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Target Audience:
FOD Construction Division Inspectors
SG Specialist Inspectors

TEMPORARY TRAFFIC MANAGEMENT ON HIGH SPEED ROADS

This SIM supports the Construction Division work program project plan 2003/4 for Temporary Traffic Management (TTM) and provides information to inspectors on available HSE and industry guidance and advice on the use of that guidance when assessing systems of work for temporary traffic management.

BACKGROUND

1 Temporary Traffic Management includes the placing, removing and maintaining of, for example: cones, road markings, road studs, signs, barriers and traffic signals on the highway, to allow roadworks and short term repair and maintenance to be carried out safely. It also includes the operation of mobile lane closures and convoy control.

2 The advice in this document is relevant to TTM on high speed roads; though many of the general principles may also be applicable to other roads. For the purposes of this document, a high speed road is *a motorway or dual carriageway that, in normal use, is subject to a speed restriction of 50 mph or more.*

3 Accidents at roadworks contribute between 7—18% of construction fatalities. The TTM industry is not a large employer within construction; accurate employment numbers are difficult to identify. However, one estimate of the industry's fatal injury rate in 2002 was 100 per 100,000 against the construction industry average of 6 per 100,000.

4 Clients for TTM are the highway authorities. For motorways and the trunk road network this is the Highways Agency (HA) in England, the Welsh Assembly in Wales and the Scottish Executive in Scotland. For other roads, local authorities [typically county or unitary authorities] are the highway authority. The clients often retain agents to manage their duties in specific geographical areas; these can be other local authorities or private companies.

5 Work on high speed roads requiring TTM commonly takes place either as part of a term maintenance contract or as part of a capital project:

(1) Term maintenance works are undertaken by a contractor who has been awarded a contract to undertake day-to-day maintenance on the roads in a particular area for the period [term] of their contract. Work is more likely to be of short duration [anything from immediate debris removal to barrier renewals over 2-3 nights]. The TTM is often undertaken by the contractors own employees but may be subcontracted.

(2) Capital projects are usually one off contracts awarded to a principal contractor. Examples are: renewal of a length of carriageway, new road scheme, provision of roadside matrix signs. They are often of longer duration and the TTM can be more complex. The TTM is typically subcontracted to a specialist contractor.

6 Contracts for work on roads controlled by the Highways Agency will usually require contractors to comply with the *Manual of Contract Documents for Highway Works – Volume 1 Specification for Highway Works*. The latest edition of this specification, August 2003, requires contractors to "take account of …the recommendations" in *Temporary Traffic Management on High Speed Roads – Good Working Practice* [paras 7-9 below] and *Guidance for Safer Temporary Traffic Management* [paras 10-12 below]. The specifications for contracts that commenced before August 2003 will have referred to *Notes for Guidance on Safety at Roadworks* [paras 29-30 below], which is now withdrawn.

AVAILABLE GUIDANCE

Highways Agency, HSE and others**,** Temporary Traffic Management on High Speed Roads – Good Working Practice, Highways Agency, October 2002**.**

7 Produced by the Safe Practice in Temporary Traffic Management Operations - SPITTMO [now called the Safer Temporary Traffic Management Operations Initiative – STTMOI] group, chaired by the Highways Agency [HA], and including HSE, police, and contractors' representatives. Contains notes on: Planning Issues, Vehicle Issues, Workforce Issues and Signing Equipment Issues.

8 The detailed vehicle specifications had implementation dates of January 2003 and April 2003. These specifications only apply to vehicles engaged in TTM work; they do not apply to other vehicles used within the work zone of established roadworks. Inspectors should be aware that there might be vehicle supply bottlenecks that may prevent certain contractors meeting the implementation dates. Inspectors should satisfy themselves that such delays are outside the control of the contractor.

9 The Sector considers that the guidance sets reasonably practicable standards for TM operations on high-speed roads and inspectors should be prepared to enforce those standards.

HA, CSS & HSE, Guidance for Safer Temporary Traffic Management**,** Highways Agency, June 2002.

