THE HIGHWAYS AGENCY

TD 33/90

THE SCOTTISH OFFICE DEVELOPMENT DEPARTMENT

THE WELSH OFFICE
Y SWYDDFA GYMREIG

THE DEPARTMENT OF
THE ENVIRONMENT FOR NORTHERN IRELAND

The Use of Variable Message Signs of All-Purpose and Motorway Trunk Roads

Summary: This Standard gives the criteria affecting the selection, siting and use of variable message signs on All-Purpose and Motorway Trunk Roads.

Volume 8 home page

VOLUME 8	TRAFFIC SIGNS AND LIGHTING
SECTION 2	TRAFFIC SIGNS AND ROAD MARKINGS

TD 33/90

THE USE OF VARIABLE MESSAGE SIGNS ON ALL-PURPOSE AND MOTORWAY TRUNK ROADS

Contents

1. INTRODUCTION

1.1 Variable message signs (VMSs) are used to direct and inform drivers where there are changing traffic conditions, traffic routes and statutory provisions.

1.2 This Standard sets out the Department's design standards and methodology for the choice and use of VMSs. It should be read in conjunction with Departmental Advice Note TA 60/90 (Ref 1).

1.3 Where reference is made in this document to "Class" of sign, this refers to the classification of VMSs given in Appendix A of TA 60/90 (Ref 1).

1.4 For details of the test criteria to meet the performance/functional requirements for Electromechanical Variable Message Signs, together with procedural arrangements, reference shall be made to Departmental Type Approval Specifications (Refs 2 and 3).

Specifications for other types of VMSs will be published in due course.

1.5 Where this Standard requires that materials or products shall comply with a British Standard, these requirements shall be satisfied by compliance with a relevant national or governmental standard of any member state of the European Community provided that the standard in question offers guarantees of safety, suitability and fitness for purpose equivalent to these offered by the British Standard specified.

1.6 The height of characters given in Tables 1-3 accord with established British practice which corresponds to the methodology set out in Commission International De L'Eclairage (CIE) Publication No 74 - Roadsigns.

2. SCOPE

2.1 The requirements of this Standard shall be applied to all VMSs used on trunk roads and trunk road motorways with the exception of the following types:-

(a) Lane control light signals (diagrams 5001 to 5004 in Schedule 5 of the Traffic Signs Regulations (Ref 4)).

(b) Light emitting matrix signals when used in motorway signalling systems (diagrams 6001 to 6032 in Schedule 6 of the Traffic Signs Regulations (Ref 4)).

3. DEFINITIONS

3.1 The x - height is the height in millimetres of the lower case "x" of the Transport alphabet in use.

3.2 The Stroke Width is the width of the solid stroke of a character or, if the stroke of a character consists of more than one line of cells or elements adjacent to one another, the Stroke Width shall be taken as being the overall width of all the lines of cells or elements which make up a stroke of a character.

4. STATUTORY REQUIREMENTS

4.1 The statutory requirements for VMSs are given in Direction 41 of the Traffic Signs Regulations (Ref 4). To comply, all VMSs operated by electrical or other apparatus, including the contents of all stored instructions, shall be of a type which has been approved in writing before they are placed on or near any road.

4.2 Any sign legends, x-heights, symbols, or character forms that do not conform with those prescribed in the Traffic Signs Regulations (Ref 4), or any flashing amber lamps used with VMSs, shall be specifically authorised by or on behalf of the Secretary of State before being used on any road.

5. SIGN FACE APPEARANCE

5.1 A sign shall exhibit a black rectangular area to approaching drivers when a message is not being displayed. To satisfy this requirement, whenever the sign is in this state, all of the moveable elements and/or surfaces of mechanical/manual and electromechanical signs that are revealed shall be coloured black, and there shall be no light emitted from wholly electrical type signs. The rectangular area shall encompass all parts of the front face that are used to display a message.

5.2 The appearance of a sign when displaying a message shall comply with the appropriate clauses of Sections 6.6, 6.7, 6.8, 9 and 10 below.

5.3 Any part of a sign surrounding the rectangular area used to display a message shall be coloured grey in accordance with Section 6.4, unless the VMS is attached to the same post as that on which light signals are mounted; in that case the colour shall be black.

