

Draft letter to Designers and Managing Agents

INTERIM ADVICE NOTE 43/02: CANTILEVER AND PORTAL GANTRY VMS

This Interim Advice Note announces amendments to a series of guidelines related to cantilever and portal gantry Variable Message Signs (VMS). It reconciles conflicting advice given in current Standards and Advice Notes relating to the siting of portals and cantilevers, encapsulates current best practice and clarifies some aspects of the use of VMS. Currently this is addressed via Departures from Standards based on recent research findings. The costs associated with implementing this Interim Advice Note are expected to be negligible, though due to a reduction in the requirements of VMS on some portal gantries close to junctions, there may be opportunities to achieve some cost savings. These changes have the potential to speed up project delivery, by cutting down applications for Departures from Standard. The advice given in this Interim Advice Note should be used for all future contracts and for current contracts where any costs and time can be accommodated.

This Interim Advice Note gives the details of the amendments. Please ensure that all of your staff dealing with VMS-related projects are aware of the contents of this Interim Advice Note. All designers and managing agents should use the guidance contained within this Interim Advice Note with immediate effect.

Area Manager

INTERIM ADVICE NOTE 43/02 – Cantilever and Portal Gantry VMS

1. INTRODUCTION

- 1.1. This Interim Advice Note addresses a series of issues related to cantilever and portal gantry VMS. This Interim Advice Note provides a statement of clarification to address inconsistencies that have developed over time in various documents.
- 1.2. This Interim Advice Note replaces some of the guidance previously given in the following documents:
 - TD 18/85 - Criteria for the use of gantries for traffic signs and matrix traffic signals on trunk roads and trunk road motorways
 - TD 33/90 – The use of VMS on all-purpose and motorway trunk roads – Standard of criteria affecting the selection, siting and use of VMS
 - TA 60/90 – The use of VMS on all-purpose and motorway trunk roads – the criteria for selecting the most suitable type of sign and operating methods
 - TD 46/94 – Motorway Signalling
 - TA 74/97 – Motorway Signalling
 - TA 83/99 – Guide to the use of VMS for strategic traffic management on trunk roads and trunk road motorways

The above documents will be amended at the next revision to reflect the changes indicated in this Interim Advice Note.

This document relates to the following devices:

- (a) Message Sign (2 × 12 text 320mm) mounted on portal gantry;
- (b) Motorway Signal (2 × 16 text 400mm) mounted on cantilever gantry;
- (c) Motorway Signal (2 × 16 text 400mm reducing to 2 × 12 text 400mm plus EMI) mounted on cantilever gantry;
- (d) Motorway Signal (3 × 18 text 400mm) mounted on cantilever gantry; and
- (e) Motorway Signal (3 × 18 text 400mm reducing to 2 × 12 text 400mm (or 3 × 12 text 400mm) plus EMI) mounted on cantilever gantry.

Annex A provides clarification of the types of VMS in use.

- 1.3. Where there is a conflict between this and the above documents, this Interim Advice Note will take precedence.
- 1.4. Where appropriate within this Interim Advice Note reference is made to the documents and the sections/paragraphs that are to be amended, replaced or deleted.

1.5. Previously the standards allowed for incident management legends (including tactical legends), driver information legends (including strategic legends), ADS and signals to be displayed on one portal gantry. This can lead to an overload of information for drivers and therefore it is recommended that strategic VMS are located on separate structures from ADS. In addition the requirement to install EMS on portal gantries which also carry lane signals has been reduced, to that shown in Figures 1 – 5 inclusive. Driver information legends should always be displayed on the strategic VMS where provided.

1.6. Figures:

The following list states which figures in TA 74/97 and TA 83/99 are superseded by the attached figures:

