction of cycle facilities should follow best practice as fully as possible.
- Wherever practical, new cycle lanes should be planned to be continuous and of sufficient length to provide meaningful separation from traffic.
- Further research should be conducted to identify how best to provide for cyclists at junctions.
- The provision of cycling policies and facilities must be integrated with those for pedestrians.
- Highway Authorities should consider the safety of cyclists as an integral part of their cyclical maintenance programmes (winter maintenance, vegetation cutting, surfacing etc)
- Highway authorities should consider the safety implications, especially for cyclists and pedestrians, as well as the environmental and financial benefits when deciding whether to switch off or reduce the level of street lighting.

Cycling Infrastructure Research Review

A review summarising the published research evidence about cycling infrastructure was published on the Road Safety Observatory in August 2016. It defines cycling infrastructure as infrastructure that is provided for and used by cyclists, and can include on-road provision such as cycle lanes or cycle-friendly junction designs, or off-road provision such as cycle tracks and paths. The review notes that 'it is difficult to draw definitive conclusions from the literature because the range of literature on any one type of infrastructure tends to be limited and studies described are often small scale, in a few locations, or were not monitored for long periods of time'. However, it summaries published research on:

- Cyclist opinions and needs about cycling infrastructure
- Measuring 'actual' and 'perceived' risk
- Cycling infrastructure Design Standards
- Traffic reduction, speed reduction and traffic calming
- Junction treatment and traffic management, including crossing facilities and side road crossings
- Cycle lanes, including on roundabouts, and off-road provision, cycle paths and tracks
- Advanced Stop Lines
- Maintenance and safety inspections of dedicated cycle facilities

Transport for London publish the "Streets Toolkit", design guidance to help planners, engineers, designers and other practitioners to create high quality streets and public spaces. A considerable amount of innovation is taking place in London, including, for example, the creation of Cycle Superhighways.

A number of infrastructure designs used in other countries could be tested in the UK, including cycle bypass lanes at junctions, specific traffic lights for cyclists which allows them to enter a junction first, stops them from entering when left turning motorists are instructed to enter or allows them to turn left when there is a red light for motorists.[9] Designs, however, need to consider the local conditions at each junction. For example, a cycle bypass may not be practical if there is a limited amount of pedestrian space.

Advance Stop Lines (ASL)

Advance Stop Lines (ASL) are a common type of cycling infrastructure. They help motorists and cyclists by providing an area for cyclists to wait in front of traffic when the lights are red, which makes them more easily visible, and gives them a head start to move off when the lights turn green.

It is important that they are well designed; for example, the reservoir (the space between the cyclists' stop line and the stop line further back for drivers) should take account of all of the manoeuvres cyclists need to make when entering and leaving the ASL as well as the numbers of cyclists likely to be using it. Unfortunately, there are no national design guidelines for ASLs, although Sustrans publish design guidance for ASLs.

An International Best Practice Study of Cycling Infrastructure provides guidance on a range of cycling infrastructure.

The **London Lorry Control Scheme** is a good example of a transport policy that seeks to separate large vehicles from vulnerable road users. The Greater London (Restriction of Goods Vehicles) Traffic Order controls the movement of heavy goods vehicles above 18 tonnes maximum gross weight on specified roads in London at night and at week-ends. A network of roads (main roads and access roads to industrial estates) is excluded from the Order.

Safer Lorry Scheme

Since 1 September 2015 all roads in Greater London are subject to the Safer Lorry Scheme, which prohibits vehicles over 3.5 tonnes gross vehicle weight (with some exemptions) using London's roads unless they are fitted with side-guards or Class V and VI mirrors.

Rush Hour Restrictions

There have been calls to ban HGVs from using some roads in London which have heavy traffic during morning and evening peak traffic times to reduce the risk to vulnerable road users. This has been opposed, however, on the grounds that it would be ineffective because operators would either use smaller vans to avoid the restriction, or reschedule deliveries throughout the rest of the day.

[9] "Traffic Management Techniques for Cyclists: Final Report", Transport for London, 2011

Education and Training

HGV Drivers
HGV driver must hold a Driver Certificate of Professional Competence, and do 35 hours of approved training every five years to maintain their certificate.

There are also several good education initiatives that can help HGV drivers and cyclists share the road together safely, including:

Safe Urban Driving
This FORS course is aimed at commercial drivers operating HGVs and Public Service Vehicles (PSVs) regularly in the urban environment, where there are high volumes of vulnerable road users, such as cyclists, pedestrians and motorcyclists. It is DCPC accredited, meaning it counts towards the 35 hours of training required for Driver Certificate of Professional, and fully aligned to meet the requirements of:

- Work Related Road Risk (WRRR)
- Fleet Operator Recognition Scheme (FORS) Silver level
- Construction Logistics & Cyclist Safety (CLOCS) Standard

It comprises a classroom theory module and a practical cycling module in which drivers get the opportunity to ride a bicycle and experience a cyclist's view of the road. The two modules are delivered on the same day, and courses are run around the country by a number of training providers.