10 The introduction of the Construction (Design and Management) Regulations 1994 (CDM) provoked a fundamental reappraisal of responsibility for health and safety within the highway industry. The Highways Agency and the County Surveyors Society [CSS] set up a working group to review their document: *Notes for Guidance on Safety at Roadworks, Joint Working Party 1994,* 3rd Edition, [see paragraphs 29 & 30]

11 The review saw the Highways Agency work in partnership with the CSS, HSE and representatives of all areas of the highways industry, from police to contractors, to produce "Guidance for Safer Temporary Traffic Management". This document provides advice on:

(1) health and safety responsibilities & roles within temporary traffic management;

(2) key tasks and the associated links;

(3) the issues to be addressed in the development of temporary management proposals;

(4) workforce issues; and

(5) night working issues.

12 The document is recommended as a framework for the safe delivery and implementation of temporary traffic management on the road network. It follows the process through from initial planning to the physical task of putting out cones and signs.

Dept. for Transport, Local Gov. and the Regions, *Safety at Street Works and Road Works – A Code of Practice,* 2nd Edition**,** HMSO 2002. HSE Subject File 422.

13 Referred to as 'the Red Book' [1st edition was 'the Blue Book']. A code of practice issued under the New Roads and Street Works Act 1991 [NRSWA] it has similar legal status under that legislation as a HSE ACOP has under our legislation. It mainly deals with TTM on roads other than 'high speed roads', it does cover dual carriageways, 50 mph and over, without a hard shoulder. For all other 'high speed roads' it refers back to Chapter 8. It covers similar topics to Chapter 8: siting, spacings, dimensions, and layout. It contains very little guidance on how to set out the signs etc. safely. Guidance is up to date and relevant; it should be used in preference to Chapter 8 for TTM on road types that it covers.

Dept of Transport, **Traffic Signs Manual – Chapter 8 [Volumes 1 & 2], "Traffic Safety Measures and Signs for Road Works and Temporary Situations**", HMSO, 1991 [Reprinted with amendments 2002]. Available from HSE FOD office libraries

14 Referred to simply as 'Chapter 8', this document still forms the basis for the design and layout of roadworks. It has no legal force in itself but it is often specified as a performance standard in contracts and in temporary Traffic Orders. There have been various changes in TTM practice and improvements in equipment since its publication. The amended edition of June 2002 updated sign faces, sign reference numbers, and other references; the text remained largely the same. Some of the guidance has been amended by advice from the Department for Transport published as TD and TA notes [see paragraphs 22–25].

15 The core guidance on siting, spacings, dimensions, layout and arrangements can be used to assess whether a particular TTM installation is adequate. Some additional acceptable TTM layouts have been developed in recent years that are not shown in Chapter 8. Inspectors should always ask the client and contractors what was the intended layout for the TTM and what guidance was followed. Chapter 8 is to be completely reviewed during 2003–2004.

16 In particular, the sections dealing with mobile roadworks or lane closures, referred to in Chapter 8 as 'Type C' works, have been amended [see paragraph 23.]

Crossing high-speed roads on foot during temporary traffic-management works, Construction Information Sheet No 53, HSE, April 2000.

17 This CIS was written as interim guidance at a time when the routine practice within the industry was to place TTM equipment on a road by carrying it across the carriageway on foot. As a result of the work of the joint working parties that produced *Guidance for Safer Temporary Traffic Management* and *Temporary Traffic Management on High Speed Roads – Good Working Practice* industry has adopted a risk assessment based approach and in the majority of circumstances those assessments conclude that TTM equipment should be

placed from a protected vehicle. This has greatly reduced the need to cross high-speed roads on foot.

18 There are however still circumstances where a risk assessment validly concludes that crossing the carriageway is the safer option. These are often one-off activities, involving little or no carrying, where either the work is very quick [eg. debris removal] or can be done in a 'safe' position [eg. straightening a displaced sign more than 1.2 m from a live lane]. All of the other factors in CIS53 such as traffic flows, sight lines, PPE, training and crossing distances are still valid.

19 One area where inspectors are likely to find differing work practices is the placement of the advance warning signs in the central reserve. There are three common systems of work:

(1) *Carrying the signs and frames across the carriageway from the hard shoulder or verge*. Placing and securing [or removing] a single sign can involve between 2–8 return crossings depending on the method of securing the sign and need for lighting. Contractors should do all that is reasonably practicable to minimise the number of crossings; for example by using frames that clamp to barriers, or tie-down straps, to eliminate the need to carry sandbags [8 sandbags=4 crossings].

