

TITLE			
SOUTH AFRICAN ROAD TRAFFIC SIGNS MANUAL		Volume 2 Chapter 1	
ISBN	STATUS Digitised Version	DOT FILE 000/0/0/0	DATE Digitised May 2012
CARRIED OUT BY			
Transport and Traffic Technology Africa (Pty) Ltd P O Box 1109 SUNNINGHILL 2157			
COMMISSIONED BY			
Department of Transport Private Bag X193 PRETORIA 0001			
ORIGINAL AUTHOR		PUBLISHER ENQUIRIES	
D Bain		Director-General: Transport Private Bag X193 PRETORIA 0001	
It is impossible for a publication of this nature to free of errors. It would be appreciated if errors be brought to the notice of -			
Director-General: Transport Department of Transport Infrastructure Network Management Private Bag X193 PRETORIA 0001			
COPYRIGHT			
This publication is protected by copyright under the Bern Convention. In terms of the Copyright Act No. 98 of 1978, no part of this publication may be produced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage or retrieval system, without permission in writing from the publisher.			
© National Department of Transport 1999, 2012			
KEYWORDS			
ROAD SIGN, ROAD MARKING, REGULATORY, WARNING			
COST: VOLUME 2			
VOLUME SET R			
Chapter 1	R	Chapter 11	R
Chapter 2	R	Chapter 12	R
Chapter 3	R	Chapter 13	R
Chapter 4	R	Chapter 14	R
Chapter 5	R	Chapter 15	R
Chapter 6	R	Chapter 16	R
Chapter 7	R	Chapter 17	R
Chapter 8	R	Chapter 18	R
Chapter 9	R	Chapter 19	R
Chapter 10	R		

Reproduced under Government Printers Authorization No. 11542 dated 7th July 2017

CHAPTER 1: INTRODUCTION

CONTENTS

1.0.1 Sections and Subsections

Number	Title	Page No.
1.0	CONTENTS	1.0.1
1.0.1	Sections and Subsections	1.0.1
1.0.2	Figures	1.0.1
1.0.3	Tables	1.0.1
1.1	GENERAL	1.1.1
1.1.1	Background	1.1.1
1.1.2	Structure and Layout	1.1.1
1.1.3	Terminology	1.1.4
1.1.4	Traffic Control Devices	1.1.5
1.1.5	Road Traffic Sign Classification	1.1.5
1.1.6	Principles of Road Traffic Signing	1.1.5
1.1.7	Placement of Traffic Control Devices	1.1.6
1.1.8	Sign Sizes	1.1.8
1.1.9	Specification and Manufacture	1.1.8
1.1.10	Environmental Impact	1.1.8
1.1.11	Awareness and Education	1.1.8
1.2	CHAPTERS	1.2.1
1.2.1	General	1.2.1

1.0.2 Figures

Figure No.	Title	Page No.
Fig 1.1	Typical Page Layout and Text Conventions	1.1.2
Fig 1.2	Typical Figure Page Layout	1.1.3
Fig 1.3	Key to Colour Coding	1.1.4
Fig 1.4	Road Traffic Sign Classification	1.1.7
Fig 1.5	Lateral and Vertical Clearances for Small Single Support Signs	1.1.11
Fig 1.6	Lateral and Vertical Clearances for Larger Multiple Support Signs	1.1.12
Fig 1.7	Positioning of Hazard Markers	1.1.13
Fig 1.8	Positioning of Route marker Signs	1.1.14
Fig 1.9	Lateral and Vertical Clearance for Overhead Sign Structures	1.1.15
Fig 1.10	Typical Problems and Aspects of Longitudinal Positioning of Signs	1.1.16

1.0.3 Tables

Table No.	Title	Page No.
Table 1.1	Minimum Road Traffic Sign Sizes	1.1.9
Table 1.2	Retroreflective Materials for Road Signs	1.1.10
Table 1.3	Volume 2 Chapter Subjects	1.2.1

Reproduced under Government Printers Authorization No. 11542 dated 7th July 2017

CHAPTER 1: INTRODUCTION

1.1 GENERAL

1.1.1 Background

- 1 Volume 2 of the South African Road Traffic Signs Manual was not published with Volumes 1, 3 and 4 in 1993, because it required significant development work and this would have resulted in a delay in the publishing of the other Volumes. In the intervening period the South African Road Traffic Signs Manual, Volumes 1 and 4, has been integrated with the Southern African Development Community Road Traffic Manual to form the harmonized Third Edition of the latter Manual. During this process all road signs, road markings and traffic signals approved by the Road Traffic Signs Technical Committee since 1993 have been incorporated into the Third Edition. Where appropriate these new road signs, road markings and traffic signals are included in the coverage of the chapters of Volume 2.
- 2 The coverage of Volume 2, namely chapter subjects and chapter contents, was determined by task groups appointed by the Road Traffic Signs Technical Committee and by the Committee itself. The potential scope for coverage, particularly in some subject areas, is huge. In order to contain the scope to manageable proportions, individual practices of road authorities are not recorded where these differ. Instead a more generic range of examples, which should be capable of being used by any road authority, are included in the chapters. Precise adherence to the details of the examples is not mandatory.
- 3 As a result of the method of development of the content of Volume 2 it has been decided to make the chapters available on an individually bound basis, in an inexpensive format, for a period of 12 to 24 months to gauge the reaction of users. Subject to this reaction and the level of comment received, the chapters may be amended and / or finalised and printed in a format to match the rest of the Manual.
- 4 At the time of publishing a decision has not been made by the Southern African Development Community representatives whether to adopt Volume 2 or not.

1.1.2 Structure and Layout

- 1 Notwithstanding the fact that SADC has not accepted Volumes 2 and 3 of the Manual at the time of publishing the Volumes have been prepared to the same standards and the style of layout as Volumes 1 and 4. In Volume 2 references to traffic regulations relate to South African law, and where signface examples indicate destination names, these give South African examples.
- 2 Ultimately the Third Edition of the Southern African Development Community Road Traffic Signs Manual is likely to comprise:

Volume 1: Uniform Traffic Control Devices: Detailing signing policies and design principles together with specific information on the meaning and individual application of all traffic control devices.

Volume 2: Traffic Control Device Applications: This volume covers the use of sets of signs, markings and signals for specific applications.

Volume 3: Traffic Signal Design: Detailing in depth requirements for the selection and installation of traffic signals and their methods of control.

Volume 4: Traffic Signs Design: Dimensional detail for all road signs and their signface components.

- 3 Whilst the primary function of this volume is to give guidance to users on how to combine the use of road signs of all classes with road markings and traffic signal (rather than dealing with these individually as in Volume 1), different chapters offer additional guidance to varying degrees. In some instances the chapters repeat and combine elements of Volume 1 and Volume 4 chapters with guidance on how to apply the signs, markings and signals. This aspect is covered in more depth in Section 1.2.
- 4 The text is subdivided into the following numbered components (the examples indicate Chapter 8):
 - (a) Chapters - 8;
 - (b) Sections - 8.1;
 - (c) Subsections - 8.1.1;
 - (d) Paragraphs - 8.1.1.1;
 - (e) Figures - 8.1;
 - (f) Details (within Figures) - 8.1.1;
 - (g) Tables - 8.1.

These numbers should be used for reference purposes. They are used as such throughout the text.

- 5 The page layout includes a "header" at the top in which the section name and page number are indicated. Page numbers are restarted in each section e.g. 8.1.1, 8.3.1 etc. A "footer" is located at the bottom of the page and this indicates the date of publication (or re-publication in the case of future amendments), the name of the manual and the volume number, and the chapter name. Figures 1.1 and 1.2 illustrate the above elements.
- 6 Since the Volume is being published by individual chapters each chapter has been given a Contents section covering all Section and Subsection topics, all Tables and all Figures. No overall index will be published at this stage.
- 7 The text in the Manual is primarily provided in Arial 8.5 point typeface.
- 8 A range of text conventions have been used to place emphasis where this has been deemed necessary. The conventions used and their functions are as follows:

