

Traffic Advisory Leaflet 3/11

April 2011



Signal-controlled Pedestrian Facilities at Portable Traffic Signals

Introduction

This leaflet is intended to provide advice to those who may be involved in or considering providing portable pedestrian crossing facilities, whether stand-alone or at road works. The Traffic Signs Regulations and General Directions¹ 2002 (TSRGD) were amended in 2011 to allow the use of pedestrian facilities with portable traffic signals.

Traffic Advisory Leaflet 2/11: Portable traffic signals for the control of vehicular traffic² provides advice on the use of portable traffic signals to control vehicular traffic only. Much of that advice is relevant to portable pedestrian facilities, and TAL 2/11² should be read in conjunction with this leaflet.

Other advice is given in:

- An Introduction to the Use of Portable Vehicular Signals ('the Pink Book')³,
- Safety at Street Works and Road Works – A Code of Practice ('the Red Book')⁴
- Traffic Signs Manual Chapter 8 ('Chapter 8')⁵

The advice in this leaflet also supersedes that given in paragraph 1, page 1 of the Pink Book³.

For the purposes of this leaflet, road works are any works carried out primarily to improve or maintain the highway, such as resurfacing of the road. Street works are any works carried out by statutory undertakers to place or maintain apparatus such as water mains or electricity cables ('undertaker' is defined in the New Roads and Street Works Act 1991⁶). To simplify this leaflet, both road and street works will be referred to as road works. This leaflet only considers circumstances in which works are carried out by statutory undertakers, or permitted by the traffic authority.

Legal Considerations

Powers to place pedestrian facilities with portable traffic signals

Anyone other than statutory undertakers must obtain permission from the traffic authority before placing portable pedestrian facilities, under TSRGD Direction 53A¹.

Statutory undertakers planning to use portable pedestrian facilities do not need the traffic authority's permission, but should still consult with the traffic authority when planning the works.

How this is done will depend on the nature of the works and the systems used by the traffic authority. Whatever system is in place, early engagement with the traffic authority can help resolve potential problems before they arise. Portable traffic signals can have a significant impact on traffic flows, which can raise network management issues for traffic authorities. If the planned works are on an approach to a level crossing, or any installation controlled by barriers, such as a moveable bridge, the authority responsible for that site must be informed of the works⁷. See Traffic Advisory Leaflet 1/08: Wig-wag Signals⁸ for contact details.

Portable traffic signals must comply with the relevant legislation¹ and various components used in connection with them must be type-approved.

Local highway and traffic authorities are responsible for ensuring that any equipment placed on their road networks is safe and complies with relevant legislation.

Type Approval

Direction 56 of TSRGD¹ requires control equipment to be of a type approved in writing by the Secretary of State. Type approval is carried out to the relevant specification; the process is administered by the Highways Agency. Performance specifications are available from the Highways Agency website www.tssplansregistry.org.

It is for the traffic authority to ensure that any equipment placed on their network has been type approved in accordance with TSRGD direction 56¹.

Equipment and Layout Requirements

When considering the layout of portable pedestrian facilities, **the safety of road users, particularly pedestrians, should be the foremost consideration.** This advice applies

to both stand-alone facilities, and those provided as part of a road works site. A risk assessment should be carried out when deciding what type of facility to provide.

The minimum requirements for portable pedestrian facilities are:

- 1 signal to TSRGD diagram 3000.1¹ per approach (2 for stand-alone facilities)
- 1 signal to TSRGD diagram 4002.1¹ per side
- 1 push button per side
- 1 sign to TSRGD diagram 7011.2¹ per approach

These are prescribed by the 2011 amendments to TSRGD¹. Diagram 7011.2 is a new sign, prescribed for portable pedestrian crossings.

Audible and/or tactile signals can be used, but if so then a ramp from the footway to the carriageway should be provided.



Diagram 7011.2

Portable vehicle signals can be mounted at lower heights than permanent ones. This can make them less visible, and prone to being obscured by vehicles. Queues, high sided vehicles (especially buses) and the geometry of the approach must be taken into account when considering the placing and mounting height of the signal heads. TD 50/04: The Geometric Layout of Signal-controlled Junctions and Signalised Roundabouts⁹ and Local Transport Note 2/95¹⁰ contain advice on visibility and stopping sight distances.