(2) *Placing the advance signs using a TM vehicle(s) in the outside lane.* The vehicle(s) should display a light arrow, and be protected by a crash cushion. This system of work avoids the risks from crossing the carriageway, but the existence of a stationary vehicle in the outside lane creates a risk to workers and road users. This risk can be increased if the intended roadworks involve a Lane 1 closure. In that situation, the advance signs tell drivers to expect an obstruction in Lane 1 whilst the TM vehicle is obstructing Lane 2 or 3. In many cases, this conflict of information can be avoided by placing the signs from a protected vehicle in the outside lane of the opposite carriageway. For example: if there are roadworks intended on the eastbound carriageway of a motorway, place the advance warning signs in the central reserve from a crash cushion vehicle that is in the outside lane of the westbound carriageway.

(3) *Pre-placing the signs from a protected TM vehicle in the outside lane then crossing the carriageway from the hard shoulder or verge to erect the signs*. This system of work has the risks of both of the above systems but minimises each of those risks. The TM vehicle is stationary in the outside lane for the shortest time possible, the advance signs do not conflict with the position of the TM vehicle, and only a single crossing on foot is required.

20 Remotely controlled signs have now been approved for use. The use of these to cover-up, or reveal, signs in the central reserve should be considered where roadworks require repeated closures. [For example: off-peak closures that have to be put on at the same location at say 09.30 and taken off at 16.30 each day for several days]

21 The selection of a particular system of work has to depend on the specific risk assessment. At the next revision of CIS 53 the wording will be reviewed to remove any implication that crossing on foot is universally acceptable and to emphasise the risk assessment approach to consider alternative systems of work.

Dept for Transport, Departmental Standards: Design Manual for Roads and Bridges, Volume 8 Traffic Signs and Lighting, Section 4 Traffic Management at Roadworks

- TD 49/03, The Mobile Lane Closure Technique, Amendment 1, May 2003;
- TA 63/97, Convoy Working, May 1997;
- TA 64/94, Narrow Lane and Tidal Flow Operations at Roadworks on Motorways and Dual Carriageway Trunk Roads With Full Width Hard Shoulders, April 1994

22 These TA & TD notes amend and extend the guidance in Chapter 8 and are included with the 2002 revised edition of Chapter 8. Inspectors should use the standards in these documents when assessing working practices.

23 TD 49/03 sets out the current practice for mobile lane closures. Annex A gives the performance criteria for crash cushions. The vehicle mounted sign shown in Drawing No. P7403 of TD 49 is still permitted as a vehicle sign; however, TD 49/03 and “Good Working Practice” both strongly recommend the use of the flashing light arrow on block vehicles and inspectors should be prepared to enforce the use of the additional light arrow as a reasonably practicable precaution.

24 TA 63/97 - Convoy working is not widely used at roadworks on high-speed roads. It is a method of achieving alternating, one-way traffic and at the same time, controlling traffic speed through the roadworks. This can allow a reduction in the required safety zone sideways clearance.

25 TA 64/94 varies the guidance given in Chapter 8 for setting up contraflows so that traffic flows through the roadworks can be increased either by using narrow lanes [eg. 3 narrow lanes in place of 2 full width lanes] or by making the direction of traffic in one lane reversible [eg. in response to inbound or outbound ‘rush hours’].

26 Inspectors should note that Mobile Lane Closures and Convoy Working are different to a ‘rolling block’ technique where traffic is slowed across all lanes to create a gap in the traffic ahead of the block. ‘Convoy Control’ is now the preferred term for a rolling block. In everyday use, there is the potential for confusion between the terms Convoy Working and Convoy Control; inspectors should ascertain which technique is actually meant. Currently convoy control is typically only undertaken by the police. The availability of police convoy control varies depending on the policy of the local police force. Many forces are not willing to undertake these operations.

27 Legislation is being enacted that will facilitate the Highways Agency in undertaking its own convoy controls using contractors. The above TD notes do not cover the use of Convoy Control; currently there is no guidance available for convoy control operations. Guidance is in the early stages of preparation and it is hoped to be in place to coincide with the new legislation.