6. SIGN CONSTRUCTION

6.1 Signs shall be constructed to comply with the requirements for Type Approval. (See Section 1.4).

6.2 The Highway Authority's responsibility for the adequacy of the supporting posts, sign gantry structures, foundations and fabrication details for VMSs used as Permanent Traffic Signs shall extend to include the sign enclosure and supporting structure associated with trailer mounted signs.

6.3 Moving mechanisms associated with remotely and automatically controlled signs of Classes 10, 12 and 13, which are mounted within easy reach of the general public, shall be totally enclosed.

6.4 All parts of a sign housing including any boxes, cabinets, electrical conduits, trunking and cable trays/racks, and any posts supporting the sign, except any parts coloured black in accordance with 4 above, shall be coloured grey to accord with Table 5 of BS 873: Part 6: 1983 (Ref 5). Aircraft Grey No 693 of BS 381C: 1988 (Ref 6) will satisfy this requirement.

6.5 Light dimming circuitry shall be included in the design of light-emitting type matrix displays and brought into operation to ensure that the legibility of legends is maintained for each of the different operating conditions in which the sign operates.

6.6 The legends of signs of Class 1 shall be formed from fluorescent yellow elements, contrasted against a black background. The equipment and components used to construct and illuminate the sign shall be designed and selected in order to maintain the fluorescent yellow colour under day and night-time conditions.

6.7 In the case of VMSs of Classes 2, 16, 17, 18 and 19, the immediate background to the cells or elements of the matrix, apart from any reflectors, shall be coloured black. The colours used for the legends of signs of Classes 2, 16, 18 and 19 shall accord with prescribed signs. Any departure from this requirement shall be referred by the Regional Office (T) to the appropriate HQ Division for approval. For signs of Class 17 see also Section 9.3.6.

6.8 The legends of signs of Class 3 shall be formed from yellow elements contrasted against black. The colour yellow shall comply with the colorimetric requirements given in clause 4.3.3 of BS 873: Part 6: 1983 (Ref 5). Lemon Yellow No 355 of BS 381C: 1988 (Ref 6) will satisfy the requirement.

7. REFLECTORISATION AND DIRECT ILLUMINATION

7.1 Retroreflective materials shall comply with clause 4.3 and Table 1 or 2 of BS 873: Part 6: 1983 (Ref 5). Recommendations on the choice of retroreflective material by application are given in Departmental Advice Note TA 19/81 (Ref 7).

7.2 Signs which are nto faced with retroreflective material and all those erected within 50m of any electric lamp forming part of a system of street lighting (at least 3 such lamps not more than 183m apart) shall be light emitting signs or provided with internal or external direct illumination at night. External direct illumination shall comply with the requirements of BS 873: Part 5: 1983 (Ref 5).

7.3 Provision shall be made to avoid lighting a blank face unless signs are required to display messages rapidly and frequently (eg queue ahead, overheight vehicle divert), and/or there is some delay in providing full illumination due to "warn up time" of the light source. In these cases the sign shall be illuminated throughout the hours of darkness.

7.4 Where in daylight conditions the sign face of signs of Class 1 can be in shadow the sign shall be illuminated when a message is being displayed. Where in addition the exceptional circumstances given in Section 7.3 apply, these signs shall be illuminated throughout the daylight hours.

8. FLASHING AMBER LAMPS ASSOCIATED WITH VARIABLE MESSAGE SIGNS

8.1 Flashing amber lamps shall be used with signs that are actuated automatically by a detector and display messages aimed at particular individual drivers. Examples of these are signs communicating with drivers of overheight vehicles at low bridges, those travelling too closely to the vehicle ahead and those drivers exceeding the speed limit. In these situations the amber lamps shall flash at a rate of 120 to 150 flashes per minute.

8.2 Amber lamps, flashing at a rate of 60 to 90 flashes per minute, may be used in the following circumstances:-

(a) Where a sign of a type which shows a yellow text on a black background (eg Class 1) is used and the messages are directly related to traffic control and/or emergencies.

(b) Where a VMS gives an alternative or conflicting message to one given by a nearby permanent fixed sign.

(c) Where the background against which a sign is viewed reduces the conspicuity of the sign.

8.3 Where flashing amber lights are to be used with a sign there shall be four in number. Normally two shall be positioned above the displayed message and two below it. Alternatively, where through constraints of sign dimensions or sighting difficulties this is not practical, these lamps may be positioned either side of the displayed message. In either case they shall be positioned at or near each corner of the sign and within the grey surround to the message display area described in Section 5. The lamps shall be switches in pairs alternately top to bottom in such a manner that the lights of one of the horizontal pairs are always shown when the lights of the other horizontal pair are not shown.

