

## **INTERIM ADVICE NOTE 188/16**

### **Guidance on Omission of Warning Lights (Road Danger Lamps) for Relaxation Works on Dual Carriageways**

#### **Summary**

Guidance for omission of warning lights (road danger lamps) in temporary traffic management (TTM), at the work zones in road works where “relaxation scheme” works criteria apply, in order to reduce risks to road workers.

This IAN allows, subject to risk assessment indicating risk to road users and road workers remains tolerable/ALARP, the omission of warning lights from the longitudinal coning of road works on dual carriageways.

#### **Instructions for Use**

This document is supplementary to (but does not replace any elements of) the existing guidance provided in the DfT Traffic Signs Manual – Chapter 8 (2009).

THIS PAGE IS INTENTIONALLY BLANK

## Contents

1.	Introduction	4
1.1	Background	4
1.2	Scope	4
1.3	Eligibility Criteria	4
1.4	Requirement for site-specific risk assessment	5
2.	Guidance – Omission of Warning Lights	6
3.	Withdrawal Conditions	7
4.	Training	7
4.1	Road worker training	7
4.2	National Highway Sector Schemes	7
5.	Contacts	7
6.	Normative References	8
7.	Informative References	8
7.1	Highways England - Aiming for Zero and Road Worker Safety	8
7.2	TRL Reports	8
	Annex A: Required placement of traffic cones at relaxation scheme closures where warning lamps are to be omitted	9
	Annex B: Operational guidance for setting out 1m cones	10

## **1. Introduction**

### **1.1 Background**

Highways England has set out its Health & Safety 5 Year Plan and belief that “no one should be harmed when travelling or working on the Strategic Road Network”. As part of this plan, its aim is to reduce health and safety risk to road workers, eliminating road worker fatalities and serious injuries and significantly reducing road worker personal injury accidents and “near miss incidents”.

Highways England and its service providers have carried out research to determine whether omission of warning lights (road danger lamps) from longitudinal coning at the works zone can significantly improve road worker safety without adversely affecting road user safety. While omission of warning lights from relaxation schemes helps Highways England to fulfil its future vision for improving road worker safety, work activity involving installation, maintenance and removal of TTM on high speed roads is hazardous. The decision on use or omission of warning lights must always be made by a competent service provider, considering risk to all road workers and to all classes of road user.

### **1.2 Scope**

This IAN provides guidance to service providers on omission of warning lights from longitudinal coning within relaxation schemes on dual carriageways. This IAN does not apply to standard schemes (as defined in TSM Chapter 8 paragraph D/O1.6.2).

This IAN applies to the Highways England network. Application of this document on any other road is subject to approval for its use being given by the appropriate Highway Authority.

This interim guidance allows, subject to risk assessment indicating the risks to road users and road workers remain tolerable/ALARP, for the omission of warning lights from the longitudinal cones in the works zone. It does not allow the omission of sequentially flashing warning lights from lead-in or step tapers which shall still be used where required in accordance with Interim Advice and the considerations given within TSM Chapter 8 Part 1: Design paragraphs D6.8.6 - 6.8.8.

This document builds upon the guidance given in the Traffic Signs Manual Chapter 8 Part 1: Design and Part 2: Operations, in particular the guidance given relating to relaxation schemes. It is supplementary to (but does not replace any elements of) the existing guidance provided in the TSM Chapter 8, Parts 1 and 2.

The intention is that the guidance given in this document may be included within future revisions or updates to TSM Chapter 8.

### **1.3 Eligibility Criteria**

The omission of warning lights as detailed in this document applies only to TTM which meets all of the eligibility criteria shown below:

- relaxation scheme road works, as defined in TSM Chapter 8 (paragraph D/O1.6.3), including hard shoulder closures and relaxation scheme road works being provided either as part of major works or being used to install, maintain, alter or remove the standard scheme traffic management for major works

- a motorway where the permanent mandatory speed limit that would normally apply to the carriageway without road works (as defined in TSM Chapter 8 Part 1: Design, paragraph D6.14.2) is 50mph or more
- as part of the risk-based design of the temporary traffic management, in accordance with the general design principles described in the Traffic Signs Manual Chapter 8, the service provider has carried out a suitable site specific risk assessment which indicates that the risk to road users and road workers from omitting warning lights from the longitudinal coning is ALARP (see Section 1.4)
- longitudinal cones shall be placed such that there is separation between the centre of the lane line and the centre of the cone of at least 500mm as detailed in Annex A of this IAN
- where warning lamps are omitted through application of the guidance in this IAN, 1m cones shall be used for all longitudinal coning
- back-lit sequentially flashing warning lights shall be used in accordance with the requirements given in TSM Chapter 8 Part 1: Design, paragraphs D6.8.6 - 6.8.8

On dual carriageway roads with permanent speed limit of 50mph or 60mph, the minimum cone size recommended for taper and longitudinal cones in TSM Chapter 8 Appendix A1 Table A1.3 is 750mm. Where warning lamps are omitted from longitudinal coning on dual carriageway roads with permanent speed limit of 50mph or 60mph both the taper and the longitudinal should be installed using 1m cones (see TSM Chapter 8 Appendix A1 Table A1.3, note 5).