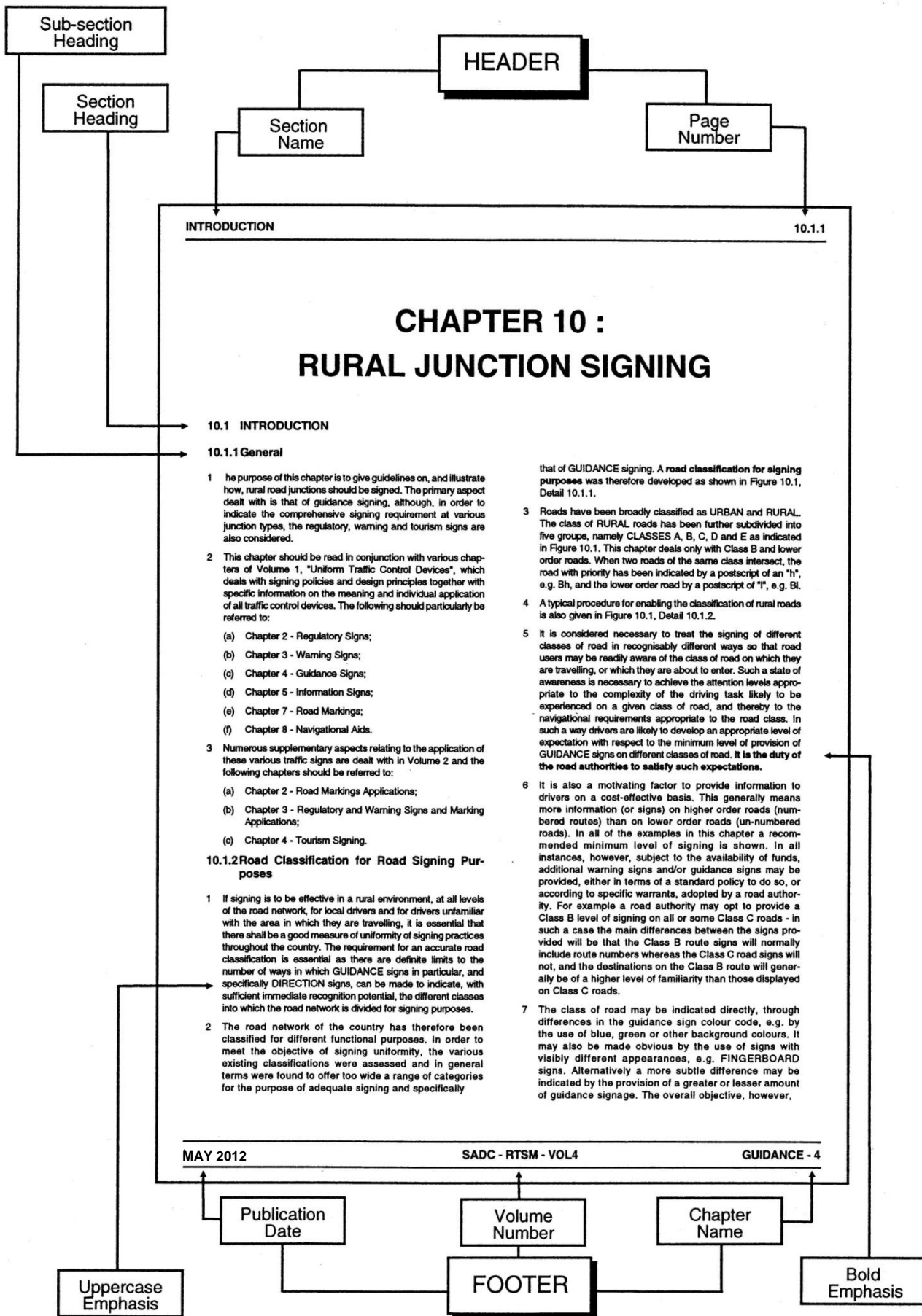


Fig 1.1 Typical Page Layout and Text Conventions

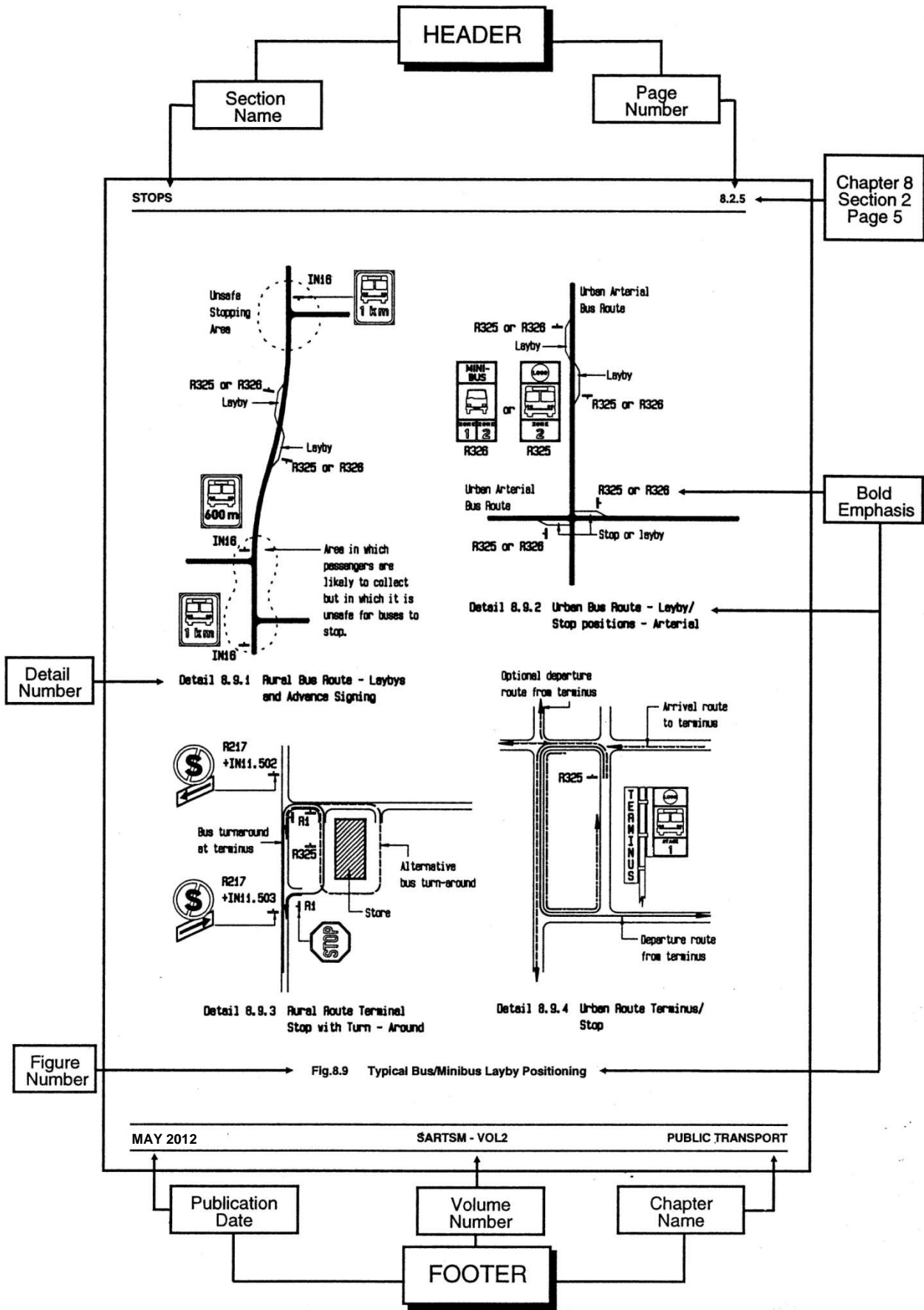


Fig 1.2 Typical Figure Page Layout

- (a) **bold italic** - to indicate the significance of a specific road traffic sign;
- (b) **bold** - to place particular emphasis on a word or section of text, including titles and section headings;
- (c) *italic* - to indicate the name of a chapter or other document referred to in the text AND to indicate foreign terms used in the text;
- (d) UPPERCASE (or CAPITAL) letters - as a lower level of emphasis, but particularly to indicate the specific names given to road traffic signs.

The use of CAPITAL letters may be superimposed in the **BOLD ITALIC** or **BOLD** conventions (see Figures 1.1. and 1.2).

- 9 Figures are used extensively to provide guideline examples of typical situations involving the application of road traffic signs. Many such situations have a specific longitudinal nature to them which is difficult to cater for within a standard A4 page format. A3 figure pages have therefore been widely used throughout this Volume. Even an A3 page presents limitations when trying to illustrate a length of road some 100's of metres in length. For this reason figures are not drawn to scale and are commonly distorted so that the width or cross-section of a road is exaggerated in comparison to the length, in order to improve clarity.
- 10 This volume of the Manual is not printed in colour. It is important, however, that designers and manufacturers are aware of the correct colours for signs, signals and markings.

important, however, that designers and manufacturers are aware of the correct colours for signs, signals and markings. Where it is particularly appropriate road traffic sign examples used to illustrate the various types of sign, signal and marking have been shaded in a black and white coding of the required colours. This coding is illustrated in Figure 1.3.

- 11 The basic principles of the road traffic sign colour coding system are shown in colour in Volume 1, Chapter 1, Section 1.4, where a limited number of colour pages are indicated, and in the Contents sections of several Volume 1 chapters.

1.1.3 Terminology

- 1 A considerable effort has been made to obtain a close correlation between the language of the Manual with that used in legislation. Being a guideline document this is less evident in Volume 2 than in Volume 1, where the significance of all road traffic signs is covered in detail. Legal meanings and definitions are, however, very important to the correct application of road traffic signs and where this is relevant in a Volume 2 chapter, these meanings or definitions are quoted in the text (see Chapters 2 and 3).
- 2 For those users of this Volume who are not familiar with the more formal use of certain words in Volumes 1 and 4, the interpretations attached to these words is repeated in the following paragraphs. An understanding of these interpretations is important in the context of possible legal action against road authorities and their agents.

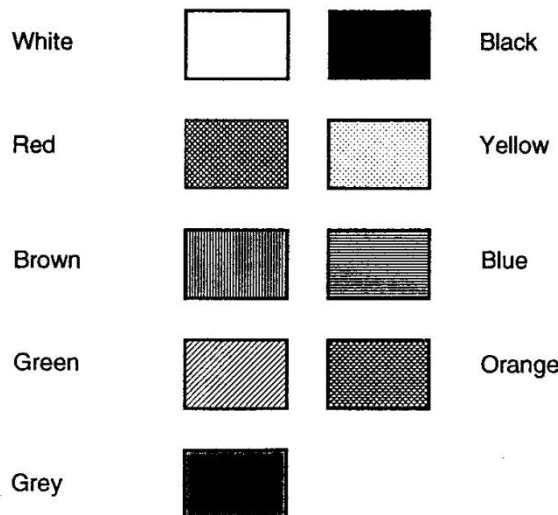


Fig 1.3

Key to Colour Coding

3 There are three words used throughout the Manual dealing with the function, design and application of traffic control devices, the interpretation of which is fundamental to the use of the Manual. These words are the very common words "SHALL", "SHOULD" and "MAY". The meanings attached to these words for the purpose of interpreting the Manual shall be:

- (a) **"SHALL"** - a mandatory condition - when this word is used it means that the condition or conditions referred to must be complied with;
- (b) **"SHOULD"** - an advisory condition - when this word is used it is advisable or recommended to comply with the condition or conditions referred to (see also **"RECOMMENDED"** in paragraph 1.1.3.5);
- (c) **"MAY"** - a permissive condition - the conditions referred to are optional.

The legal significance of these terms must be understood by users of the Manual. It is very likely that authorities will be subject to greater levels of legal action in the future. Failure to adhere to the intention of the Manual as indicated above could affect the outcome of such action to the detriment of the authority.

- 4 The word "SHALL" is used in two ways. "SHALL" is used to refer to the actions required of road users and in this context the provisions of the regulations take legal precedence. "SHALL" is also used to refer to actions required of authorities in the use of traffic control devices. In many instances such mandate is also provided for in the regulations.
- 5 When the word "SHOULD" is used the condition referred to is open to a measure of interpretation. This is recognised in the Manual where, occasionally, the word "RECOMMENDED" is used in place of "SHOULD". "RECOMMENDED" should be understood to have a stronger implication than "SHOULD". If an authority chooses not to conform to the recommended action, it would be well advised to record why it has chosen not to do so.
- 6 The use of the word "MAY" is much wider and less specific than the other two words. It is used directly in relation to the actions road users and/or authorities can take, at their discretion, with regard to the function and use of road traffic signs. "May" is also widely used in a general sense throughout the text of the Manual.
- 7 The word "yellow" is used throughout the manual in place of "amber" with respect to traffic signal indications. "Yellow" is the more common international term.
- 8 Traffic control devices include all road traffic signs and other devices, including delineation devices, used to regulate, warn, guide or inform road users. Traffic control devices are thus used to achieve an acceptable level of road safety by providing for the orderly and predictable movement of all traffic, vehicular and pedestrian, throughout all levels of the road network.
- 9 Road traffic signs, by legal definition, include all prescribed road signs, road markings and traffic signals, and are to be used solely for the purpose of traffic control and are not an advertising medium.

1.1.4 Traffic Control Devices

- 1 The chapters in this Volume deal with the use of a very wide range of interrelated traffic control devices. How effective this use or application is, relies on an understanding of a range of basic requirements which should be fulfilled when traffic control devices are used. These requirements are covered in detail in Volume 1, Chapter 1.
- 2 In order that they may best fulfil their required function traffic control devices shall:
 - (a) fulfil a need;
 - (b) command attention;
 - (c) convey a clear, simple meaning at a glance;
 - (d) command the respect of road users;
 - (e) allow adequate time to the correct response from road users.
- 3 To achieve these objectives, traffic control devices should exhibit high levels of:
 - (a) conformity;
 - (b) accuracy of signface display;
 - (c) uniformity of signface display;
 - (d) consistency of sign use practice;
 - (e) continuity of message display.
- 4 In terms of Section 82 of the Act, the Minister may authorise the use of an experimental traffic control device for a limited period of time so that the suitability and effectiveness may be determined. No new sign or symbol shall be used without prior approval. A draft sign or symbol design may be submitted, but should not be used until it has been refined and approved in terms of the standard design rules.
- 5 It is desirable, in the interests of uniformity, that the need for a new symbol, sign or marking be submitted, with motivation to:

The Secretary
Route Numbering and Road Traffic Signs Sub-Committee
c/o Department of Transport
Private Bag X193
Pretoria
0001.