Figure Number	Title	Replacing	
		Figure	Title
1	Sign and Signal Gantry at Single Lane Taper Diverge and Merge	TA 74/97 A3.4a (see note 1)	Sign and Signal Gantry Locations Standard Length Deceleration Lane
2	Sign and Signal Gantry at Two Lane Diverge and Merge	TA 74/97 A3.4a (see note 1)	Sign and Signal Gantry Locations Standard Length Deceleration Lane
3	Sign and Signal at Two Lane Parallel Diverge and Merge	TA 74/97 A3.4b	Sign and Signal Gantry Locations Non-Standard Length Deceleration Lane
4	Sign and Signal Gantry at Lane Drop and Lane Gain	TA 74/97 A3.4c	Sign and Signal Gantry Locations Parallel Deceleration Lane
5	Sign and Signal Gantry at Parallel Lane Drop and Lane Gain	TA 74/97 A3.4d	Sign and Signal Gantry Locations Extended (1 mile) Parallel Deceleration Lane
6	Scheme with Verge Mounted ADS and Cantilever VMS	TA 74/97 A3.5a	MS2 Schemes – between junctions
		TA 74/97 A3.5b	MS2 Schemes – junction approach with verge mounted ADS: MS2 Type A1
		TA 74/97 A3.5c	MS2 Schemes – signals at merge points and within junctions: MS2 Type A1
		TA 74/97 A3.5d	MS2 Schemes – signals at merge points and within junctions: MS2 Type A1/A2
		TA 83/99 A4.2b	Provision of strategic VMS on D2 all purpose trunk roads and motorways with verge mounted ADS.
		TA 83/99 A4.2c	Provision of strategic VMS on D3 all purpose trunk roads and motorways with verge mounted ADS.

Notes:

1. In TA 74/97 Figure A3.4a is replaced by Figures 1 and 2 attached to cater for 2 separate cases.
2. In TD 33/90 Figures 1(a) and 1(b) are deleted.
3. In TA 83/99 Figure A4.2d is superseded by Figures 1-5 depending on the layout of the junction.

2. ADS LOCATIONS AND VMS SPACING IN RELATION TO ADS

2.1. General

- 2.1.1. A number of departures from standards have occurred in relation to the location of ADS and the location of VMS with respect to ADS.
- 2.1.2. The spacing of cantilever VMS is 1500m (+0 / -20%).
- 2.1.3. The spacing of gantry mounted VMS is 1000m (+0 / -20%).
- 2.1.4. On motorways ADS shall be at 1 mile and ½ mile from the start of the diverge unless impracticable when it may be necessary to use 2/3 mile and 1/3 mile spacing. The 1 mile and ½ mile sequence is designed to allow sufficient time for drivers to move across from the offside lane to the exit. Departures from these standards will only be authorised as a last resort. They are more likely to be acceptable on roads no wider than dual two lanes. See **Figure 6** and in **TA83/99 Figure A4.2a** is to be amended and is to include a note to this effect.
- 2.1.5. The positions of all sign and signal gantries in relation to ADS are shown in **Figures 1 – 5**. The positions of all signs and cantilever VMS in relation to ADS are shown in **Figure 6**.
- 2.1.6. Count down markers are only used at diverges and must not be used on the approach to lane drop junctions. See **Figures 1 – 6**.
- 2.1.7. Because of the overload of information to drivers the aim should always be to provide driver information legends on dedicated gantries or cantilever VMS and not on the structures with ADS.
- 2.1.8. **TD 33/90 – 11.4**. Text shall be replaced to read:

“On motorways and on all-purpose trunk roads with 85 percentile approach speeds (see Ref 9 for method of measurement) of private cars of 40 mph or over, two VMS displaying the same legend shall be provided where possible. This is to cater for the case when it is required to give alternative or conflicting legends to those given by permanent fixed directional informatory signs, eg VMS indicating mandatory or advisory diversions.

In relation to strategic VMS provision located near to the 1 (2/3) mile and ½ (1/3) mile ADS, where there is a conflict between the requirements of the strategic and other legends the 1 mile VMS shall have a tactical legend priority and the ½ mile VMS shall have a strategic legend priority (see **Section 3**).

When other fixed direction signs, such as tourist signs, have already been sited between fixed advance direction signs, consideration shall be given to repositioning those signs in order to accommodate the VMS. The VMS shall not be co-located with fixed signs”.

2.1.9 Tourist Signs and VMS

- i) Tourist signs are normally sited ¾ and ¼ mile in advance of junctions, midway between the 1 (2/3) mile and ½ (1/3) mile ADS, and the ½ (1/3) mile ADS and the final ADS.
- ii) When there is a conflict between the VMS upstream of the ½ (1/3) mile ADS and the tourist sign, the tourist sign should be relocated upstream midway between the 1 (2/3) mile ADS and the VMS upstream of the ½ (1/3) mile ADS.
- iii) Similar action may be required for the ¼ mile tourist sign.