8.4 The application of flashing amber lamps to any sign shall be submitted by the Regional Office (T) to the appropriate HQ Division for authorization.

Volume 8 home page

9. FORMS AND SIZES OF LEGENDS AND SYMBOLS

9.1 General

9.1.1 For the purpose of interpreting Tables 1, 2 and 3 in Sections 9.2.1, 9.2.3, 9.3.6, 9.3.7 and 9.3.8, each place name or landmark to be referred to on a sign shall count as one word even though it might consist of two or more eg Stoke-on-Trent, Forth Road Bridge. Similarly, place names with associated compass directions eg Slough (West), also distances eg 300 yds, and route numbers eg A405, (A146), shall count as one word. All other words, irrespective of their length, shall each count as one word, as shall each arrow and symbol on a sign. Punctuation marks, dashes, strokes, brackets, also exclamation and question marks shall not count as words.

9.2 Flexible Roller Blind, Rigid Plate Display and Transilluminated Display Face Signs

9.2.1 Signs of Classes 5, 6, 10 to 13 and 22 shall have sign faces which conform in size, colour and shape with the Traffic Signs Regulations (Ref 4) and the Traffic Signs Manual (Ref 8). The minimum x-heights to be used shall be as given in Table 1 (but see Section 9.2.3).

9.2.2 Any proposal for a non-prescribed message shall be produced using the appropriate Transport alphabet prescribed in Schedule 7 to the Traffic Signs Regulations (Ref 4) and shall, where applicable, incorporate prescribed symbols wherever possible. Any such proposal shall be submitted by the Regional Office (T) to the appropriate HQ division for authorisation.

9.2.3 The minimum x-heights of worded signs mounted over the carriageway shall be as given in Columns 3 and 4 of Table 2.

9.3 Matrix Signs

9.3.1 The colours of the faces of signs of Classes 1, 2, 3, 16, 18 and 19 are given in Sections 6.6, 6.7 and 6.8.

9.3.2 The legends and symbols used on signs of Class 1 shall conform with the character set given in Appendix A and symbols given in Appendix B of this document. The parts of the cells or elements coloured yellow shall have a minimum width of 0.085H, a minimum surface area of [mathematical formula here] and the gap between adjacent exposed elements shall not exceed 0.04H, where H is the actual upper case letter height obtained using these elements.

9.3.3 The spacing between letters within a word and between letters and associated numerals on signs of Class 1 shall be at least equal to the Stroke Width and the spacing between brackets and the adjacent letters or numerals contained within the brackets shall exceed on Stroke Width.

9.3.4 The vertical space between lines of matrices on signs of Class 1 shall be not less than 0.43H, nor more than 0.75H between any individual lines which form part of a continuing statement, where H is the height of the capital letters used.

9.3.5 If a sign of Class 2, 3, 16, 18 or 19 is to be used, the Regional Office (T) shall discuss the proposed character set, symbols and spacings in advance with the appropriate HQ Division(s) and obtain their agreement.

9.3.6 The size, colour and shape of legends used on signs of Class 17 shall conform as near as practicable with the Traffic Signs Regulations (Ref 4) and the Traffic Signs Manual (Ref 8). Any proposed character set, symbols and spacings to be used for this Class of sign shall be referred to the appropriate HQ Division for approval. The minimum x-heights to be used shall be as given in Table (but see Section 9.2.3).

9.3.7 The minimum heights for the characters to be used on signs of Classes 1, 2, 3, 16, 18 and 19 are given in Table 3 (but see Section 9.3.8).

9.3.8 The minimum letter heights of worded signs of Classes 1, 2, 3, 16, 18, and 19 which are mounted over the carriageway shall be as given in columns 5 and 6 of Table 2.

9.4 Shaped Tubing Signs

9.4.1 No specific requirements can be given for signs of Class 23. If a sign of this type is proposed for use, the Regional Office (T) shall discuss the proposal in advance with the appropriate HQ Division(s) to obtain their agreement.

10. STANDARDISATION OF MESSAGES

10.1 Messages shall be as short as possible conducive to full understanding by all drivers. In no circumstances shall they consist of more than 10 words nor shall there be, on any one VMS, messages with conflicting priorities.