1.1.5 Road Traffic Sign Classification

- 1 Full details of the manner in which road traffic signs are classified and sub-classified, together with their numbering structure are given in Volume 1, Chapter 1.
- 2 The great majority of road signs may be used in a PERMANENT or TEMPORARY form, although there are a few road signs which shall only be used in one or other form. This is made obvious in Volume 1. At the time of order, temporary sign numbers should always include the first letter "T". Manufacturers in particular, however, should ensure that their orders are sufficiently clear in this regard prior to manufacture.
- 3 To assist users of Volume 2, the basic road traffic sign classification is illustrated in Figure 1.4.

1.1.6 Principles of Road Traffic Signing

- 1 All road traffic signs shall conform to the requirements of paragraph 1.1.4.3. The guidelines given in the Manual conform, in general terms, to the following basic principles or assumptions:
 - (a) give a positive message in preference to a negative message whenever such a choice is available;
 - (b) use symbols or diagrams in preference to words;
 - (c) signs should preferably have the same appearance by day and by night (use of retroreflective material);
 - (d) limit the amount of information given at any one time to what can reasonably be observed and processed by road users; however,
 - (i) when two required messages are linked or complement each other, such as a regulatory message and a warning message, it will commonly improve the effectiveness of message transfer to mount the relevant signs together;
 - (f) the overall approach to signing should embody the principles of positive guidance (see Section 1.8);
 - (g) all candidate destination names cannot be displayed at any given point;
 - (h) pre-trip planning is essential;
 - (i) regional, area or district names are not a precise enough source of information.
- 2 The design and use of guidance signs further requires a disciplined approach to the understanding and application of principles as follows:
 - (a) navigation (see Volume 1, Chapters 4 and 8):
 - (i) primary aids:
 - route maps
 - route numbers
 - interchange (EXIT) and junction numbers
 - selective destination display to provide orientation
 - distance to high speed exits;
 - (ii) sign information functions:
 - location (you are here)
 - direction
 - orientation
 - confirmation;
 - (b) system efficiency:
 - (i) functional requirements (see paragraph 1.1.4.3);
 - (ii) criteria to meet the required functions;
 - (c) signface design function (see Volume 1, Chapter 4):
 - (i) clear and simple message transfer to enable road users to:
 - see sign (conspicuity)
 - recognise sign function (class identification)
 - read the sign (legibility)
 - interpret the message (comprehension)
 - make a decision
 - act on a decision timeously;
 - (ii) important message transfer factors:
 - amount of information
 - length of words
 - similarity of words
 - letter/background contrast
 - upper/lower case letters
 - letter size and style
 - legibility distance/reading time
 - angle of display;
 - (d) information display (see Volume 1, Chapter 4):
 - (i) use standard symbols rather than words;
 - (ii) display a standard quantity of information in a standard way;
 - (iii) limit total amount of information.
- 3 For full details of the principles of road traffic signing, refer to Volume 1, Chapter 1, and to the chapter appropriate to the class of sign under consideration. In particular, when considering the selection of appropriate destination names for use on guidance and/or direction signs refer to Volume 1, Chapters 4 and 8. Destination names should not be selected on a localised basis. Their selection should be as a result of a broader consideration of the road network as a whole.
- 4 The following criteria are important in deciding which destination will be most effective:
 - (a) availability at the destination of motorist services;
 - (b) ability to provide navigational orientation (familiarity);
 - (c) the next destination;
 - (d) the proximity of other destinations;
 - (e) importance in terms of:
 - (i) population;
 - (ii) regional centre (economic activity);
 - (iii) traffic generation;
 - (iv) transient tourist population;
 - (f) junction or termination of routes.

1.1.7 Placement of Traffic Control Devices

- 1 In general in this volume, when it is relevant to give specific dimensions relating to the placement of signs, the information given is limited to longitudinal dimensions. These are most commonly referred to:
 - (a) the distance from a junction or hazard; or
 - (b) the distance between successive signs which form a sequence of signs (or markings) e.g. temporary signing at roadworks.
- 2 Traffic control devices and their supports shall be placed for the purpose of regulating, warning, guiding and informing road users only on the authority of a public body or official having jurisdiction. No traffic control device or its support shall bear any advertising message or any other message not essential to the control of traffic, with the exception of STREET NAME signs GL1 and SUBURB NAME signs GL2 (see Volume 1, Chapter 1, Section 1.9).

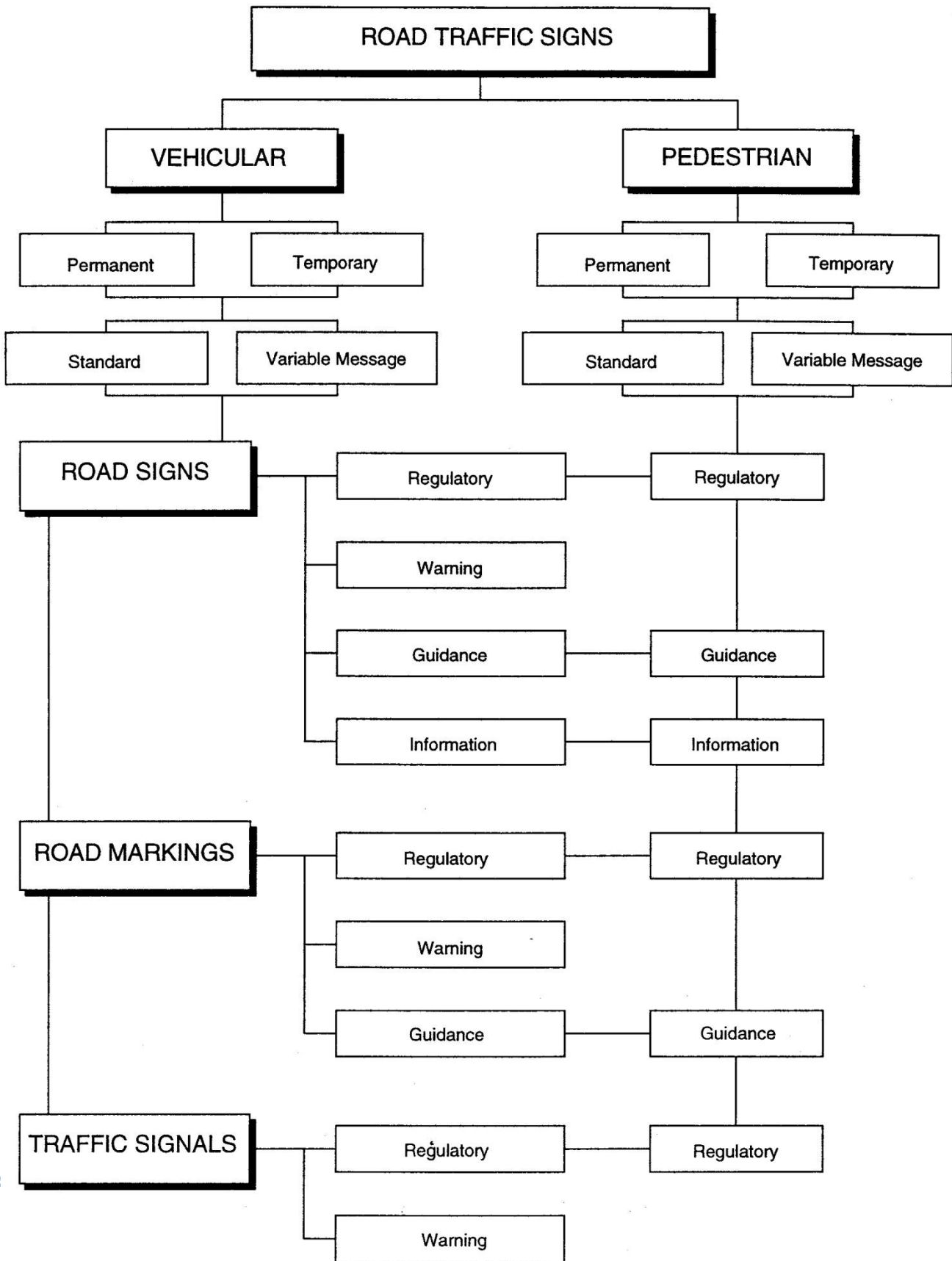


Fig 1.4

Road Traffic Sign Classification

- 3 Details of the orientation, lateral and vertical placement of signs are given in Figures 1.5 to 1.10. Figure 1.10 illustrates a number of common pitfalls or difficulties relating to the placement of signs which need to be avoided or overcome.
- 4 Ministers, Administrators, or duly authorised officials, have the power in terms of Road Traffic Legislation, to remove, or order the removal of any non-prescribed or unauthorised sign.

1.1.9 Sign Sizes

- 1 Minimum sizes for various road traffic sign types are prescribed in Legislation. In the case of regulatory and warning road signs the minimum sizes are linked to increments in speed limit.
- 2 The minimum size prescribed in Legislation normally refers to the overall size of the road traffic sign in the form of a height, length or diameter. In some cases the minimum dimension applies to one component (a traffic signal aspect), or to only one of the dimensions (the width of a road marking line).
- 3 Authorities shall not use signs of sizes less than those prescribed. To facilitate awareness of these sizes the minimum dimensions are listed in Table 1.1.

1.1.9 Specification and Manufacture

- 1 For full details relating to specification and manufacture of road traffic signs refer to Volume 1, Chapter 1, Section 1.5. A limited amount of the material given in that section is repeated here.
- 2 The South African Bureau of Standards has a number of "Specifications" (CKS) and "Standard Specifications" (SABS) which are relevant to the manufacture and appearance of road traffic signs. The most relevant of these are:
 - (a) SANS 1519-1:2006 and 1519-2:2004 *Road Signs*;
 - (b) SANS 731-1:2006 and 731-2:2006 *Road Marking Paint*;
 - (c) CKS 192 - 1981: *Drop-on Type Reflectoris Road-Marking Paint*;
 - (d) CKS 501 - 1981: *Road Marking Paint, High Build, Non-Skid*;
 - (e) SANS 1442:2008 *Roadstuds*;
 - (f) SANS 1459:2004 *Traffic Lights*.

Where these specifications do not include a colour specification, such as for paints, this is covered by:

- (a) SANS 1091:2004 *National Colour Standards for Paint*; or
- (b) CKS 279 - 1971: *Colours for Paints*.
- 3 Designers, authorities and manufacturers must ensure that their specifications and manufacturing methods result in road traffic signs which comply with the SABS colour specifications, or similar specifications, and that they remain within accepted tolerance levels for the expected life of the sign. Authorities in particular should monitor performance in this regard since early colour failure could have serious cost implications.
- 4 Many road signs and road markings are specified with retroreflective materials. Certain parts of some road signs shall be retroreflective and for others the use of retroreflective materials is optional. These requirements are summarised in Table 1.2.