It is not appropriate to omit warning lamps from longitudinal coning at any standard scheme road works or at relaxed scheme road works on single carriageways.

It is important to note that the cones should be kept in an acceptable condition as shown in TSM Chapter 8 Part 2: Operations Appendix A4 section A4.3.27 "Road Works Delineators". Furthermore, the use of improved retroreflective materials for sleeves should be considered.

#### **1.4 Requirement for site-specific risk assessment**

A site specific risk assessment enables the risks to road workers and road users to be suitably identified and subsequently managed to a level that is as low as reasonably practicable (ALARP).

The site specific risk assessment must be carried out considering the type of work being undertaken together with all other appropriate factors, such as those given in TSM Chapter 8 Part 1 2009 paragraphs D1.6.3 to D1.6.5, D3.2.2, D3.8, D3.9, D3.12.1 and TSM Chapter 8 Part 2 2009 paragraphs O1.6.3 to O1.6.5, O4.7.1, O4.7.6, O4.7.7, with the definition of "low traffic flows" given in TSM Chapter 8 Appendix A2.41.

In all cases, the decision on omission of warning lights must be based on the site specific risk assessment which considers the balance of risks between road users and road workers. It should consider the condition of the road markings and studs (see TSM Chapter 8 Part 1: Design, paragraphs D3.11.1 – D3.11.8 and TSM Chapter 8 Part 2: Operation, paragraphs O4.12.1 – O4.12.19) and may require the assessment of the visual performance of the relaxation scheme road works site when placed within other traffic management, for example standard works that are part of a major project.

Guidance contained within this document is given on the basis that a service provider competent person carries out a suitable and sufficient site specific risk assessment, in accordance with the requirements and guidance in GD 04/12 in the Design Manual for Roads and Bridges, well before site work commences and ensures that it is appropriately recorded.

## **2. Guidance – Omission of Warning Lights**

This section provides interim guidance to the service provider regarding omission of warning lights in work zones for relaxation scheme road works where the permanent speed limit is 50mph or more. This interim guidance allows the omission of warning lights, provided that all of the eligibility criteria described in Section 1.3 in this IAN are met.

Research and on-road trials have shown that, for relaxation schemes on dual carriageways, warning lights may be omitted from the works zone longitudinal coning without adversely affecting the lane positioning behaviour of road users. This research was undertaken on nearside and offside closures on motorways in England, with and without street lighting. Omission of warning lights removes or reduces several risks to road workers and road users, including:

- risk for road workers of developing musculoskeletal injuries from laying and retrieving cones with warning lights fitted
- risk of vehicle strikes during laying and retrieving cones, as the TTM vehicle can travel at a higher speed when warning lamps are not deployed
- risk of cone strikes creating warning lamp debris which might impact on other vehicles or be projected into the work zone
- risk of cone strikes creating warning lamp debris which may cause secondary incidents and require retrieval from the carriageway
- risk exposure for road workers during routine TTM maintenance activities such as warning light realignment or maintenance

Therefore, subject to risk assessment indicating risk to road users and road workers remains tolerable/ALARP and compliance with the eligibility criteria described in Section 1.3 in this document (including those given in Annex A), service providers may omit warning lights from the longitudinal coning at relaxation scheme road works on dual carriageways.

Relaxation scheme signing plans contained within TSM Chapter 8 apply the general principle that signing for relaxation schemes is a subset of signing for standard schemes. Warning light omission is consistent with this principle, in that warning lights can be placed if required to bring the signing up to that suitable for a standard scheme. This may be necessary, for example if weather or traffic conditions at the site deteriorate and should be taken into account when planning the works.

Any decision to omit warning lights for relaxation schemes should take account of all appropriate factors, including traffic flows per hour per lane and the percentage of HGVs per hour per lane. This must be achieved by carrying out a site specific risk assessment (as detailed in the eligibility criteria and in Section 1.4). If the site specific risk assessment indicates that the omission of warning lights is inadvisable, then lamps should be placed when setting out the closure.

### **3. Withdrawal Conditions**

This IAN will remain in force until such time as this guidance can be incorporated permanently in to a future revision of the DfT Traffic Signs Manual Chapter 8, or is superseded by revised guidance issued by Highways England.

### **4. Training**

#### **4.1 Road worker training**

Service providers should ensure that suitable and sufficient training is given to road workers. This training should include the criteria relating to the placement of cones where warning lamps are omitted (detailed in Annex A).