2.2. Issues related to the Final ADS

- 2.2.1. Revised versions of diagrams are included in this Interim Advice Note to replace **TA 74/97 Figures A3.4a – d** (see **Figures 1, 3, 4, 5**) respectively. An additional figure, **Figure 2**, is included to cover the case where there is a taper to a 2-lane exit.
- 2.2.2. The final ADS gantry may include a 2×12 EMS. This sign shall only be enabled to display tactical legends. It shall not be enabled to set driver information legends. This is to be configured in site data prior to commissioning of the sign. **Figures 3 – 5** contain a note to this effect.
- 2.2.3. Historically $\frac{1}{2}$ (1/3) mile and final ADS gantries as shown in **Figures 1 and 2** may also have been equipped with 2×12 EMS. The requirements of paragraph 2.2.2 above shall also apply to these gantries.
- 2.2.4. The reasoning behind not allowing these legends to be set is that this may cause information overload to drivers. This reasoning is to be passed onto the police control office operators, the Regional Maintenance Contractor (RMC) and those who undertake the operator training on behalf of the Highways Agency.
- 2.2.5. An additional sign/signal gantry is to be installed at the midpoint if the distance from the nose to the end of the taper is greater than 800m. See **Figures 3 and 5**.
- 2.2.6. **TA 74/97 A3.4** Paragraphs 3,4,5 are replaced to read:
3. “Where the final ADS gantry includes a 2×12 EMS this sign should not be enabled to set driver information legends. This is to be configured in site data prior to commissioning of the sign.”
 4. “Gantries for lane signalling on the approaches to junctions and interchanges should be sited in accordance with **Figures 1 – 5**.”
 5. “A supplementary gantry is required at the midpoint on the approach to an interchange which has a parallel deceleration lane if the parallel length exceeds 800 metres” (see **Figures 3 and 5**).

3. STRATEGIC VMS

3.1 Strategic junctions are those where two major Highways Agency core network roads intersect.

3.2 Where there are verge mounted ADS and no signal gantries any existing 1 mile 3×18 strategic VMS should be replaced by a 3 × 18 EMS with EMI (see 1.2(e)). It should be possible to re-use the existing post and structure.

3.3 The two VMS will have the following priorities (see **Figure 6**):

- 1 mile VMS – tactical legend priority
- ½ mile VMS – strategic legend priority

3.4 Wherever possible either two strategic or two tactical legends shall be displayed on the VMS to reinforce the legend to drivers.

3.5 In terms of the priority of tactical and strategic legends the tactical legend is the most important legend to be displayed. The specific use of signs in the event of needing to use both a tactical and strategic legend is as follows:

3.6 On the 1 mile VMS:

- If a tactical legend is displayed it **cannot** be replaced by a strategic legend.
- If a strategic legend is displayed a tactical legend shall take priority and shall replace the strategic legend.
- If no legend is displayed any legend can be displayed.

Once the tactical legend has been removed the strategic legend shall be displayed (if still required).

3.7 On the ½ mile VMS:

- If a non-strategic legend is displayed a strategic legend shall take priority and shall replace the non-strategic legend.
- If a strategic legend is displayed it **cannot** be replaced by a non-strategic legend.
- If no legend is displayed any legend can be displayed.

Once the strategic legend has been removed the non-strategic legend shall be displayed (if still required).

3.8 **TA 83/99 A2.2** To be replaced to read:

27. “Where there are verge mounted ADS and no signal gantries any existing 1 mile 3×18 strategic VMS should be replaced by a 3 × 18 EMS with EMI. It should be possible to re-use the existing post and structure. The two VMS will have the following priorities:

- 1 mile VMS – tactical legend priority
- ½ mile VMS – strategic legend priority”

3.9 **TA 83/99 A4.2** To be replaced to read:

9. “ Where possible VMS legends should be duplicated to reinforce the information or instructions given. However, where two strategic VMS are used on the approach to a junction the following priorities will apply:

- 1 mile VMS – tactical legend priority
- ½ mile VMS – strategic legend priority”

4. VMS ON THE APPROACH TO MINOR JUNCTIONS

- 4.1 Minor junction refers to a junction with a road that is not part of the Highways Agency Core Network or a road where no prior agreement has been reached for its inclusion in a strategic diversion route.
- 4.2 At locations where there is no lane signalling, e.g. the layout in **Figure 1** (with no lane signalling), two non-strategic VMS ie 2×16 VMS (see 1.2(c)) are required on the approach to these intersections 300m upstream of the 1 (2/3) mile and ½ (1/3) mile ADS. **Figure 6** includes a note to this effect.