- 5 Retroreflective material is available in many grades of quality. Three of these grades are specified in SABS 1519 for use on road signs, namely Class I, Class II and Class III. Whilst there are obvious **initial cost** implications to the cost of Class I, II or III materials in preference to materials with a shorter life and poorer retroreflective properties, it is strongly recommended that purchasers of road signs specify at least Class I materials, even for temporary signs. This will almost certainly result in a sign life which is cost effective over time.
- 6 When specifying the manufacture of a road sign which requires the superimposition of one colour of retroreflective material on another, care must be taken to ensure that adequate luminance and contrast rates are achieved from the sign for the message to be legible. As a general rule a contrast ratio of the coefficients of retroreflection of colours placed on each other is recommended as follows:
 - (a) for small finely detailed areas (letters and symbols) - a minimum ratio for light-to-dark of 7 to 1, with a preference for 10 to 1 or more;
 - (b) for large areas (arrows or blocks) a minimum ratio of 3,5 to 1, with a preference for 5 to 1.

Recommended retroreflective material class combinations are given in Table 1.2.

1.1.10 Environmental Impact

- 1 The provision of a road traffic sign represents a conflict of interests. On the one hand it is considered necessary to communicate a message to road users and in order to do this, the necessary road traffic sign is designed to intrude into the field of view of road users. On the other hand this field of view may have some particular environmental or aesthetic value.
- 2 This conflict of interests is, in practice, rarely avoidable in the interests of road safety. However, its effect should be recognised and considered, particularly in visually sensitive environments and the impact minimised if possible. **In almost any environment the over-supply of road traffic signs, or indeed any other form of sign, can be considered to have an unacceptable environmental impact.**

1.1.11 Awareness and Education

- 1 The extent of change in the sign system incorporated in this Edition makes it obligatory on all authorities to co-ordinate awareness and educational campaigns directed at:
 - (a) road users;
 - (b) road authority officials;
 - (c) traffic officers;
 - (d) those involved in vehicle driver training;
 - (e) traffic control device manufacturers;
 - (f) international visitors.
- 2 Awareness and educational effort should be directed at the operational principles of the signing system.

TABLE 1.1

MINIMUM ROAD TRAFFIC SIGN SIZES

TABLE 1.1

Road Traffic Sign Type	Function	Min. External Dimensions (mm)				
		Speed Limit (km/h)				
		60	80	100	120	
Road Signs						
Circular Regulatory (Diameter)	General	600	900	1200	1200	
	Overhead	900	1200	1200	1600	
	Parking/Stopping	450	900	1200	1200	
Rectangular Regulatory (Height x Width)	General	600 x 450	900 x 675	1200 x 900	1200 x 900	
		900 x 675	1200 x 900	1200 x 1200	1600 x 1200	
	Overhead	900 x 675	1200 x 900	1200 x 900	1600 x 1200	
		445 x 338	900 x 675	1200 x 900	1200 x 900	
	Parking/Stopping	445 x 338	900 x 675	1200 x 900	1200 x 900	
		338	675	900	900	
	Bus & Minibus Stop	450 x 225	600 x 300	800 x 400	900 x 450	
		225	300	400	450	
Triangular Regulatory and Warning (Side Length)		900	1200	1200	1500	
Sign R2.1 - plate (Height x Width)	Yield to Pedestrians	300 x 225	450 x 338	600 x 450	750 x 563	
		225	338	450	563	
Signs W401 and W402 (Height x Width)	Hazard Marker/Delineator	600 x 150	600 x 150	800 x 200	800 x 200	
		150	150	200	200	
Signs W403 and W404 (Diagonal)	Railway Crossing	800	1200	1200	1200	
Signs W405 to W410 (Height)	Hazard Marker	450	450	600	600	
Sign TW411 (Height x Width)	Barricade	200 x 1200	300 x 1800	400 x 2400	400 x 2400	
		1200	1800	2400	2400	
Traffic Signals						
Circular Disc Aspect	Signal Indications (including symbols)	210	210	210	210	
Road Markings						
Longitudinal (Width)	Regulatory, Warning and Guidance	100	100	100	100	
Longitudinal (Length)	Regulatory	Urban	9000	9000	9000	9000
		Rural	12000	12000	12000	12000

NOTES:

- (1) A tolerance of 5% below all minimum external road sign dimensions is permitted.
- (2) A tolerance of 10% below the minimum width of a longitudinal road marking is permitted.
- (3) A tolerance of 10% below the minimum diameter of a traffic signal disc is permitted.
- (4) A STOP sign R1 or any of its derivatives shall conform to the minimum external dimensions given for the same size circular regulatory sign, except that such sign used for a scholar patrol may have a minimum diameter of 450 mm. Signs R1.3 and R1.4 shall be the same size as one side of the STOP sign R1 with which they are used.
- (5) A sign for pedestrians and/or cyclists may have a minimum diameter of 300 mm.
- (6) A KEEP LEFT sign R103 used on the vertical face of a bollard may have a minimum diameter of 300 mm.
- (7) A ONE-WAY ROADWAY sign R4.1, R4.2 or R4.3 shall have a minimum short side of 450 mm and a minimum long side of 600 mm.
- (8) A PEDESTRIAN PRIORITY sign R5 shall have a minimum side length of 450 mm.
- (9) An exclusive secondary message sign shall have the same length as the diameter or width of the upper primary sign with which it is used.

TABLE 1.2 RETROREFLECTIVE MATERIALS FOR ROAD SIGNS TABLE 1.2

Permanent Road Signs ⁽¹⁾	Sign Segment				Recommended Class of Retroreflective Material		
	Type	Border	Symbols	Letters	Background	Border / Letters	Background
REGULATORY							
Control		4	4	4	4	I	I
Command		4	4	4	4	I	I
Prohibition		4	8	8	4	I	I
Reservation		4	4	4	84	I	8I
Comprehensive		4	4	4	4		I
De-restriction		4	4	4	4	I	I
WARNING							
Advance		4	8	8	4	I	I
Hazard		4	4		4	I	I
GUIDANCE							
Location		8	84	8	4	8	I
Route Marker		4	4	4	4	I	I
Trailblazer		4	4	4	4	I	I
Direction		4	4	4	84 ⁽³⁾	I	8I
Freeway Direction		4	4	4	4	III	I
Tourism		4	4	4	84 ⁽³⁾	I	8I
Local Direction		4	8	8	84	8	8I
Diagrammatic		4+block	8	8	4	I ⁽²⁾	8I
Pedestrian		8	8	8	84	8	8I
INFORMATION							
		4	4	4	84	I	8I

KEY

4Retroreflective

8Semi-matt

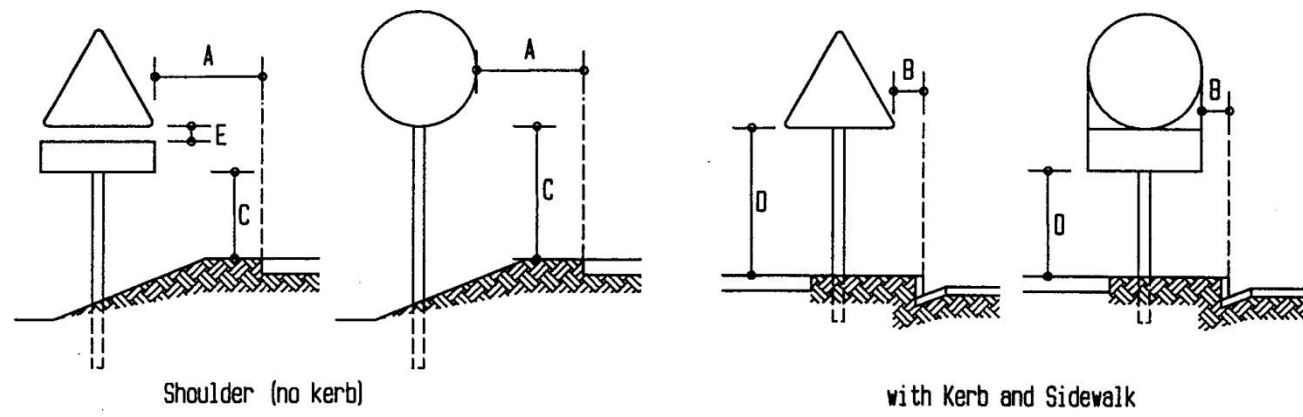
84Optional

NOTES:

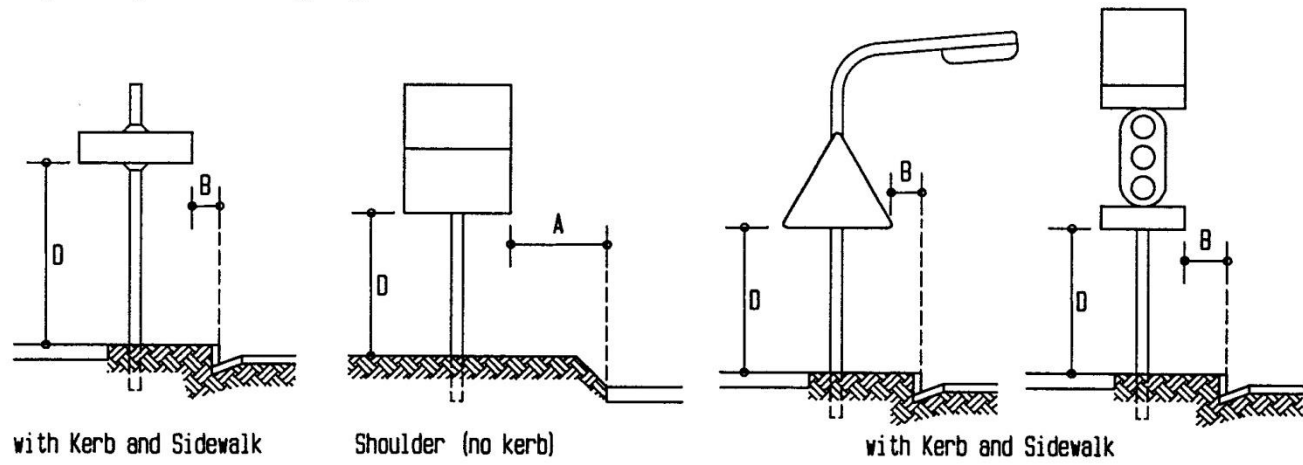
(1) All temporary road signs shall have a retroreflective background and semi-matt border, symbol, arrows or letters.

(2) Check luminance factor before specifying higher than Class I.