Particular care should be taken on approaches that have more than one lane. On multi-lane approaches, the risk of drivers in the outside lane being unable to see the signals should be assessed.

Signal assemblies, pedestrian signal heads and push buttons should be mounted so as to reduce, as far as possible, the risk of injury from tripods, trolleys, post blocks etc. They should be mounted at right angles to the kerb. Push buttons should be positioned so that they are readily accessible to anyone wishing to use the crossing.

Signal head assemblies, whether installed in the carriageway or on the footway, should be suitably coned-off and provided with suitable guarding to prevent them from becoming a hazard.

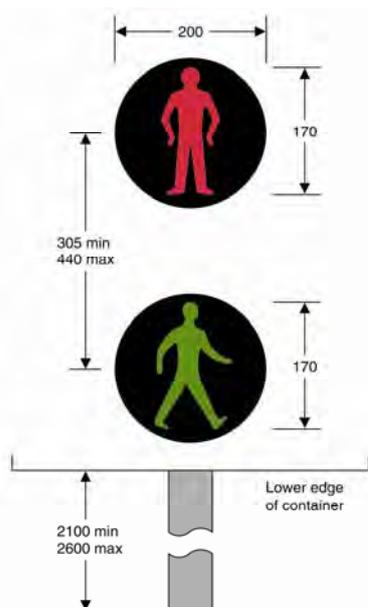


Diagram 4002.1

It is strongly recommended that two vehicle signal heads should be provided on each approach where pedestrian facilities are used. Drivers should be able to see at least one signal on approach and one while waiting at the 'WAIT HERE' sign. This is particularly important where pedestrian facilities are involved.

If the signals are to be operated under manual control at any time, the pedestrian crossing point should be clearly visible to the operator at all times.

Pedestrian facilities within portable signals at road works

At road works, the addition of a pedestrian facility will substantially increase the signal cycle time leading to longer delays for vehicles. The cycle time will depend on the working length, crossing width, how often the pedestrian phase is called, and the signal staging. The risk of additional delays may mean incorporating other traffic management measures, such as alternative routes, to offset this.

Pedestrians are vulnerable road users, and include some who are particularly vulnerable. It is important that any signal-control provided is unambiguous to both pedestrians and drivers alike. The aim should be to achieve a similar standard of safety as at a permanent site.

At road works sites in residential areas, it is likely that the working length will include side roads (not always signal-controlled), commercial accesses and private driveways. Drivers entering the controlled section may therefore be unaware of the status of the signals at either end. Drivers normally join the vehicular flow travelling in the appropriate direction, however, when the pedestrian facility is showing a green figure there will be no vehicular flow and a driver from, say, a private driveway entering the working length could drive through the pedestrian crossing without passing a red vehicular signal.

In these circumstances, an additional signal and 'WAIT HERE' sign to TSRGD diagrams 7011¹ or 7011.2¹ may be required at the crossing point within the working length to reduce the risk to pedestrians.

Where additional signs and signals are used, care will be needed when setting the signal timings. Designers will need to ensure that, when given a red signal, traffic can clear the shuttle working length and is not 'trapped' at a red signal. This would be likely to prevent the opposing traffic moving through the working length, leading to heavy delays.

The distance between the vehicle signals and the pedestrian crossing point should be no more than 10m. If the distance is any greater, the crossing point and the vehicle signals can become disconnected in road users' minds. Vehicles are less visible to pedestrians crossing, and drivers are less likely to realise they are being stopped for pedestrians, which may lead to them ignoring a red light.

Where pedestrian facilities are provided, it may be more appropriate to consider 3-way or 4-way control for sites incorporating side roads.

Audible and/or tactile signals can be used, but if so then a ramp from the footway to the carriageway should be provided. Guidance on the use of audible signals is given in Local Transport Note 2/95¹⁰. However, the possibility for confusion with other warning sounds such as plant reversing indicators, should be borne in mind. Banksmen supervising reversing vehicles should be mindful of this.