5. INTER- & INTRA-JUNCTION SPACING OF MS3 VMS

- 5.1 At junctions where only MS3s are installed (as in **Figure 6**) an additional VMS should be located at approximately 100m beyond the nosing, rather than further downstream, to give the optimum viewing position and taking account of overbridge locations.
- 5.2 This location allows the MS3 to be used as a confirmation of other legends set upstream in cases where a carriageway is closed. In such cases this MS3 would indicate a “stop” to instruct drivers to proceed no further.
- 5.3 **TA 74/97 A3.5** To be replaced to read:
11. “An MS3 should be installed (with amber and red lanterns), where practical, within the junction. This should be located at approximately 100m beyond the nosing, rather than further downstream, to place it in the optimum viewing position with regard to its function.”
12. “At a junction where the approach signal is an MS3 and there is no MS3 within the junction, the MS3 upstream near to the junction should be equipped with red lanterns.”
13. Paragraph 13 is to be deleted.
- 5.4 Where there is a long distance between the off-slip and the downstream on-slip an additional MS3 maybe required (see **Figure 6**).

6. PROVISION OF ENTRY STOP MATRIX WITH MS3

- 6.1 In relation to the intra-junction VMS (section 5 above) where the main carriageway is closed, post mounted entry slip signals must be available to provide a corresponding “stop” aspect on the on-slip (see also **TA 74/97 A3.6**).

7. PROVISION AT MOTORWAY SERVICE AREAS

- 7.1. Motorway Service Areas (MSAs) are to be treated as a type of junction as follows:
- signalling provision for traffic leaving at an MSA shall not be specifically provided
 - for traffic joining the motorway at an MSA the slip road shall be treated as a standard entry slip road and provision of signalling on the slip road shall be as standard.

8. GLOSSARY OF TERMS

A glossary of general terms relevant to this Interim Advice Note are as follows:

- **Incident Management Legends**
 - **Tactical legends** – any legend set to assist with local incident / hazard management, ordinarily in support of matrix signals, and / or messages set by automated systems for similar purposes
 - **Tactical diversion legends** – legends diverting all or certain classes of traffic from one route to another in support of incident / hazard management
 - **Site-specific legends** – any legend that does not form part of the generally used base menu but supports locally agreed site or area specific contingency plans and is authorised as such
- **Driver Information Legends**
 - **Link legends** – any legend set to inform the road user of events or conditions affecting the highway upon which they are travelling and which is not of a directive or instructional nature
 - **Network legends** – any legend set to inform the road user of events or conditions affecting a motorway or trunk road, other than the one on which they are travelling, and which is not of a directive or instructional nature
 - **Strategic legends** – a wide area advisory diversion signing system which can provide specific information to accord with agreed diversionary options
 - **Non-strategic legends** – any legend which is not a strategic legend
 - **Advance Direction Sign** – static signs used to provide directional information in advance of a junction. May be mounted on a gantry or supported on posts in the verge
 - **Route Confirmatory Sign** – those signs placed after a junction giving confirmation as to the route being followed and, in most cases, destinations that can be reached, together with the appropriate distances

Annex A – Standard Types of VMS in Use



MS1 – Central Reserve Matrix – currently installed on motorways but no longer the current standard



MS2 – 2 × 12 VMS with Enhanced Matrix Indicator – currently installed on motorways but no longer the current standard.

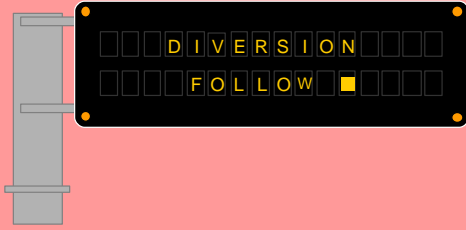
Two types of the MS2 exist:

- Type A1 – with amber lanterns
- Type A2 – with amber and red lanterns

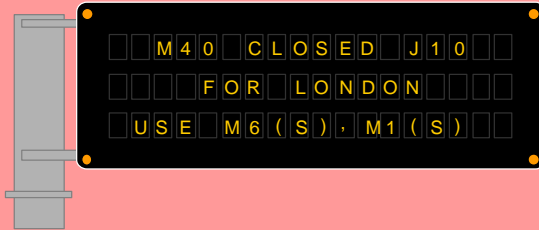
A 2 × 12 Enhanced Message Sign is also used either as a cantilever or on a gantry



Strategic 3 × 18 VMS used for Midlands Driver Information System (MDIS) and elsewhere – used but no longer standard



MS3 (2 lines) – with EMI – this can be used either as 2 × 16 or 2 × 12 with an EMI aspect – current standard in place of MS2s for non-strategic legends



MS3 (3 lines) – with EMI – this can either be used as 3 × 18 or 3 × 12 with an EMI aspect – current standard in place of MDIS type 3 × 18