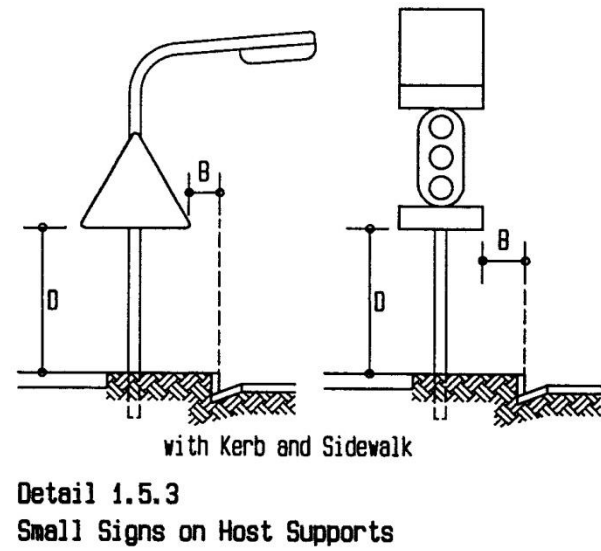
(3) Certain signs are specified as retroreflective (see Volume 4 Chapters 2, 3, 5, 6, 7 and 13).



Detail 1.5.1
Regulatory and Warning Signs

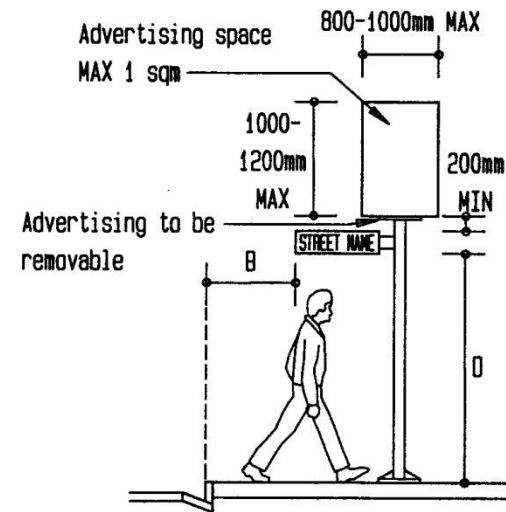


Detail 1.5.2
Location and Route Marker Signs



Detail 1.5.3
Small Signs on Host Supports

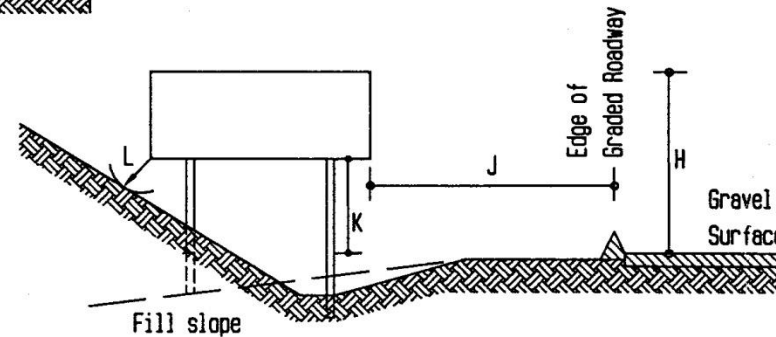
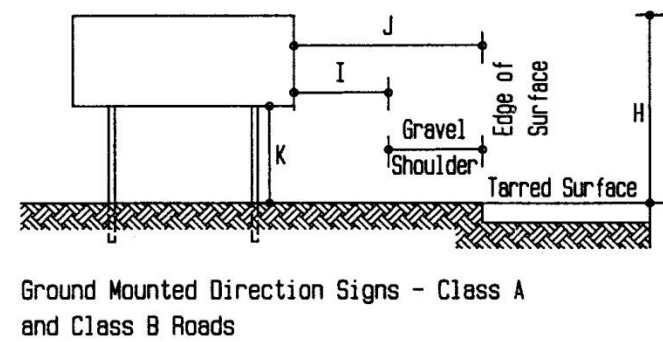
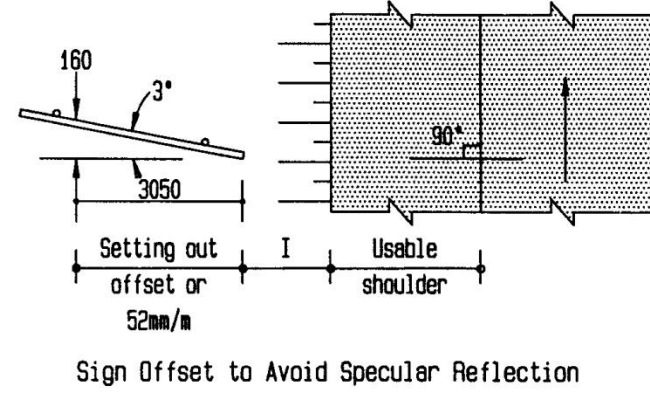
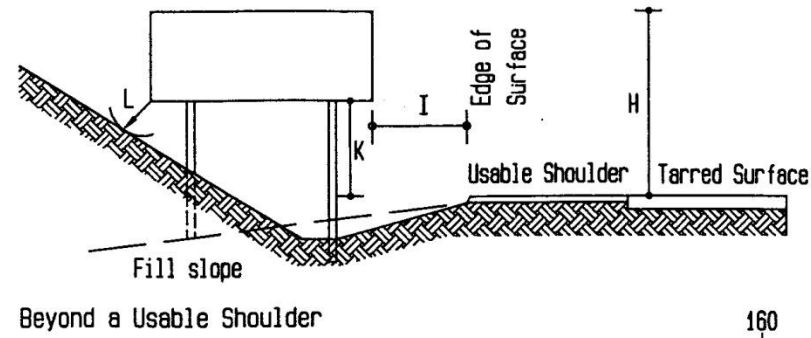
TABLE PERMANENT SIGN PLACEMENT DIMENSIONS			
Dimension	Minimum (mm)	Preferred (mm)	Maximum (mm)
A	1200	1500	2000
B	500	750	-
C	600	2100	2500
D	2100	2500	3000
E	0	0	200



Detail 1.5.4
Advertising with STREET NAME

Fig 1.5 Lateral and Vertical Clearances for Small Single Support Signs

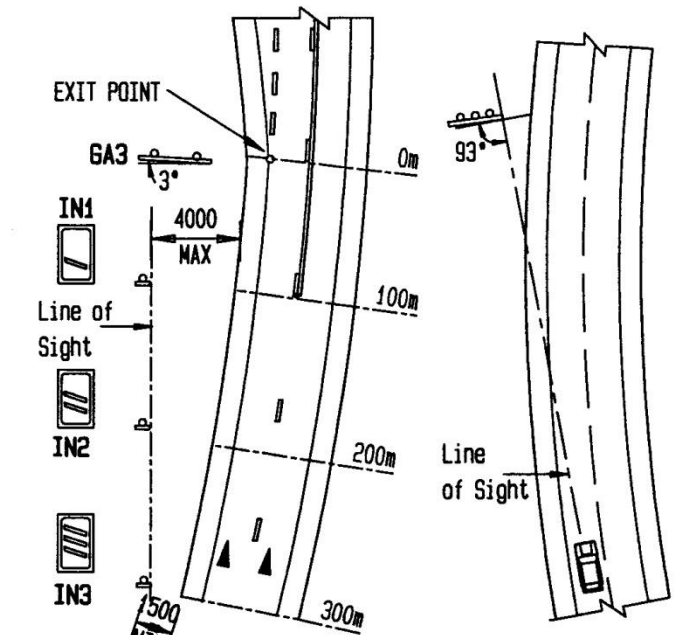
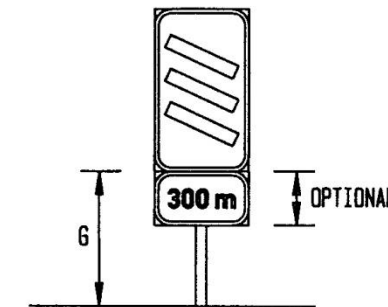
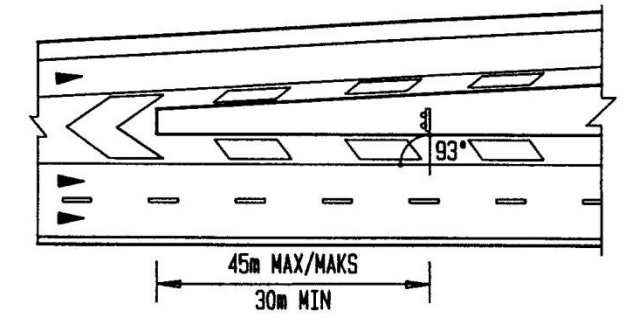
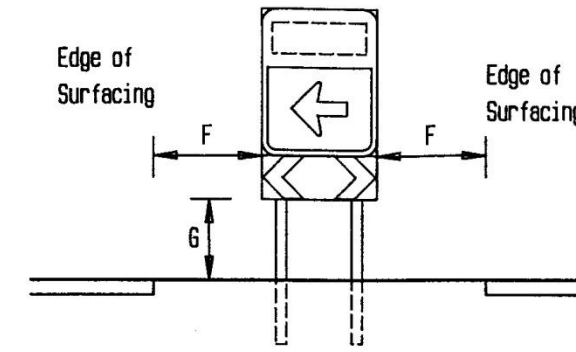
nters Authorization No. 11542 dated 7th July 2017



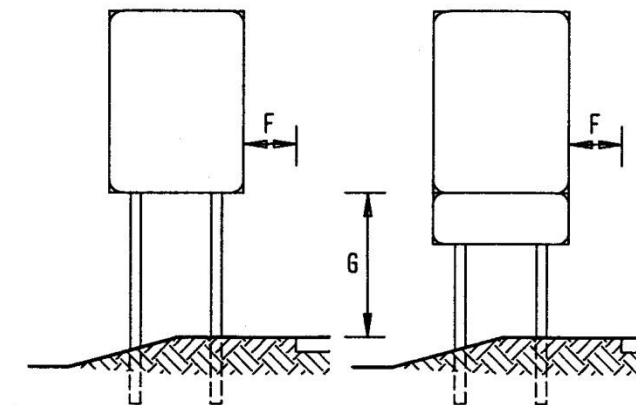
PERMANENT SIGN PLACEMENT DIMENSIONS			
Dimension	Minimum (mm)	Preferred (mm)	Maximum (mm)
H	-	-	6000
I	1500	2500	-
J	2500	4000	-
K	1600	2000	2400
L	1200	-	-