Staying Legal
This course is designed to inform HGV drivers of the requirements to remain compliant when driving an HGV commercially on public roads. The aims are to raise the overall HGV compliance standards, along with the protection of the actual Operators Licence. Staying Legal is fully DCPC accredited and amounts to a seven hour DCPC training module, towards a driver's graduated total.

Exchanging Places
These events aim to raise awareness for vulnerable road users about the dangers of sharing the road with large vehicles, especially construction traffic. They allow people to sit in the driver's seat of a HGV or bus to get a better understanding of what the driver can and can't see, especially how difficult it can be to see to cyclists on the nearside of the vehicle, or a cyclist or pedestrian crossing the road directly in front of it. The schemes often also give advice to HGV drivers on how to drive to minimise the risks to cyclists. Usually, police officers explain how this type of collision often happens and the various ways to avoid them. Films showing the different perspectives of cyclists and lorry drivers, such as Transport for London's HGV Cycle Safety video or the Metropolitan Police's Exchanging Places video, are available free online.

National Standard for Cycle Training and **Bikeability**
The National Standard for Cycle Training provides a series of outcomes covering the skills necessary for cyclists and instructors in different road conditions. It is delivered through the Bikeability scheme, a national practical cycle training course delivered by professional, accredited cyclist training instructors. There are three Bikeability levels. Level One is a skills course to enable trainees to develop the necessary skills to control their bicycle and to make short trips on quiet roads or cycle tracks. Level Two gives trainees the skills and confidence to make short independent journeys on quiet roads and cycling facilities. Level Three teaches the skills and confidence to ride in heavier traffic, negotiating multi lane junctions and roundabouts where alternative cycling facilities do not exist.

Think! Road Safety "Hang Back" Campaign

In 2015, the Department for Transport launched a new education campaign, "Hang Back", to raise cyclists' awareness of the dangers of lorries turning left The aim was to remind cyclists to 'hang back' at junctions to avoid getting caught between a lorry and left hand turn. The DfT also worked with the Freight Transport Association to remind HGV drivers to look out for cyclists.

The campaign included two short films, "THINK! Cycle Safety: Don't get caught between…" and "Cycling, Trucks and Lorries - How can we make cycling safer?"

Good Practice Management Schemes

In addition to the regulatory regime, there are good practice management schemes designed to incentivise Operators to go beyond the minimum legal standards. Two keys ones are the Fleet Operators Recognition Scheme (FORS) and the Construction Logistics and Cyclist Safety (CLOCS).

Fleet Operators Recognition Scheme (FORS)
FORS is a voluntary accreditation and certification scheme for large vehicle operators. To achieve FORS bronze accreditation, operators must meet the criteria set out in the FORS standard, which covers management, vehicles, drivers and operations. A formal company audit is carried out by an independent FORS auditor, and an annual audit is conducted thereafter to ensure the standard is maintained. Operators can then seek to progress to Silver and Gold level.

FORS accreditation is an easy way for operators to show that they fulfill the requirements of the CLOCS standard and TfL's Work Related Road Risk (WRRR).

The FORS Scheme was updated in 2016; further details can be found at FORS Standards V4.0 and FORS Terms and Conditions

FORS provides a range of training resources, including:
Driver Training
Online Driver Training
Workshops for managers and supervisors

Construction Logistics and Cyclist Safety (CLOCS)
CLOCS was developed by the construction logistics industry to improve the management of work related road risk (WRRR) and ensure a road safety culture is embedded across the industry. The aim is to help protect pedestrians, cyclists, motorcyclists and other road users who share the roads with construction vehicles.

Transport for London commissioned an independent review of the construction sector's transport activities to understand the causes of collisions between cyclists and construction vehicles (which accounted for 55% of cyclist fatalities in London between 2008 and 2013) and how they might be prevented. Transport for London commissioned an independent review of the construction sector's transport activities to understand the causes of these collisions and how they might be prevented.

FORS' safety requirements are aligned with CLOCS and operators accredited or reapproved to FORS silver level will be fully compliant with the CLOCS Standard and able to join the CLOCS community.

Further Information can be found at the following links.

Construction Logistics and Cyclist Safety (CLOCS) Report, TRL PPR 639, February 2013
A comprehensive analysis of vehicle, driver, route and management safety issues relating to HGV and cyclist collisions to identify potential measures that could be implemented to help avoid collisions between HGVs and cyclists.

Standard for construction logistics: Managing work related road risk

CLOCS Guide - Vehicle safety equipment
A Guide to help operators meet the vehicle safety equipment requirements of the CLOCS Standard and assist clients in checking contractor vehicle compliance.

CLOCS Guide - Managing driver training and licensing
A Guide on planning training and development in line with the requirements of the CLOCS Standard.