10.2 Messages, symbols and any abbreviations used on VMSs shall be as given in one or more of the following:-

(a) prescribed in the Traffic Signs Regulations (Ref 4);

(b) selected from the following standard list of non-prescribed messages:-

OVERHEIGHT VEHICLE DIVERT/TURN BACK
MXX CLOSED AT JCT XX/FOLLOW DIVERSION (OR SYMBOL)
HIGH WINDS AT XXX/HIGH VEHICLES USE XXX
HIGH VEHICLE USE MIDDLE OF ROAD
TOO CLOSE MOVE APART
DELAYS AHEAD/ FOR X MILES
DELAYS ON MXX/AT XXXXXXXX
DELAYS ON XXX USE XXX
X HR DELAYS AHEAD
X HR DELAYS ON MXX/AT XXXXXXX
SLOW - QUEUE/ACCIDENT AHEAD
SLOW - SPEED LIMIT
SLOW - SPRAY
SLOW - CONGESTION AHEAD
SLOW - DEBRIS/OBJECT ON ROAD
SLOW - ABNORMAL LOAD AHEAD
SORRY FOR ANY DELAY
M'WAY/ROAD CLOSED USE JCT XX/FOLLOW XXXXX
MXX ROADWORKS LONG DELAYS/DELAYS POSSIBLE
ROADWORKS START XX XXX DELAYS POSSIBLE
ALT. ROUTE USE XXX/FOLLOW XXXX
TELEPHONES OUT OF ORDER - WAIT FOR POLICE
ICE - SLOW
FOG RISK - SLOW
HIGH WIND - SLOW

(c) selected from the standard list of symbols at Appendix B.

* The oblique strokes and underlining are not part of the messages. The underlined words in front of an oblique stroke and ones following it are alternative.

10.3 The standard messages given in Section 10.2(b) shall be wholly in upper case characters from the prescribed Transport alphabets, the character set given in Appendix A or other agreed font (see Section 10.5) as appropriate for the type of sign (see Section 9). The use of these messages shall be submitted by the Regional Office (T) to the appropriate HQ division for authorisation.

10.4 If it is necessary to tell drivers that a particular class of vehicle should divert, eg heavy goods vehicles and motorcycles, symbols may be used to reduce the amount of wording required.

10.5 If non-prescribed characters, symbols and messages, other than the messages at Section 10.2(b) above and the symbols at Appendix B, are proposed for use, the Regional Office (T) shall discuss the design and wording, including the use of upper and lower case characters, in advance with the appropriate HQ Division(s) and obtain their agreement. The use of non-prescribed characters, symbols and messages shall be submitted by the Regional Office (T) to the appropriate HQ Division for authorisation.

11. SITING REQUIREMENTS

11.1 Signs mounted on central reserves of dual carriageways shall only be provided to duplicate or complement signs on the verge. The x-heights and letter heights of central reserve mounted signs shall comply with columns 9, 10 or 11 of Tables 1 and 3 respectively.

11.2 In no circumstances shall the lateral clearance between the edge of the carriageway, hard shoulder or hardened verge and the nearest edge of the sign be less than that given in Table 4.

11.3 Gantries shall only be provided to mount Variable Message Signs when such a provision can be justified by reason of siting, safety or obscuration difficulties.

11.4 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, at least two signs giving the same message shall be provided when it is required to give alternative or conflicting messages to those given by permanent fixed directional informatory signs, eg VMSs indicating mandatory or advisory diversions. Where these signs are additional to the permanent fixed directional informatory signs they shall be sited on the left of carriageways, or on gantries or a combination of these. Their siting shall accord with the layouts shown in Figure 1. When other fixed direction signs, such as Tourist Signs, have already been sited between fixed advance direction signs, the VMS shall be designed either to replace the need for such signs, or, shall be sited to enable each sign to be read and understood in good time in accordance with the fundamental principles illustrated in Figure 1. The priority of siting shall be determined by the status of the sign.