Ground Mounted Direction Sign - Class C Roads

Detail 1.6.1 Direction Signs



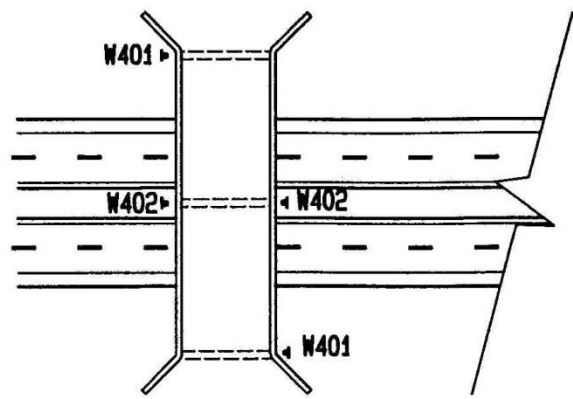
Detail 1.6.3 Countdown Signs



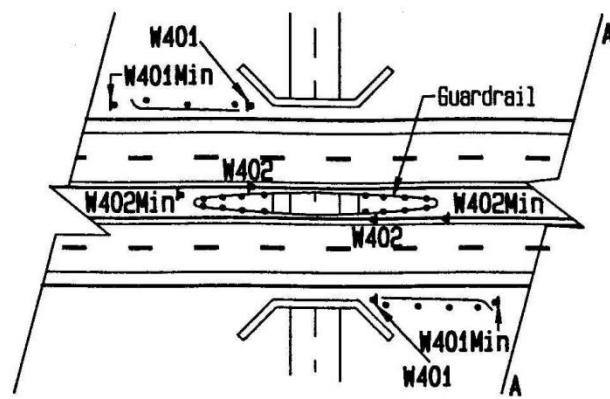
PERMANENT SIGN PLACEMENT DIMENSIONS			
Dimension	Minimum (mm)	Preferred (mm)	Maximum (mm)
F	1200	1500	2000
G	800	1200	1600

(Details 1.6.1 to 1.6.3)

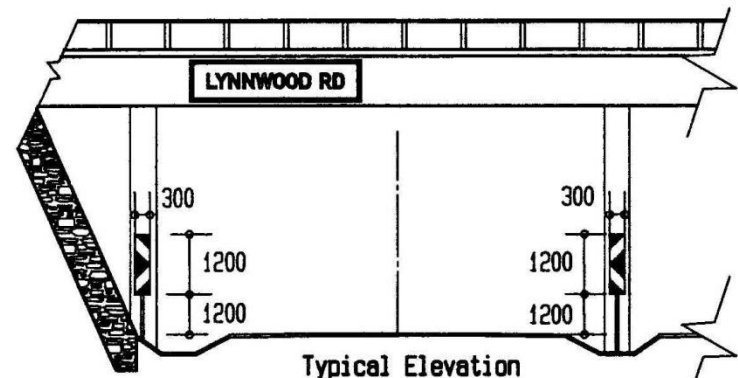
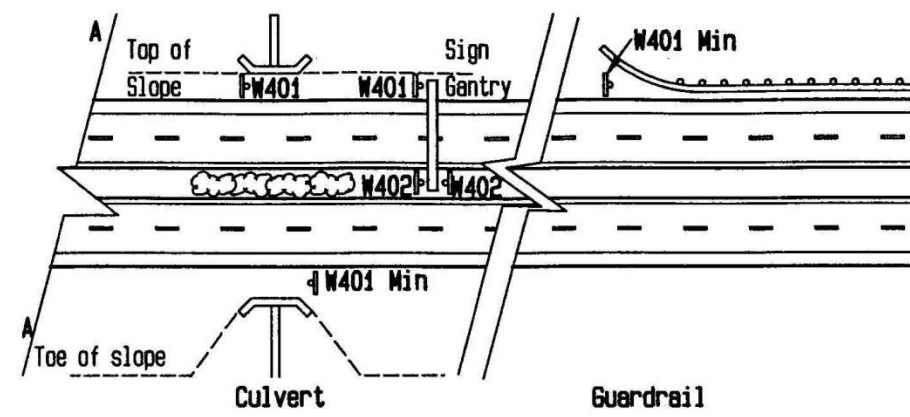
Fig 1.6 Lateral and Vertical Clearances For Larger Multiple Support Signs



Overpass or Gantry

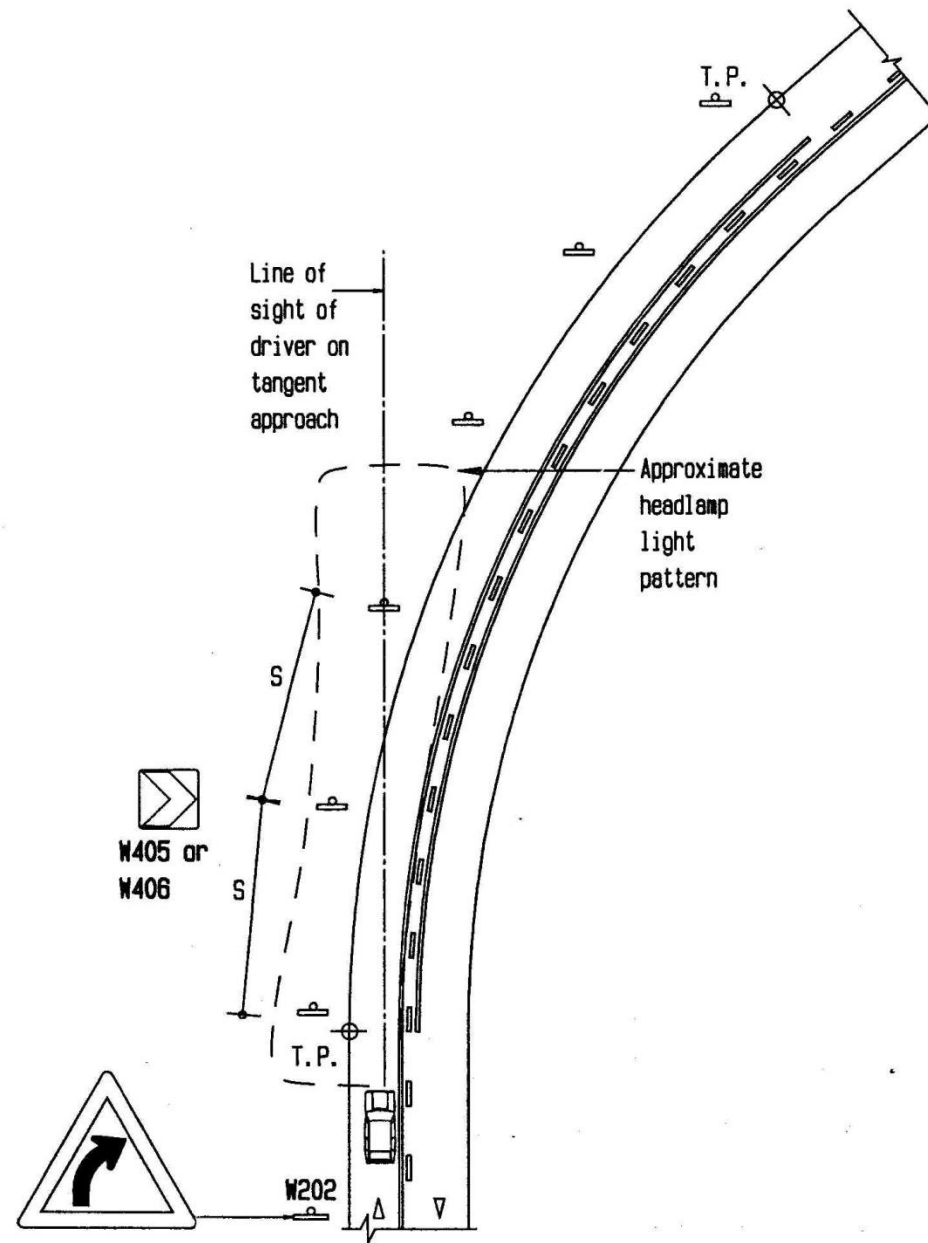


Underpass

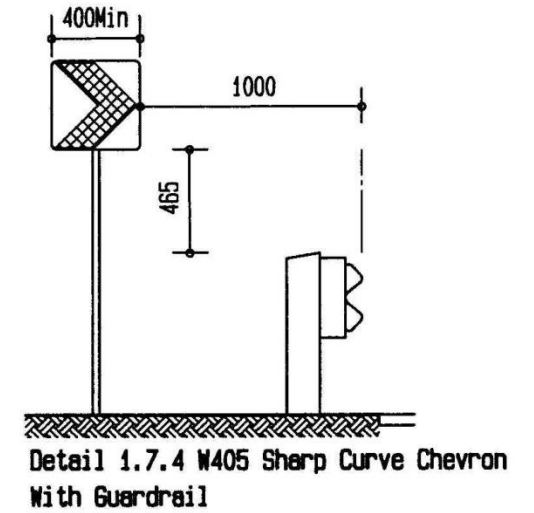


Typical Elevation

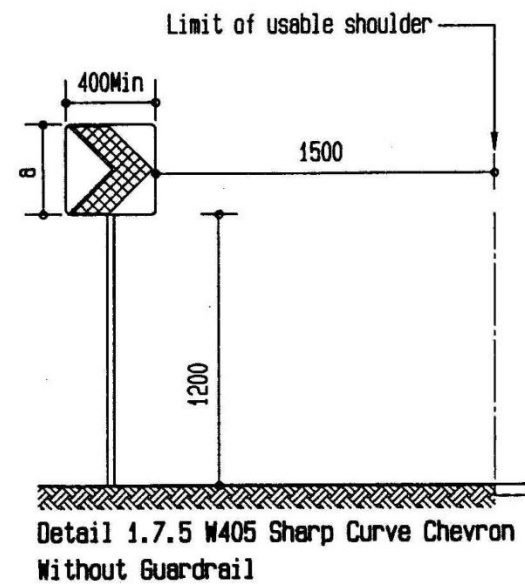
Detail 1.7.1 Typical Use of Hazard Markers at Roadside Structures



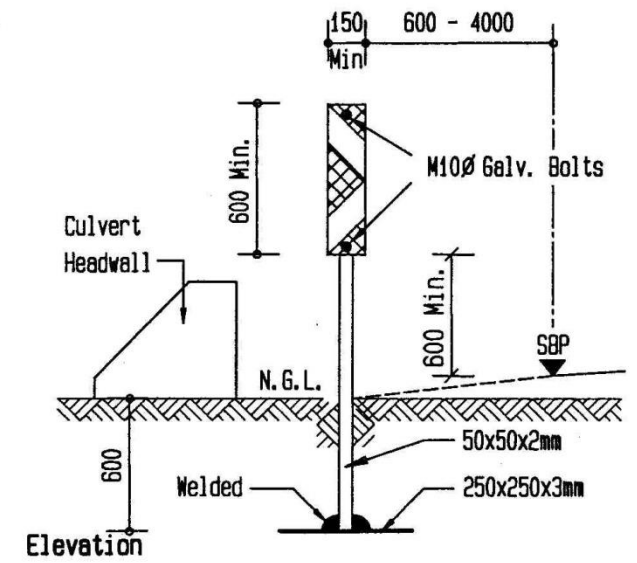
Detail 1.7.3 Sharp Curve Chevron Spacing based on Tangent approach



