

# Crossrail Vehicle Safety Equipment – Supplementary Guidance



Contact  
020 3197 5631

## FRESNEL Lens

Works Information  
Ref: 26.14.8

Guide  
1 of 10



Vans < 3.5 T



Small Lorries  
3.5 to 7.5 T



Medium to Large  
Lorries > 7.5 T



Concrete  
Mixer



2/3 Axle  
Rigid



Grab or Skip  
Lorry



4 or Multi Axle  
Tipper



Articulated Low  
Loaders

### Product Description

The Fresnel Lens is a visual device for lorry drivers and is not a mirror in the conventional sense. It is a clear thin plastic lens that is press fitted to a lorry window on the near, or passenger side. Its concentric ring surface allows the driver to see through it directly. However its optical properties provide a downwards view close to and around the lorry's passenger door. The Fresnel Lens therefore covers the blind spot which frequently is the cause of collisions between lorries and cyclists. Left hand drive vehicles should fit the Fresnel Lens on the off side of the vehicle.

### The Product Image



FRESNEL Lens

### The Product Fitted



FRESNEL Lens showing a cyclist in the lorry's blind spot.



FRESNEL Lens showing a family saloon car in the lorry's blind spot.

### Additional Information

Motorway lane changing collisions involving lorries and cars is increasing in the UK. This has led to a rise in road casualties and road congestion. A major initiative by the Department of Transport, VOSA, and the Highways Agency to tackle 'side-swiping' incidents by issuing 130,000 Fresnel lenses to left-hand drive trucks entering through UK ports has resulted in a remarkable reduction of 59% in this type of serious motorway lane changing collisions.

# Crossrail Vehicle Safety Equipment – Supplementary Guidance



Contact  
020 3197 5631

## Side Under run Guards

## Works Information Ref: 26.14.10

## Guide 2 of 10



Vans < 3.5 T



Small Lorries  
3.5 to 7.5 T



Medium to Large  
Lorries > 7.5 T



Concrete  
Mixer



2/3 Axle  
Rigid



Grab or Skip  
Lorry



4 or Multi Axle  
Tipper



Articulated Low  
Loaders

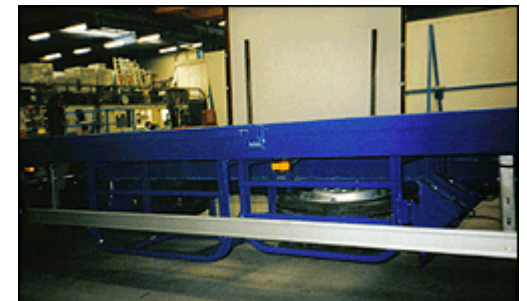
### Product Description

Lorry side under-run guards fill the space between the front and rear axles on large goods vehicles so that if, for example, a turning lorry hits a cyclist who is on the nearside of the vehicle, they are pushed aside, instead of being dragged under the vehicle. If a cyclist is caught by a vehicle with side guards, there is far greater chance of them surviving and avoiding serious injury than if they are caught under the vehicle. These guards can also incorporate safety messages for cyclists and pedestrians to warn them of the dangers of being too close to a large goods vehicle.

### The Product Image

Side under run bars are specific to each type of vehicle to which they are fitted. Operators should consult vehicle manufacturers and VOSA for advice on off the shelf bars and current regulations for fitting bars to their fleets.

### The Product Fitted



### Additional Information

The fitting of side under run guards to Mixers, Grab, Skip and Tipper lorries is achievable, even if these vehicles go off-road. Several companies have successfully fitted side under run guards to their tippers to provide additional protection for cyclists and vulnerable road users. These bars also provide good anchorage for fitting warning signs as can be seen from the images opposite. Options include fitting fixed, demountable or retractable side guards.

# Crossrail Vehicle Safety Equipment – Supplementary Guidance



Contact  
020 3197 5631

## Rear Warning Signs for Cyclists & Pedestrians

## Works Information Ref: 26.14.9

## Guide 3 of 10

✓  
Vans < 3.5 T

✓  
Small Lorries  
3.5 to 7.5 T

✓  
Medium to Large  
Lorries > 7.5 T

✓  
Concrete  
Mixer

✓  
2/3 Axle  
Rigid

✓  
Grab or Skip  
Lorry

✓  
4 or Multi Axle  
Tipper

✓  
Articulated Low  
Loaders

### Product Description

An effective, easy to fit and relatively cheap method of raising awareness is a warning sign on the back of lorries alerting cyclists to the dangers of undertaking these vehicles. Cyclist who undertake lorries frequently put themselves in danger if they do not realise the vehicle is about to turn left.

### The Product Image



### The Product Fitted



### Additional Information

A variety of signs exist to meet this requirement some of which are illustrated above. The key here is that the sign must be in good condition and fixed securely to the vehicle, preferably towards the left hand side of the vehicle to maximise the dangers to the cyclist when undertaking a lorry that could be about to turn left.