12. OPERATIONAL REQUIREMENTS

12.1 Access for operating control of VMSs shall be restricted to authorised personnel such as the Police. In the case of Matrix type signs such as signs of Classes 1, 2, 3, 16 and 19 that can display any message, authorised users shall have access to a 'menu' of authorised programmed messages only. Access for re-programming new messages on a sign shall be restricted to ensure that unauthorised messages are not used. Changes to computer software shall be discussed in advance with the appropriate HQ Division(s) to obtain their approval as required by Direction 41(3) of the Traffic Signs Regulations (Ref 4).

12.2 Signs that display messages relating to traffic conditions eg those that indicate an alternative route when a queue forms on the main route, shall, wherever practicable, be controlled automatically.

13. REFERENCES

1. Departmental Advice Note TA 60/90. The Use of Variable Message Signs on All-Purpose & Motorway Trunk Roads.

2. Departmental Specification TR 0154, Electromechanical Variable Message Signs - Functional Specification.

3. Departmental Specification TRG 0500, Approval of equipment for the control of vehicle and pedestrian traffic on roads other than Motorways.

4. The Traffic Signs Regulations and General Direction 1981 -SI 1981 No 859 as amended.

5. BS 873 - Road traffic signs and internally illuminated bollards.

   Part 5: Specification for internally illuminated signs and external lighting luminaires.

   Part 6: Specification for retroreflective and non-retroreflective signs.

6. BS 381C - Colours for identification, coding and special purposes.

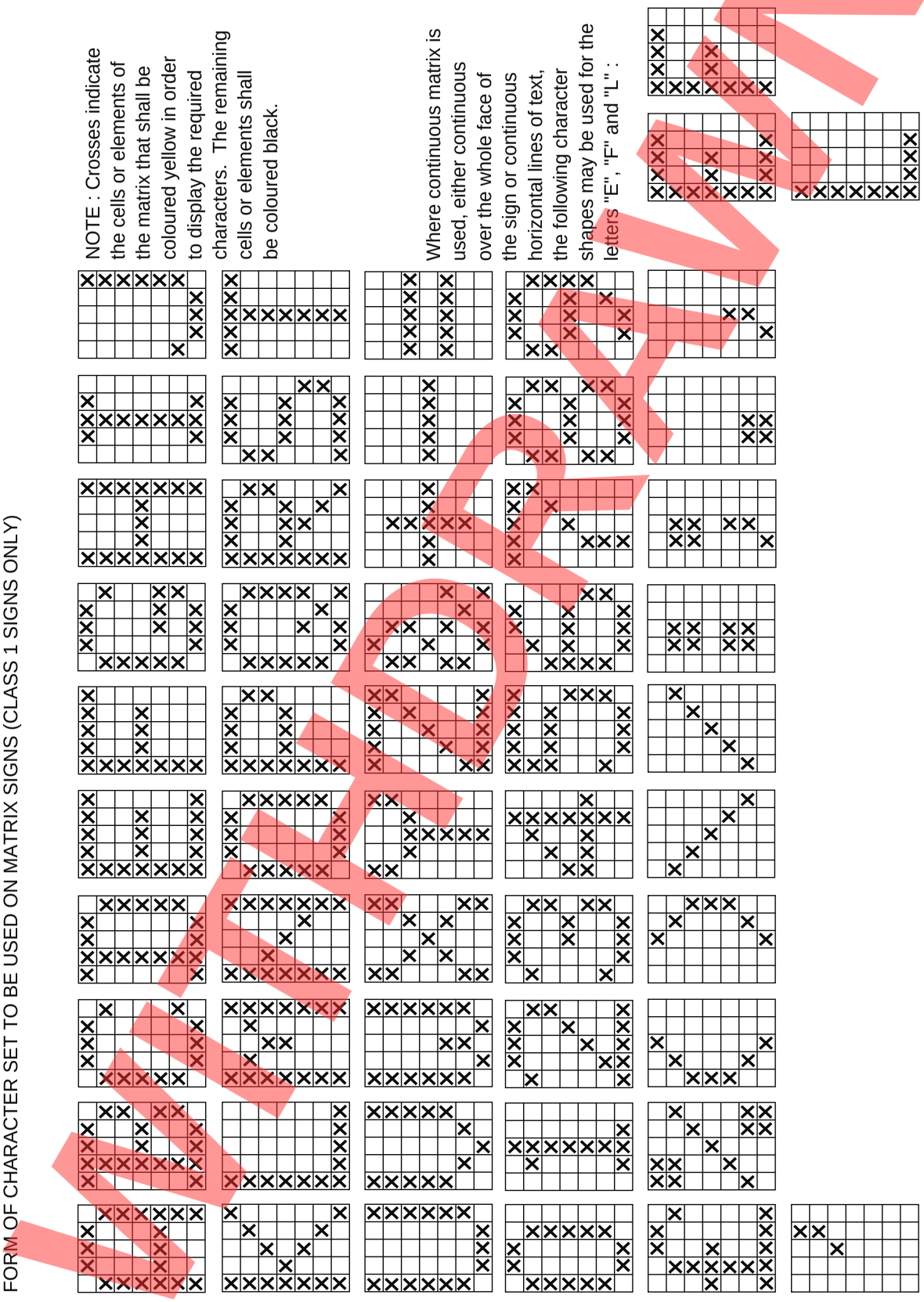
7. Departmental Advice Note TA 19/81 Reflectorisation of Traffic Signs.