Traffic Management Contractors Association**, Notes for Guidance for Static Temporary Traffic Management on Motorways and High Speed Dual Carriageways,** 2003 edition, TMCA 2003. Available from: TMCA, Highlands Lane, Henley on Thames, Oxfordshire, RG9 4EL

28 The TMCA is a trade association representing its members’ interests. Members are mainly specialist TM subcontractors who will typically work subcontracted to a principal contractor on major projects. Currently about 12 of the larger TM subcontractors are members. The Notes have been produced for several years and have sections on: safety at roadworks, training, establishment and removal, maintenance and traffic management vehicles. Members are expected to work in accordance with the Notes. Many TM subcontractors are not members of the association.

Dept. of Transport & County Surveyors' Society**, *Notes for Guidance on Safety at Roadworks, Joint Working Party 1994,* 3rd Edition**, DoT & CSS, 1994 [**Now Withdrawn**]

29 In 1994, the third edition of "Notes for Guidance on Safety at Road Works" was published by the Dept. of Transport and the CSS. It predated the CDM Regs. 1994 and whilst the concept of risk assessment was introduced in the document, it was not developed. This was recognised by the HA and CSS, and they published new guidance in 2002 [*Guidance for Safer Temporary Traffic Management see paragraphs 10–12*] consequently, "Notes for Guidance....1994" has been withdrawn.

30 Whilst much of the guidance in Notes for Guidance… reflects the general approach that the Construction Sector is promoting to the TTM industry, inspectors should be cautious in using it [even as historical reference] to support enforcement action. It has not had universal acceptance or credibility within the industry. Some parties felt that there was a lack of consultation and consequently some of the guidance was disputed as inaccurate and impracticable. Inspectors are advised to regard this document as background information that can assist when questioning parties on options for safe practice.

INSPECTOR SAFETY

31 High-speed roads are a dangerous place to work. Much of the promotion or enforcement of safe working practices can be achieved without inspectors placing themselves at increased risk from high-speed traffic. Head office and depot visits to clients, agents and contractors and pre-arranged interviews with operatives can be very effective at identifying and changing bad practice without the risks of roadside inspections.

32 Construction Division are developing a H&S Policy Safety Supplement for stopping on/near live traffic lanes. Pending the issue of that policy, any decision to stop on or adjacent to a live traffic lane should only be taken in consultation with the FMU Principal Inspector and after a careful assessment of the risks, benefits and available safeguards.

33 The following interim advice should be considered:

(1) For planned proactive inspections, work sites should be selected so that the work can be observed from a position of safety such as an over-bridge or adjoining road/footpath. Alternatively, inspections can be undertaken by an inspector carried as a passenger in a vehicle driven past the works [several passes may be necessary]. In such circumstances, the driver must not attempt any inspection but should concentrate solely on driving safely.

(2) If, after careful risk assessment, it is decided to stop on/near a live traffic lane then the co-operation of the client, agent or contractor should be sought in providing a vehicle that meets the specification in ***Table A - Inspection/Supervisor Vehicle*** of '…*Good Working Practice*' with an experienced driver.

(3) At least two inspectors should take part. One of the inspectors should be nominated, in advance, as a 'spotter'. The inspectors should stay together as a group. The 'spotter' should not take any active part in the inspection but should solely observe the approaching traffic to give an early warning of any perceived danger.

(4) In selecting a place to stop, identify a protected position where you can stand after getting out of the vehicle such as: behind safety fencing [crash

barrier], downstream of a bridge abutment or up an embankment. Inspectors should not stay in the vehicle.

(5) Where possible in incident investigation, a rapid response to the notification of an incident can have the benefit that the police will usually have closed off the relevant traffic lanes allowing a safer inspection of the scene.

ACTION BY INSPECTORS

34 Inspectors are asked to note the range of guidance that is available to inform their assessments of client and contractor practices in TTM. In particular, inspectors should be aware that, since CIS 53 and the prohibition notices served on a TM contractor in September 2001, practices within the industry have changed and are still changing; consequently much of the older guidance no longer reflects best practice.

35 Because best practice is still evolving, [eg. the development of HA controlled rolling blocks/convoy control], inspectors should consider both whether the current guidance was being followed **and** whether the guidance reflected best practice so far as was reasonably practicable. If inspectors have concerns with the guidance, they are advised to discuss the issues with the Construction Sector before taking enforcement action.

36 The sector meets the HA and the industry to discuss safety at roadworks on a regular basis. The sector would welcome feed back of good and bad practice to inform discussion at these meetings.

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