Detail 1.7.4 W405 Sharp Curve Chevron With Guardrail

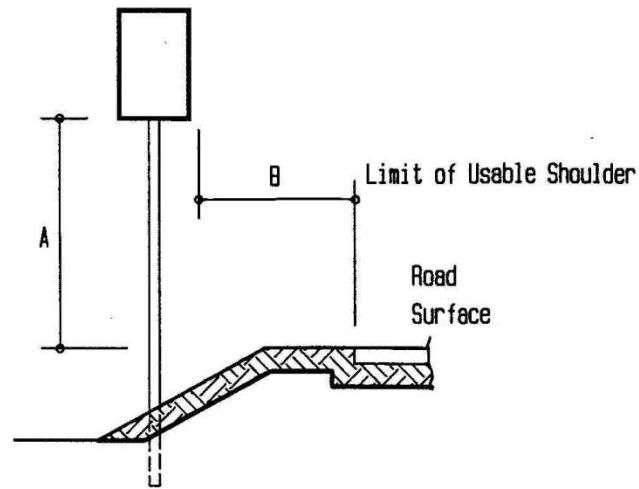


Detail 1.7.5 W405 Sharp Curve Chevron Without Guardrail

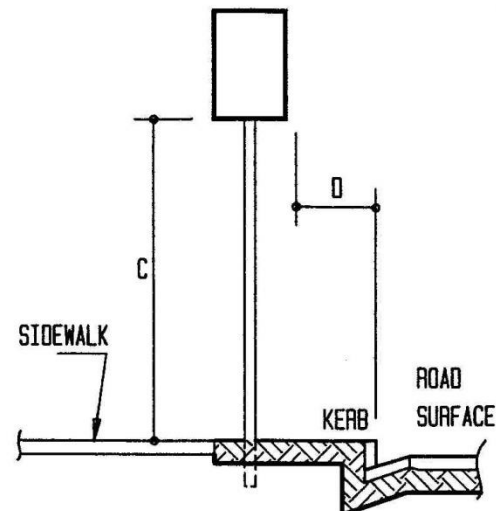


Detail 1.7.2 Typical Installation—Minimum Size W401/W402

Fig 1.7 Positioning of Hazard Markers



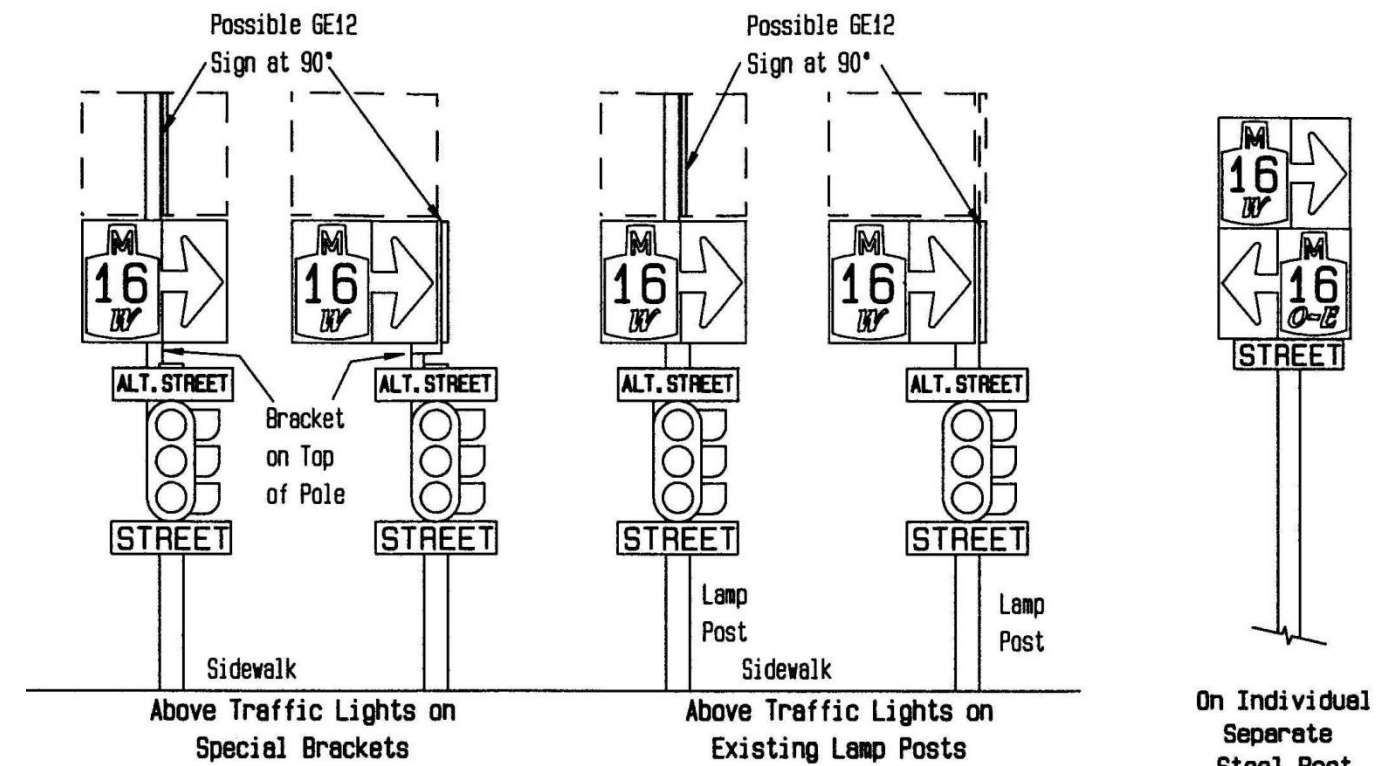
Detail 1.8.1 Shoulder (no Kerb Line)



Detail 1.8.2 With Kerbing

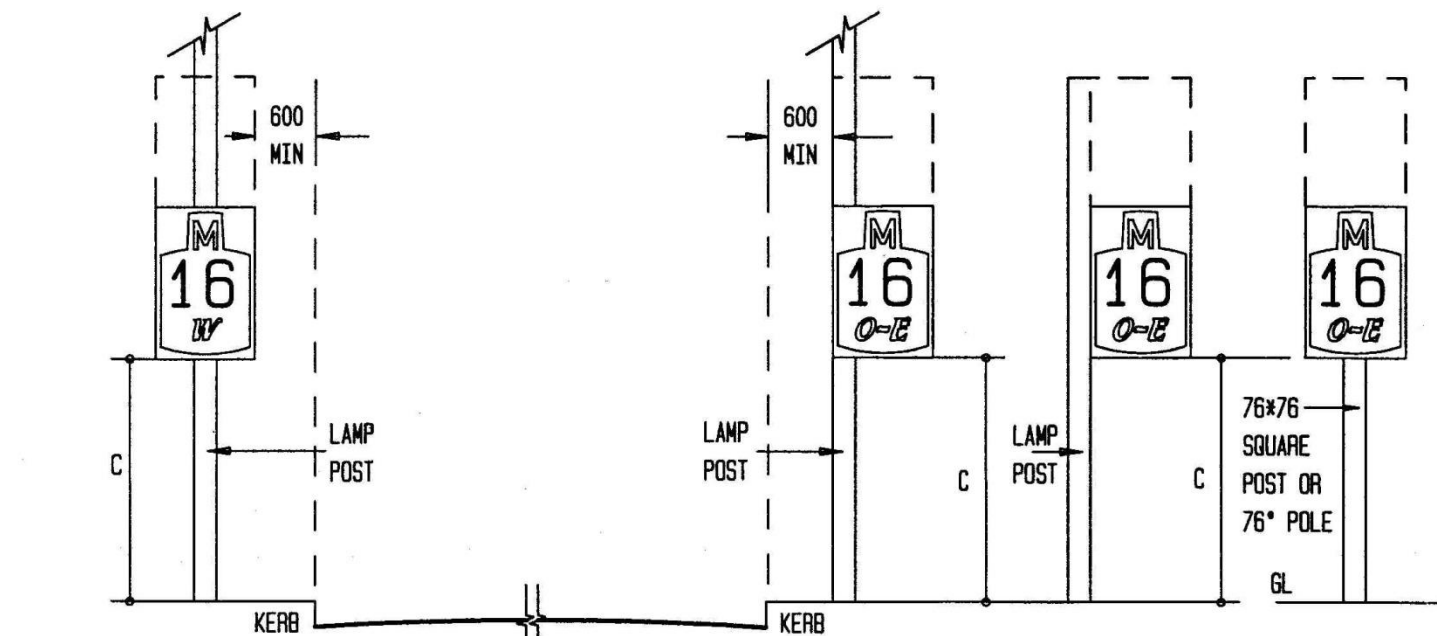
	PREFERRED	MINIMUM
A	3000	2100
B	2500	1500
C	3000	2100
D	1500	600

Confirmation signs should be located on existing street furniture wherever possible. Signs may be mounted centrally on poles, or cantilevered left or right according to pole positions in relation to a kerb line. Signs may be mounted on the right side of one-way roadways.

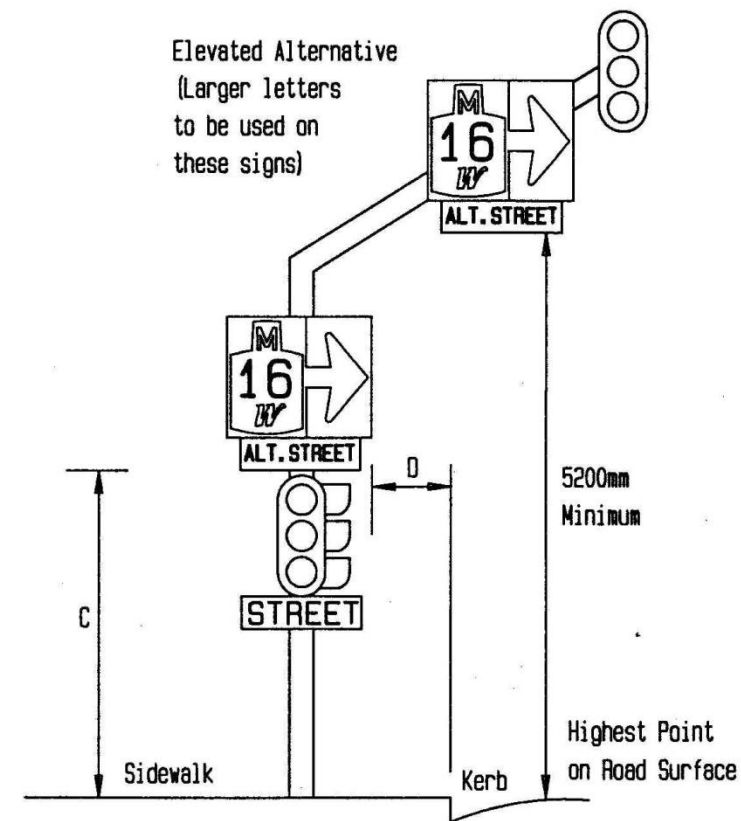


Detail 1.8.4

Route Marker Mounting in Relation to other Road Traffic Signs at Intersections/Junctions