8. The Traffic Signs Manual: HMSO
   Chapter 1: Introduction
   Chapter 3: Regulatory Signs
   Chapter 4: Warning Signs

9. Departmental Advice Note TA 22/81 Vehicle Speed Measurement on All-Purpose Roads.

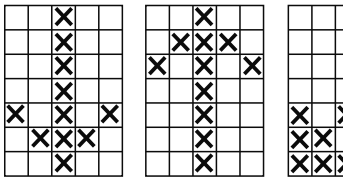
14. ENQUIRIES

FORM OF CHARACTER SET TO BE USED ON MATRIX SIGNS (CLASS 1 SIGNS ONLY)

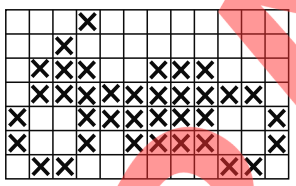


SYMBOLS FOR USE ON MATRIX SIGNS (CLASS 1 SIGNS ONLY)

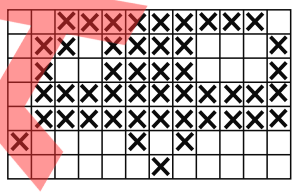
SYMBOLS FOR USE ON MATRIX SIGNS (CLASS 1 SIGNS ONLY)



Symbol for Heavy Goods Vehicle



Symbol for Motorcycle



Symbol for Caravan

NOTES :

1. Crosses indicate the cells or elements of the matrix that shall be coloured yellow in order to display the required characters. The remaining cells or elements shall be coloured black.

2. In order to display the symbols for heavy goods vehicle, motorcycle and caravan, a continuous matrix, either continuous over the whole face of the sign or continuous horizontal lines of matrix modules, is required.

3. If a symbol other than one of those shown above is proposed for use, including one requiring specially marked dedicated cells or elements of the matrix eg aircraft symbol and geometric diversion symbols, the Regional Office (T) shall discuss the design of the symbol in advance with the appropriate HQ Division(s) and obtain their agreement.

SIZES OF TRANSPORT ALPHABETS

85 percentile approach speeds of private cars	Number of words in longest message to be displayed	x-height of Transport alphabets (millimetres)								
		verge mounted signs						Signs mounted on the central reserves of motorways and all purpose dual carriageways		
		Motorways and all purpose dual carriageway roads with hard shoulders			All purpose roads withour hard shoulders D = dial carriageway roads S = single carriageway roads					
mph		2 lane	3 lane	4 lane	1 lane D 2 lane S	2 lane D 4 lane S	3 lane D	2 lane	3 lane	4 lane
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11
Up to and including 40	2				75	100	150	75	100	150
	4				100	150	150	100	150	150
	6				100	150	200	100	150	200
	8				150	150	200	150	150	200
	10				150	200	200	150	200	200
Over 30 up to and including 40	2	150	200	250	100	150	150	100	150	150
	4	200	250	250	150	150	200	150	150	200
	6	200	250	300	150	200	200	150	200	200
	8	250	250	300	150	200	250	150	200	250
	10	250	300	300	200	200	250	100	200	250
Over 40 up to and including 50	2	200	250	250	150	150	200	150	150	200
	4	200	250	300	150	200	200	150	200	200
	6	250	300	300	200	200	250	200	200	250
	8	250	300	350	200	250	250	200	250	250
	10	300	350	350	250	250	300	250	250	300
Over 50 up to and including 60	2	200	250	300	150	200	200	150	200	200
	4	250	300	300	200	200	250	200	200	250
	6	250	300	350	200	250	250	200	250	250
	8	300	350	350	250	250	300	250	250	300
	10	300	350	400	250	300	300	250	300	350
Over 60	2	250	250	300	150	200	250	150	200	250
	4	250	300	350	200	250	250	200	250	250
	6	300	350	400	250	250	300	250	250	300
	8	350	350	400	250	300	350	250	300	350
	10	350	400	450	300	350	350	300	350	350