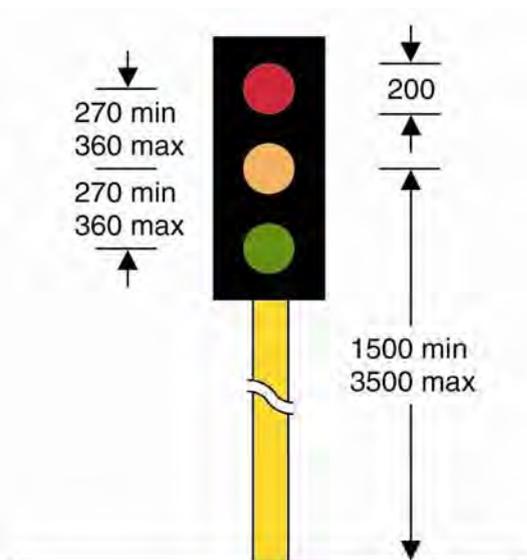


Diagram 3000.1

Stand-alone facilities

These are facilities provided to allow pedestrians to cross the road, not to control vehicle movements. For example, they may be provided:

- where an existing permanent crossing has had to be closed for upgrade works
- near road works sites where it is impractical to incorporate a pedestrian facility into the portable signals
- at large public events, such as a music festival, where there is a need for a crossing for a relatively short time.

Regulatory requirements are given in Schedule 2 to the general directions in TSRGD¹ - this requires 2 vehicle signal heads per approach for stand-alone portable pedestrian facilities.

This type of facility is not a pelican or puffin crossing but operates with the same sequence as pedestrian facilities at junctions: red figure/ green figure/ black-out/ red figure. They are regulated by TSRGD¹ and the notification requirements of section 23 of the Road Traffic Regulation Act 1984¹¹ do not apply.

The provision of a stop line, studs and zig-zags is **optional** (but if zig-zags are to be used, a stop line and studs must also be used).

These markings are unlikely to be practical where a facility will be in place for only a few hours or days. However, where one will be in place for some time, or if it is considered that a more formal crossing place is necessary, say because of high pedestrian flows, these markings may be appropriate, depending on the individual site circumstances.

Decisions on what road markings to use at individual sites are for the local traffic authority (or statutory undertaker where section 65 of NRSWA applies).

Use on high-speed roads

For the purposes of traffic signals a 'high-speed road' is one on which the 85th percentile approach speed is 35mph or above¹².

Current advice¹² for permanent sites is that traffic signals should not be installed on roads where the 85th percentile speed is above 65 mph, and that where the 85th percentile speed is greater than 50 mph, serious consideration should be given to speed reduction measures before installing stand-alone crossings.

This applies equally to portable signals. **It is strongly recommended that portable pedestrian facilities should not be used on high-speed roads.**

If portable signals are considered necessary on a high speed road, Speed Assessment/Speed Discrimination equipment must be used in conjunction with the signals¹³, however the installation of the necessary loop detectors can be difficult with portable systems. It will usually be more practical, and safer, to use traffic management measures to bring vehicle speeds down.

Street lighting

Where pedestrian facilities are provided, good uniform street lighting is essential so that pedestrians can be seen both waiting on the footway and crossing the carriageway. LTN 2/95¹⁰ provides guidance on lighting at pedestrian crossings. Temporary lighting rigs can often produce harsh, bright light with high levels of glare and deep shadow. This can have a detrimental effect on drivers' ability to see pedestrians. Lighting should be provided for facilities on otherwise unlit roads, to ensure visibility of the crossing^{14,15}.

Temporary Facilities

In some circumstances, a temporary facility may be more suitable than a portable one. Temporary facilities generally use permanent equipment mounted in a temporary fashion,

most commonly using poles in concrete-filled barrels, although specially designed temporary equipment and mounting systems are available.

The decision on what type of facility to provide is for the traffic authority.

Training

Portable traffic signals that have been poorly set up can lead to frustration, a greater risk of accidents, additional costs in fuel and time and increased pollution. It is essential that those responsible on site have had the necessary training. Many authorities require National Highways Sector Scheme (NHSS)¹⁵ training for their contractor's staff. There are a number of organisations that have training programmes leading to the appropriate Sector 12 certification - more information is available from the United Kingdom Accreditation Service. Specialist knowledge is essential for the design of most schemes involving signal-controlled pedestrian facilities.