CLOCS Guide - Managing work related road risk in contracts
A guide to help procurement and contract managers to play an effective role in managing work related road risk

CLOCS Guide - Managing supplier compliance
A guide to help clients ensure their suppliers comply with the requirements of the CLOCS Standard

CLOCS Compliance Toolkit
Guidance on how to check contractor compliance to the CLOCS Standard, forms and communication materials

- Appendix CLOCS requirements
- CLOCS compliance poster A1
- Compliance check form and non-conformance report
- Compliance checking & monitoring process diagram
- Example contractual clauses
- Supplier self certification form
- CLOCS compliance leaflet
- CLOCS supplier presentation template
- Compliance checking & monitoring process
- Driver non-conformance notification
- Example letter to suppliers

CLOCS Toolkit - Managing collision reporting and analysis
Guidance on what to do following a collision, including actions the driver should take at the scene, investigating a collision and acting on lessons learned, and forms that can be used.

- CLOCS-At the scene collision report form for drivers
- CLOCS-Driver post collision report form
- CLOCS-Manager's collision reporting record and forms
- CLOCS-Manager post collision report form
- CLOCS-Post collision investigation form

Enforcement

Roadside Vehicle Checks

The police and DVSA have the power to carry out spot checks on HGVs vehicle and to issue fixed penalty notice, prohibitions or immobilise a vehicle if necessary to prevent it being driven until any faults have been fixed. Drivers who cannot provide a satisfactory UK address, or in more serious cases, face prosecution in court, can be required to pay a financial penalty deposit to ensure they cannot avoid the penalty.

Roads Policing

Police road enforcement plays a vital role in improving road safety for all road users, including cyclists. In addition to normal roads policing activities, the police do conduct targeted operations, such as "Operation Safeway" in which officers were stationed at road junctions around central London to target road users who were breaking the law.

In London, a number of enforcement schemes have been launched to reduce the number and severity of fatal and serious collisions between HGVs and vulnerable road users and increase the proportion of HGVs in London fitted with appropriate safety equipment.

The London's Safer Lorry Scheme was launched in September 2015 to ensure, with very few exceptions, that only Lorries (weighing more than 3.5 tonnes) fitted with Class V and Class VI mirrors and side guards are allowed on London's roads. Under the scheme, most vehicles that were previously exempt under national legislation are required to be retrofitted with this safety equipment.

The scheme operates across all roads in Greater London on a 24/7 basis with the same boundaries as the Low Emission Zone and is demarked by a new sign approved by the Department for Transport (DfT). The scheme is enforced through the London Freight Enforcement Partnership.

The London Freight Enforcement Partnership, between TfL, the DVSA, the Metropolitan Police Service and the City of London Police, aims to share intelligence and carrying out joint enforcement operations. It targets operators who persistently do not comply with the law and works with the commercial vehicle industry to put serially non-compliant companies in London out of business. It uses automatic number plate recognition (ANPR) technology to targeting vehicles and feed reports about identified operator and driver non-compliance to the Traffic Commissioner.

The Industrial HGV Task Force, a joint partnership between TfL, DVSA, the Metropolitan Police Service and the City of London Police, jointly funded by TfL and the Department for Transport, conducts on-street enforcement operations. Since October 2013, more than 6,030 vehicles have been stopped, 87 vehicles seized, 4,500 prosecutions progressed through the Criminal Justice System and 2,134 fixed penalty notices issued for offences including driving without insurance or the correct licence, unsafe tyres, drivers' hours offences and vehicle not equipped with safeguards.

The City of London Police's Commercial Vehicle Unit run by the City of London Police stopped 136 vehicles and took enforcement action against 95 dangerous vehicles in its first month of operation. The unit complements the Metropolitan Police Service (MPS) Commercial Vehicle Unit and the Industrial HGV Task Force.

Criminal Justice System

Following a review of driving offences, concentrating on serious offences that can result in death or serious injury, the Ministry of Justice published a consultation on "Driving offences and penalties relating to causing death or serious injury" in December 2016. The consultation sought views on increasing the maximum penalty for causing death by dangerous driving and causing death by careless driving under the influence of drink or drugs from 14 years' imprisonment to life. It also sought views on creating a new offence of causing serious injury by careless driving with a maximum sentence of 2 or 3 years in prison.

The CTC's Road Justice campaign has set up the Road Justice campaign,[10] an online tool though which vulnerable road users can report dangerous driving. The report makes the following recommendations to improve how the police deal with road crime:

- Thorough investigation of all road traffic collisions, including collecting information on near misses and reports of seriously bad or aggressive driving.
- Ensuring that there is sufficient resourcing and training for police to respond appropriately to road crime.
- That the support offered to victims of road crime should be similar to that of other crime and that the victim should not be blamed automatically.

[10] CTC Road Justice System, www.roadjustice.org.uk/road-justice-reports

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