Volume 8 home page

SIZES OF CHARACTERS ON SIGNS MOUNTED OVER THE CARRIAGEWAY

85 percentile approach speeds of private cars mph	Number of words in longest message to be displayed	x - height of Transport alphabet (millimetres)		Upper case letter height of matrix characters (millimetres)	
		Signs mounted at approx 6m above road surface+	Signs mounted at approx 7.5m above road surface+ (DTp standard gantry)	Signs mounted at approx 6m above road surface+	Signs mounted at approx 7.5m above surface+ (DTp standard gantry)
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Up to and including 30	2	150	200	210	225
	4	200	200	230	245
	6	200	200	250	265
	8	200	200	270	285
	10	200	250	285	305
Over 30 up to and including 40	2	200	200	235	255
	4	200	200	260	280
	6	200	250	285	305
	8	250	250	315	330
	10	250	250	340	355
Over 40 up to and including 50	2	200	200	260	280
	4	250	250	295	310
	6	250	250	325	345
	8	250	300	360	375
	10	300	300	390	410
Over 50 up to and including 60	2	200	250	285	305
	4	250	250	325	345
	6	300	300	365	380
	8	300	300	405	420
	10	350	350	440	460
Over 60	2	250	250	315	330
	4	250	300	360	375
	6	300	300	405	420
	8	350	350	450	465
	10	400	400	495	510

+ Measured to the lower edge of the sign. Any proposals for other mounting heights should be referred to the appropriate HQ Division.

Volume 8 home page

SIZES OF CHARACTERS ON MATRIX SIGNS

85 percentile approach speeds of private cars	Number of words in longest message to be displayed	Upper case letter height of matrix characters (millimetres)								
		Verge mounted signs						Signs mounted on the central reserves of motorways and all purpose dual carriageways		
		Motorways and all purpose dual carriageway roads with hard shoulders			All purpose roads without hard shoulders D = dual carriageway roads S = single carriageway roads					
mph		2 lane	3 lane	4 lane	1 lane D 2 lane S	2 lane D 4 lane S	3 lane D	2 lane	3 lane	4 lane
Column 1	Column2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11
Up to and including 30	2				110	155	200	110	155	200
	4				130	175	215	130	175	215
	6				150	195	235	150	195	235
	8				170	215	255	170	215	255
	10				190	230	275	190	230	275
Over 30 up to and including 40	2	225	265	310	135	180	225	135	180	225
	4	250	290	335	165	205	250	165	205	250
	6	275	320	360	190	230	275	190	230	275
	8	300	345	385	215	260	300	215	260	300
	10	325	370	415	240	285	325	240	285	325
Over 40 up to and including 50	2	250	290	335	165	205	250	165	205	250
	4	280	325	370	195	240	280	195	240	280
	6	315	355	400	225	270	315	225	270	315
	8	345	390	430	260	305	345	260	305	345
	10	380	420	465	290	335	380	290	335	380
Over 50 up to and including 60	2	275	320	360	190	230	275	190	230	275
	4	315	355	400	225	270	315	225	270	315
	6	350	395	440	265	310	350	265	310	350
	8	390	435	480	305	350	390	305	350	390
	10	430	475	515	345	385	430	345	385	430
Over 60	2	300	345	385	215	260	300	215	260	300
	4	345	390	430	260	305	345	260	305	345
	6	390	435	480	305	350	390	305	350	390
	8	435	480	525	350	395	435	350	395	435
	10	480	525	570	395	440	480	395	440	480

Volume 8 home page

LATERAL CLEARANCES

85 percentile approach speeds of private cars mph	Height of top of sign (see NOTE 1) m	Minimum lateral clearance (see NOTE 2) where carriageway or hard shoulder crossfall is:-	
		away from sign or towards sign but not steeper than 4% m	towards sign and steeper than 4% m
up to and including 30	less than 3	0.5	0.6
	3 and above	0.6	0.8
over 30 up to and including 50	all heights	1.0	
over 50	all heights	1.5	

NOTES:

1. The height is measured from the level of the surface of the carriageway, hard shoulder or hardened verge in the immediate vicinity of the sign.