#### **4.2 National Highway Sector Schemes**

The training committee, which has been established by industry via National Highway Sector Scheme 12 for Temporary Traffic Management, is aware of this guidance. Development of an accredited training module (including production of presentation material, the drafting of suitable test questions and where appropriate determining the assessment criteria) will be considered within their forward programme of work, enabling future provision by the Awarding Organisation of appropriate training materials to recognised training instructors and training bodies.

### **5. Contacts**

Further information may be obtained from:

Wayne Mullin  
National Health and Safety,  
Highways England,  
Woodlands,  
Manton lane,  
Bedford,  
MK41 7LW.  
[wayne.mullin@highwaysengland.co.uk](mailto:wayne.mullin@highwaysengland.co.uk)

Email: [Standards\\_Feedback&Enquiries@highwaysengland.co.uk](mailto:Standards_Feedback&Enquiries@highwaysengland.co.uk)

## 6. Normative References

- DfT Design Manual for Roads & Bridges GD 04/12 Standard for Safety Risk Assessment on the Strategic Road Network.  
<http://www.dft.gov.uk/ha/standards/dmrb/vol0/section2/gd0412.pdf>
- DfT Traffic Signs Manual (TSM) Chapter 8 (2009) Traffic Safety Measures and Signs for Road Works and Temporary Situations, Part 1 – Design & Part 2 – Operations.  
<https://www.gov.uk/government/publications/traffic-signs-manual>
- Statutory Instrument 2002 No. 3113 Traffic Signs Regulations and General Directions 2002 (TSRGD).  
<https://www.gov.uk/government/policies/managing-improving-and-investing-in-the-road-network>

## 7. Informative References

### 7.1 Highways England - Aiming for Zero and Road Worker Safety

Documents can be downloaded from the appropriate web site using the links provided:

- Highways England Aiming for Zero introduction, Aiming for Zero overarching strategy and Road Worker Safety Strategy.  
<https://www.gov.uk/government/collections/roadworker-safety-highways-agencys-aiming-for-zero-programme>
- Guidance for Safer Temporary Traffic Management. 2002.  
<http://webarchive.nationalarchives.gov.uk/+http://www.highways.gov.uk/aboutus/1091.aspx>

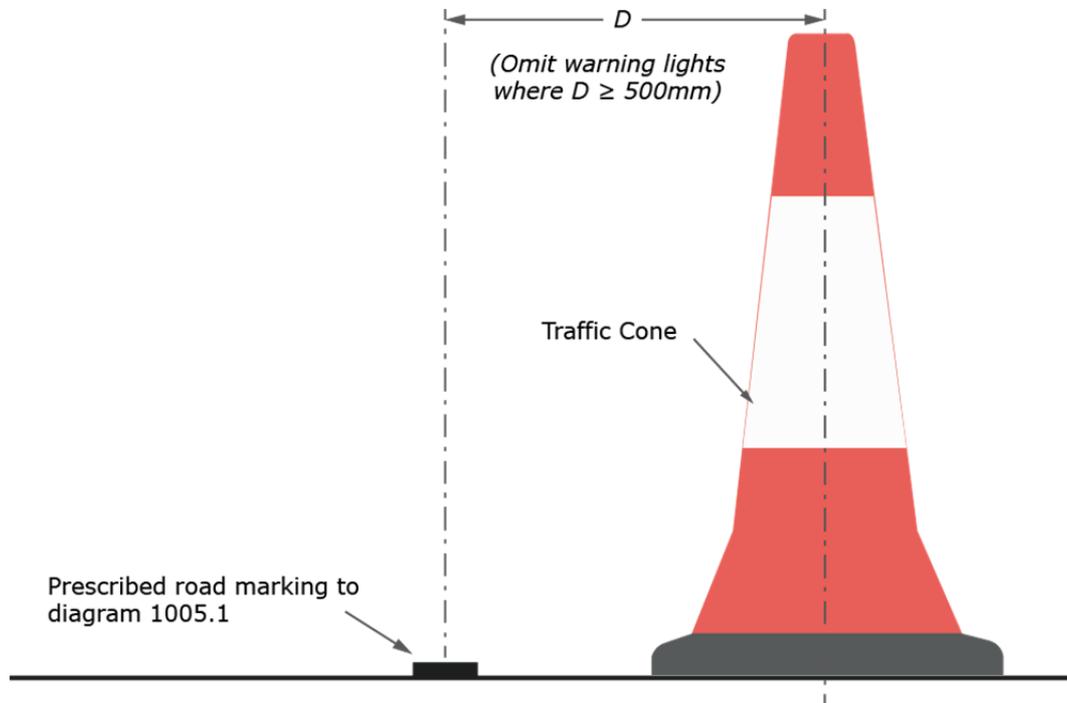
### 7.2 TRL Reports

The following documents provide the evidence base for introduction of Off Side Signs Removal and Sign Simplification and are available from the Highways England Knowledge Compendium.