# Crossrail Vehicle Safety Equipment – Supplementary Guidance



Contact  
020 3197 5631

Sidescan Detection  
& Warning Systems

Works Information  
Ref: 26.14.10

Guide  
4 of 10



Vans < 3.5 T



Small Lorries  
3.5 to 7.5 T



Medium to Large  
Lorries > 7.5 T



Concrete  
Mixer



2/3 Axle  
Rigid



Grab or Skip  
Lorry



4 or Multi Axle  
Tipper



Articulated Low  
Loaders

## Product Description

Sidescan detection equipment alerts both the lorry driver and the cyclist or pedestrian to the potential danger of a vehicle turning left. When the near side turn indicator is activated the sensors fitted along the side of the lorry will detect any person or object and alert the lorry driver both audibly and visually on a display/buzzer located in the cab. This equipment is ideal as a low speed manoeuvring device on the near side of the lorry in urban areas. An audible alert can also be fitted that works in conjunction with the sidescan equipment and audibly alerts the cyclist or pedestrian as the vehicle makes a left hand turn.

## The Product Image



## The Product Fitted



Sensors

Cab  
Display



External Audible Alert

## Additional Information

Alternative technology to this type of safety equipment include the following:

- Near-side / off-side front step sensor systems;
- Cameras fitted to the rear, near-side and off-side of the vehicle;
- Sensors fitted the full length of the vehicle with in-cab warning display.

Please see the separate guidance sheet for an overview of these devices.



# Crossrail Vehicle Safety Equipment – Supplementary Guidance



Contact  
020 3197 5631

## Alternative Warning Systems

## Works Information Ref: 26.14.10

## Guide 5 of 10



Vans < 3.5 T



Small Lorries  
3.5 to 7.5 T



Medium to Large  
Lorries > 7.5 T



Concrete  
Mixer



2/3 Axle  
Rigid



Grab or Skip  
Lorry



4 or Multi Axle  
Tipper



Articulated Low  
Loaders

### Product Descriptions

Other driver warning systems include:

- A. Near-side / off-side front step sensor systems;
- B. Cameras fitted to the rear, near-side and off-side of the vehicle;
- C. Sensors fitted the full length of the vehicle with in-cab warning display.



All these alternative warning systems help detect cyclists and alert drivers of their presence.

### External Fitting



Type A Sensors



Type B Cameras



Type C Sensors

### The Product in Cab



Type A in-cab driver display

Type B in-cab driver monitor



Type C in-cab LED driver display

### Additional Information

For additional information on these alternative driver warning systems contact Crossrail Logistics on 020 3197 5631 or visit the TfL FORS website for a procurement guide.

# Crossrail Vehicle Safety Equipment – Supplementary Guidance



Contact  
020 3197 5631

## Blind Spot Mirrors

Works Information  
Ref: 26.14.10

Guide  
6 of 10



Vans < 3.5 T



Small Lorries  
3.5 to 7.5 T



Medium to Large  
Lorries > 7.5 T



Concrete  
Mixer



2/3 Axle  
Rigid



Grab or Skip  
Lorry



4 or Multi Axle  
Tipper



Articulated Low  
Loaders

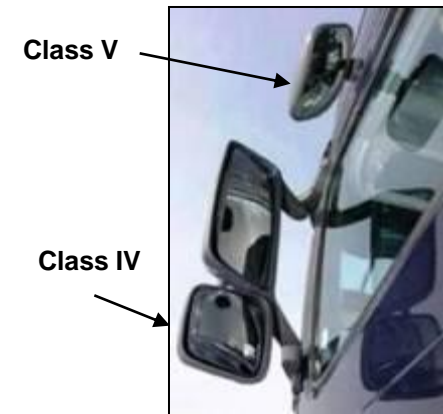
### Product Description

Blind spot mirrors increase the field of vision for the driver on the near side of the vehicle. This enables the driver to see, for example, a cyclist who is on his left hand side, or a car in the left hand lane, if the driver needs to move into that lane. Blind spot mirrors, class IV and Class V, have now become law under two EU Directives. New LGVs over 3.5 tons will already have to be equipped with blind spot mirrors as of January 2007 under an EU Directive of 2003. For older vehicles the retrofitting of blind spot mirrors was to be completed by 31st March 2009.

### The Product Image



### The Product Fitted



Class VI  
fitted to  
the front

### Additional Information

In addition Crossrail require the fitting of Class IV (wide angle) and Class V (close proximity) Class VI mirrors are also required to give a view of the roadway directly in front of the drivers cab; these mirrors have been proven to reduce collisions with cyclists and pedestrians.