2. The lateral clearance is the horizontal distance between either: the edge of the carriageway or hard should or, where there is a hardened verge on the left of the carriageway, the edge of the hardening and the nearest edge of the sign.

SITINGS OF SIGNS

FIGURE 1

SITING OF SIGNS

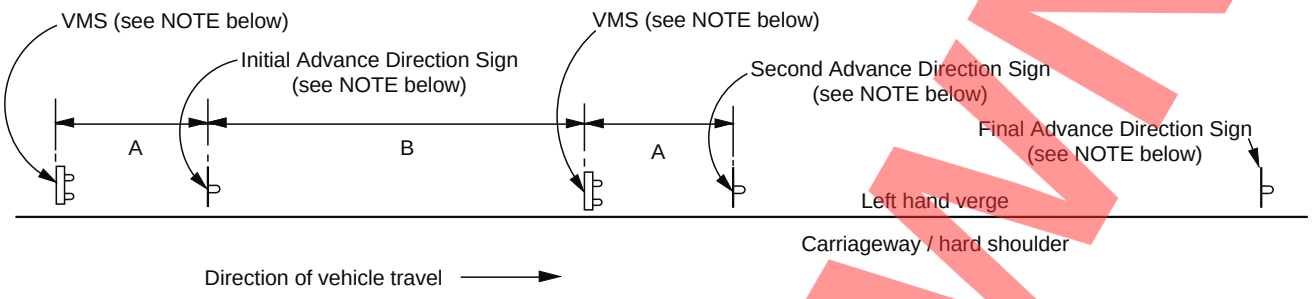


FIG 1 (a) VMS POSITIONS WHERE THERE ARE 3 FIXED ADVANCE DIRECTION SIGNS

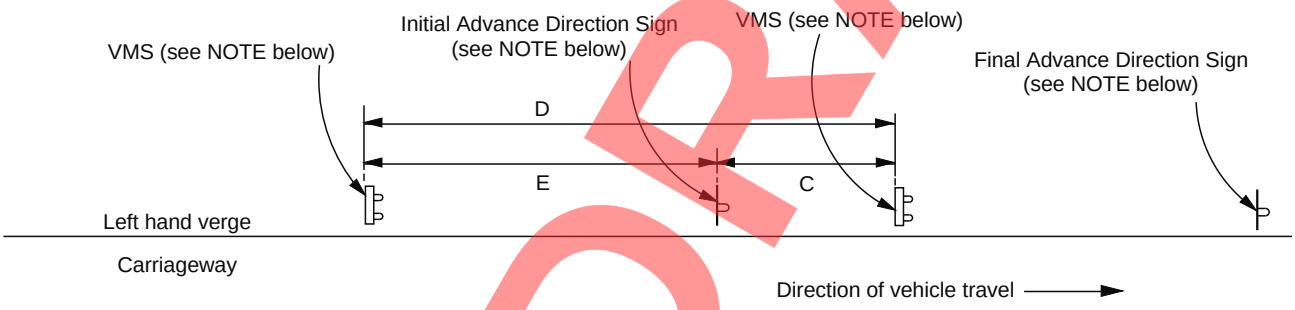


FIG 1 (b) VMS POSITIONS WHERE THERE ARE 2 FIXED ADVANCE DIRECTION SIGNS

NOTE: The signs are shown on the verge, but the same dimensions apply if they are mounted on gantries.

Detail	Dimensions
A	As near as practicable to, but no less than, the legibility distance* of the characters used on the Fixed Advance Direction Sign.
B	No less than the legibility distance* of the characters used on the VMS.
C	As near as practicable to, but no less than, the legibility distance* of the characters used on the VMS.
D	As near as practicable to 800 metres.
E	No less than the legibility distance* of the characters on the Fixed Advance Direction Sign.

* The legibility distance shall be taken to be:-

a. For signs using Transport alphabets: 0.6 (x-height) metres, where the x-height is the height in millimetres of the lower case letter "x" of the alphabet used;
b. For signs using matrix characters: 0.462 H metres, where H is the height in millimetres of the capital letters used.