Maintenance

Access to the signal controls must be limited¹² to prevent unauthorised changes to timings. Information on maintenance arrangements and contact telephone numbers for the contractor or the signal hire company should be available at all times. It may be helpful to print fault reporting information on the signal equipment to enable fault reporting by the general public.

Switching signals to Fixed Time (FT) is a temporary expedient and not a solution for faulty Vehicle Actuation (VA). If equipment cannot be repaired, a replacement should be provided. Fixed Time operation will bring in the pedestrian stage in every operational cycle, which could substantially increase delays to vehicular traffic. Permanent FT is not acceptable.

On site, the following should be checked at least daily:

- safety/stability of signals and lamp integrity;
- cables, for security and damage;
- signal heads and detectors for correct alignment;
- timings, to ensure correct VA operation; and
- power supply, to ensure continuous operation until at least the next maintenance inspection visit

Signal head lenses should be cleaned regularly. The interval will depend on the site condition but should be not less than once per week.

Where signal dimming facilities are provided, the light sensor should be cleaned regularly. A build up of dust and dirt will affect its operation, possibly causing the signals to dim during daylight and become less visible to drivers.

References

1. Statutory instrument no. 2002/3113 as amended by statutory instrument no. 2011/1040, the Traffic Signs (Amendment) Regulations and General Directions 2011, the Traffic Signs Regulations and General Directions 2002, TSO, www.legislation.gov.uk
2. Traffic Advisory Leaflet 2/11, Portable Traffic Signals for the Control of Vehicular Traffic, DfT, www.dft.gov.uk/pgr/roads/tpm
3. An Introduction to the Use of Portable Vehicular Signals, DfT, www.dft.gov.uk/pgr/roads/tpm
4. Safety at Street Works and Road Works - A Code of Practice, DfT, www.dft.gov.uk/pgr/roads/tpm
5. Chapter 8 of the Traffic Signs Manual, TSO, www.dft.gov.uk/pgr/roads/tpm
6. New Roads and Street Works Act 1991 Sections 48 and 89 (107 and 148 in Scotland), TSO, www.legislation.gov.uk
7. New Roads and Street Works Act 1991 Section 93, TSO, www.legislation.gov.uk
8. Traffic Advisory Leaflet 1/08: Wig-wag Signals, DfT, www.dft.gov.uk/pgr/roads/tpm
9. TD50/04: The Geometric Layout of Signal-controlled Junctions and Signalised Roundabouts, HA, www.dft.gov.uk/ha/standards/dmr/index.htm
10. Local Transport Note 2/95, The Design of Pedestrian Crossings, DETR, www.dft.gov.uk/pgr/roads/tpm
11. Road Traffic Regulation Act 1984, TSO, www.legislation.gov.uk
12. Traffic Advisory Leaflet 2/03: Signal-control at Junctions on High-speed Roads, DfT, www.dft.gov.uk/pgr/roads/tpm
13. TR2538A: Performance Specification for portable traffic signal control equipment for stand-alone pedestrian facilities, HA, www.tssplansregistry.org
14. BS 5489: Code of practice for the design of road lighting, BSi, www.bsigroup.com
15. Institution of Lighting Engineers Technical Report 12: Lighting of Pedestrian Crossings, ILE, www.theilp.org.uk
16. National Highways Sector Schemes (NHSS) for Quality Management in Highway Works, UKAS, www.ukas.com

NOTE: If referring to these documents it is important to check that they have not been superseded.

Contact Details

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Traffic Advisory Leaflets (TALs) are available to download on the Department for Transport website at www.dft.gov.uk/pgr/roads/tpm/tal/

To join the TAL mailing list, send an email with the word "subscribe" in the subject line to TAL@dft.gsi.gov.uk

The Department for Transport sponsors a wide range of research into traffic management issues. The results published in TALs are applicable to England, Wales and Scotland. Attention is drawn to variations in statutory provisions or administrative practices between the countries. Within England, enquiries should be made to: Traffic Division, Department for Transport, Great Minster House, 76 Marsham Street, London, SW1P 4DR. Telephone 0300 330 3000. E-mail: TAL@dft.gsi.gov.uk