# Vehicle Safety Equipment Standards – Supplementary Guidance



Contact  
020 3197 5631

All Vehicles

Works Information  
Ref: 26.14.3

Guide  
7 of 10

Seat Belts

Seat belts must be worn by lorry drivers working for Crossrail at all times, including any passengers in the cab of the vehicle. Mini buses must be fitted with a seat belt for each passenger who must wear the belt when riding in the vehicle at all times.



Rear View Mirrors

All mirrors fitted to Crossrail vehicles must be properly adjusted to achieve maximum visibility for the driver. Mirrors must also be clean with no cracks or broken glass that could limit or distort a drivers view of other road users.



Reversing Sensors, Backup Alarms & Cameras

Reversing alarms warn people that a vehicle is manoeuvring, especially when they may be in the driver's blind spot. Rear facing cameras and in cab displays/monitors can also be fitted to enhance driver information. White noise alarms are directional and create less noise pollution for local residents and businesses.

Rear Alarm



Camera



Monitor



Cab Display

Lights - General

Lorry drivers should never start a journey without first completing a thorough safety check and ensuring that the vehicle is safe to drive. You have an obligation to carry out a walk-around check at least once every day and must include checking head, tail, stop, turn and any emergency warning lights or beacons fitted to the vehicle.



# Vehicle Safety Equipment Standards – Supplementary Guidance



Contact  
020 3197 5631

All Vehicles

Works Information  
Ref: 26.14.3

Guide  
8 of 10

Warning Triangle

A reflective warning triangle must be carried on all vehicles working on Crossrail. The triangle must fully comply with EEC Regulations, be CE approved and contain all required E markings. These warning triangles are for use in the event of an emergency to warn approaching traffic of the stationary vehicle and must be placed on the road at a distance of between 50-150 metres.



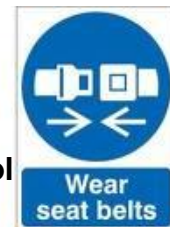
Signage Passenger  
Carrying Vehicles

For Crossrail passenger carrying vehicles, such as a mini bus, a sign must be clearly displayed in the vehicle stating the maximum number of passengers the vehicle can legally and safely at any one time.



Seatbelt, Inspections, and  
D&A Warning Decals

A decal(s) to show:  
That seatbelts must be worn at all times by the driver and any passengers.  
Daily vehicle inspections must be carried out.  
That driving or working under the influence of drugs or alcohol is strictly against Crossrail's policies



Light & Hi-visibility Colours  
on Vehicles

All vehicles working on the project should be clearly visible to vulnerable road users at all times. Reflective plates and markings on vehicles will greatly increase the chances of the vehicle being seen in poor light conditions. Drivers should wear a hi-visibility vest whilst driving the vehicle and unloading etc.





# Vehicle Safety Equipment Standards – Supplementary Guidance



Contact  
020 3197 5631

All Vehicles

Works Information  
Ref: 26.14.3

Guide  
9 of 10

Daytime Running Lights

New vehicles are now being fitted with LED daytime running lights which should be on at all times. On older vehicles sides lights, or dipped headlights, must be on at all times whilst working on the project. This makes vehicles more visible to other road users in poor light conditions.



LED Running Lights

Window Tinting

No additional window tinting should be applied to any vehicle working on Crossrail other than the standard tinting applied by the vehicle manufacturer. Any additional tinting could reduce a driver's visibility and obscure vulnerable road users from view.



Anti Lock Brakes (ABS)

Anti-lock braking systems must be fitted to all vehicles working on the project. The ABS system should be activated at all times in line with the vehicle handbook and VOSA requirements as set out in the following guide:



<http://www.dft.gov.uk/vosa/repository/Your%20guide%20to%20ABS%20and%20EBS.pdf>

# Vehicle Safety Equipment Standards – Supplementary Guidance



Contact  
020 3197 5631

All Vehicles

Works Information  
Ref: 26.14.3

Guide  
10 of 10

Fire Extinguishers

All vehicles working on Crossrail must carry an appropriate fire extinguisher. We advise that you check the manufactures data on the recommended type and size of extinguishers for your vehicles.



Flashing Lights

Amber flashing lights must be fitted to construction vehicles and illuminated to warn other road users that these vehicles are about to stop or make a manoeuvre that could endanger others. Two beacons are normally fitted above the drivers cab and 2 strobes are fitted to the front and rear of construction vehicles.



LED Strobe



Strobe Beacon

Spare Bulb Kit

Each vehicle working on the project must carry a spare bulb kit containing spares for that vehicle. This kit should contain all common bulbs of the correct voltage for the vehicle and spare fuses. Regular checks should be made to keep the kit replenished with spares. The kit should be stored in the vehicle at all times in case it is required to replace defective lights.



Typical Spare Bulb Kit

Fog Lights

Fog lights should be fitted to all vehicles and must be checked as part of a drivers daily walk round inspection. These lights must be switched on in poor visibility to increase the visibility of the vehicle to other road users (Highway Code Rule 226) then switched off when visibility increases (Highway Code Rule 236).