- TRL Report CPR1306 (2012) - Removing road danger lamps at relaxation road works: Impact on driver behaviour and road worker risk.
- TRL Report RPN 2593 (2013) - Removal of road danger lamps from longitudinal coning: Workstream 1 Report.
- TRL Report CPR 2092 (2015) - Removal of Road Danger Lamps from Longitudinal Coning: Phase 2: On-Road Trials and Safety Case.

## Annex A: Required placement of traffic cones at relaxation scheme closures where warning lamps are to be omitted

This diagram illustrates the required placement of traffic cones at relaxation scheme closures where warning lamps are to be omitted from longitudinal cones:



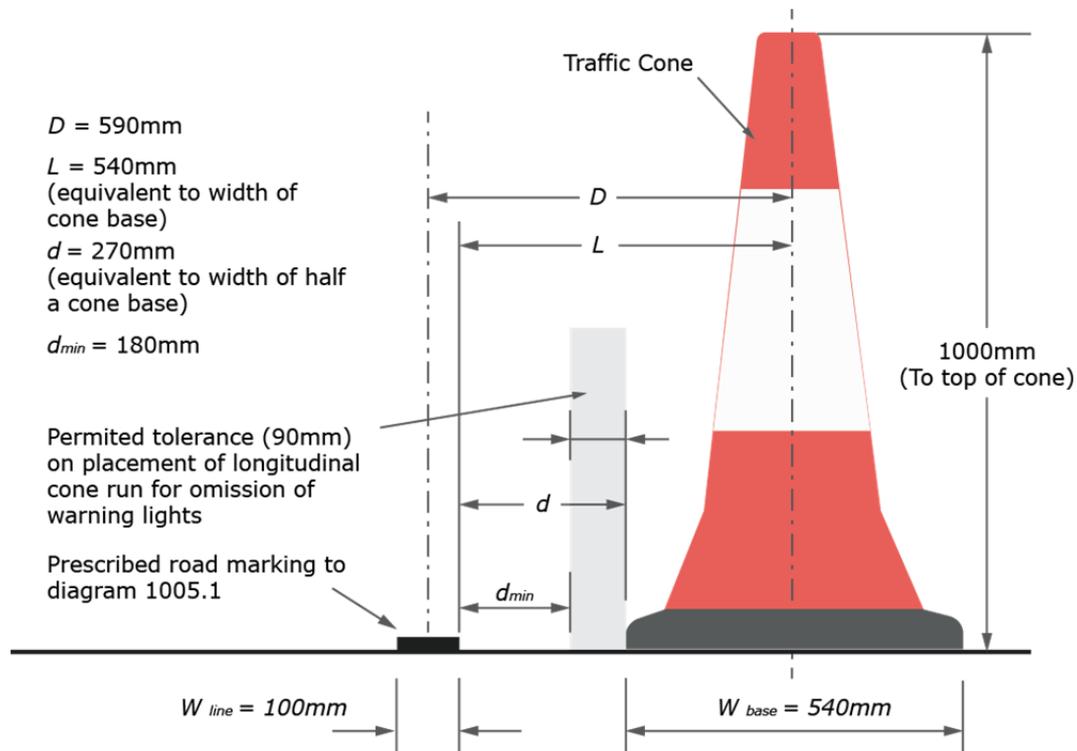
The following are the key elements used in defining this layout:

- The longitudinal cone line shall be marked out with cones conforming to diagram 7101.1 in the Traffic Signs Regulations and General Directions 2002 (TSRGD)
- White line widths ( $W_{line}$ ): Diagram 1005.1 in TSRGD states that on roads with a speed limit of more than 40 mph, the width of the white lines used to divide the carriageway into traffic lanes where vehicles proceed in the same direction may be 100mm or 150mm
- Separation between the centre of the white line and the centre of the traffic cone ( $D$ ): This is set as 500mm; for relaxation closures where  $D$  is less than or equal to 500m, warning lights should be used to indicate "the limits of a temporary obstruction of the road" (TSRGD Regulation 55)

## Annex B: Operational guidance for setting out 1m cones

During the setting out of the longitudinal, a simple method is required to enable operatives to identify whether the criteria in Annex A apply and so whether warning lights shall be used.

This is shown in the diagram below:



The key dimensions when setting out 1m cones are:

- The separation between the inside edge of the white line and the centre of the cone (L): This has been set as 540mm, i.e. the width of a 1m cone base. This is equivalent to  $D = 590\text{mm}$
- The separation between the inside edge of the white line and the base of the cone (d): This has been set as 270mm, i.e. half the width of a 1m cone base

This provides an 'always favourable' tolerance zone of 90mm (shown by the shaded area in the diagram) within which the placement of a 1m cone is certain to comply with the requirements in Annex A.