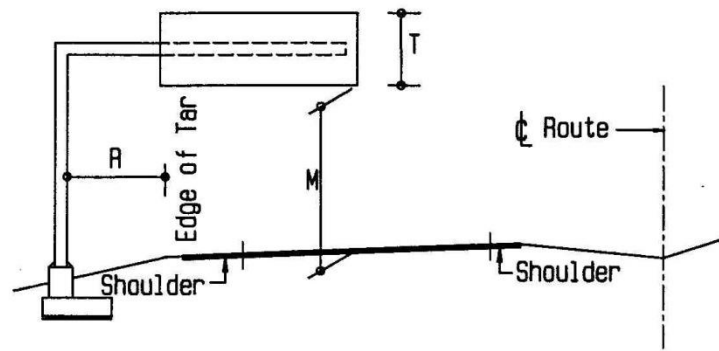
Detail 1.8.3 Route Marker Mounting Between Junctions (Confirmation Signs)



Detail 1.8.5 Mounted With Traffic Signal

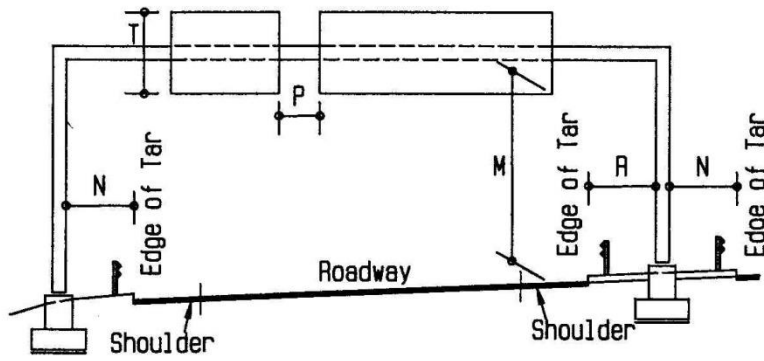
- NOTES:**
1. Higher mounting heights are preferred for visibility over trucks and buses and also to deter vandalism.
 2. The minimum mounting height should be used for signs on their own individual posts.
 3. The longitudinal position of confirmation route marker signs is 30m - 60m beyond a junction.
 4. Repeat confirmation signs are recommended between junctions at 450m - 550m intervals for 60km/h, and at 650m - 750m intervals for 80km/h operating speeds.
 5. Advance route marker signs may be provided at from 60m to 240m in advance of a junction when there are multiple lanes and/or when sight distance to the junction is poor.

Fig 1.8 Positioning of Route Marker Signs

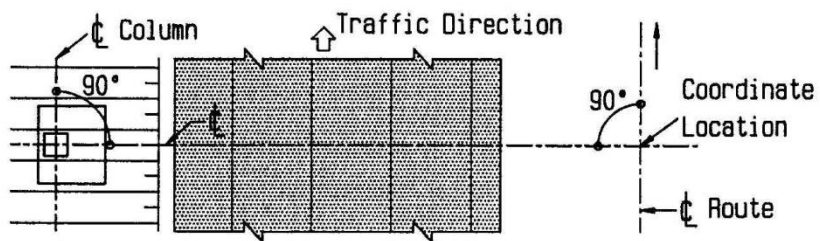


PERMANENT SIGN PLACEMENT DIMENSIONS			
Dimension	Minimum (mm)	Preferred (mm)	Maximum (mm)
M	5200	5700	6200
N	1500	2000	-
P	50	1000	-
R	4000	4500	-
T	1800	-	4200

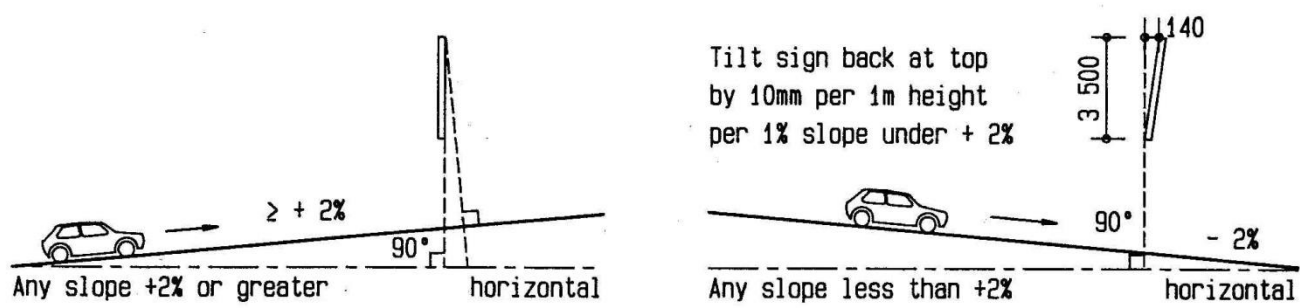
Detail 1.9.1 Typical Cantilever



Detail 1.9.2 Typical Gantry



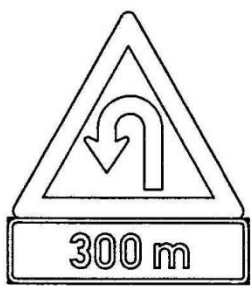
Detail 1.9.3 Overhead Sign Positioning



Detail 1.9.4 Adjustment of Signface to Avoid Specular Reflection

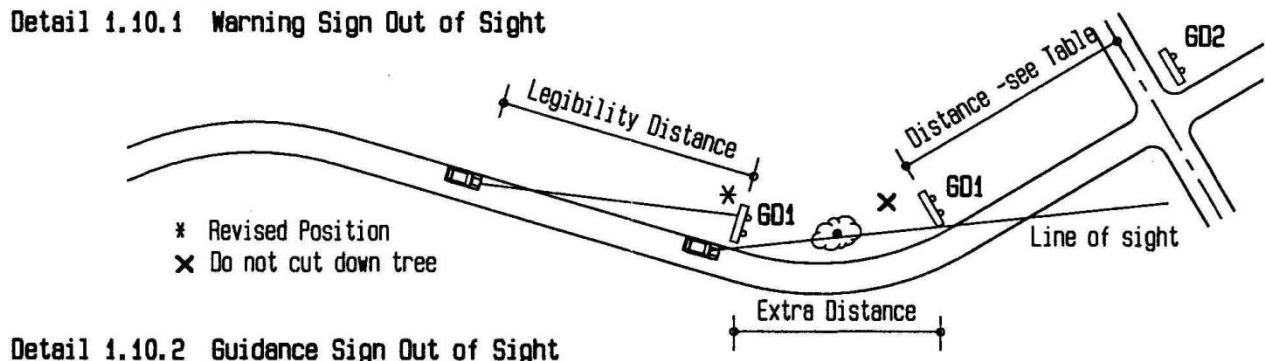
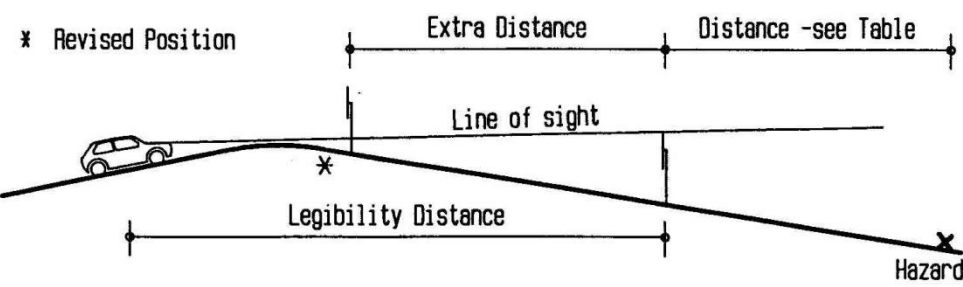
Printers Authorization No. 11542 dated 7th July 2017

Fig 1.9 Lateral and Vertical Clearances for Overhead Sign Structures

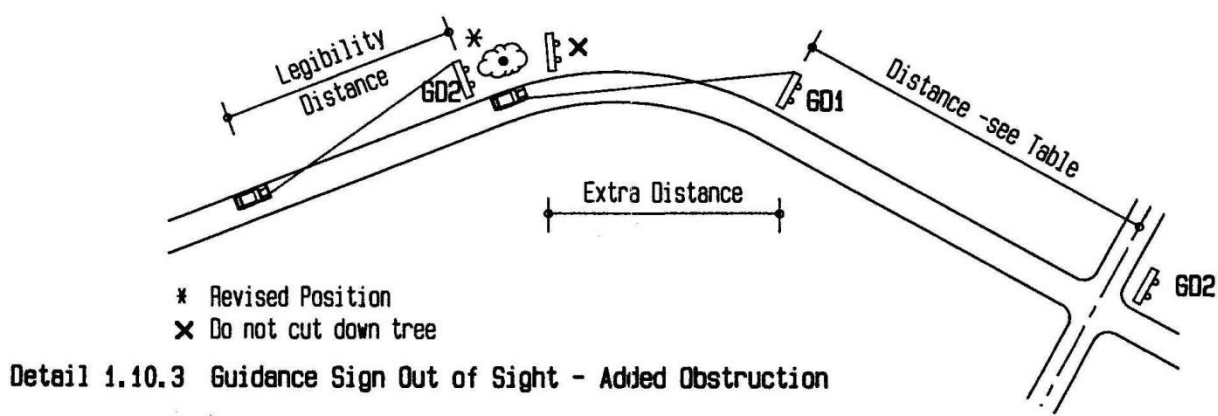


Typical Supplementary Plate

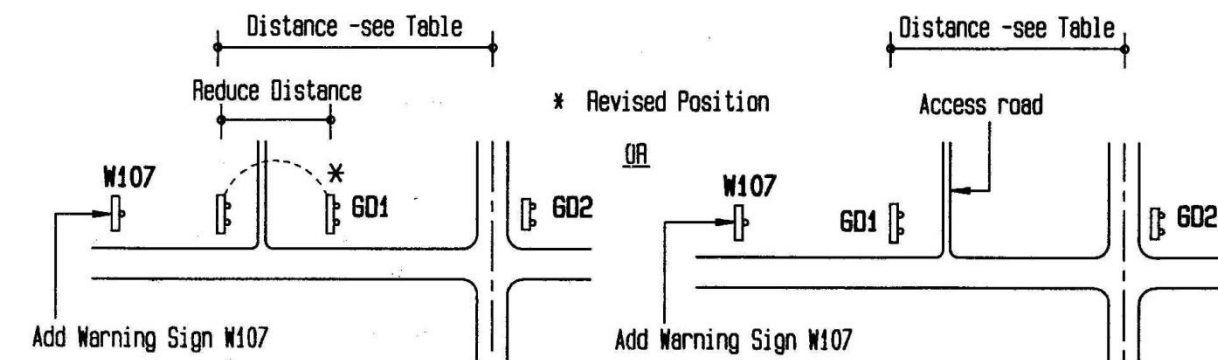
Detail 1.10.1 Warning Sign Out of Sight



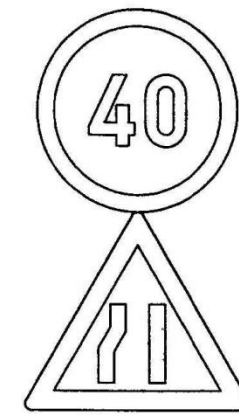
Detail 1.10.2 Guidance Sign Out of Sight



Detail 1.10.3 Guidance Sign Out of Sight - Added Obstruction

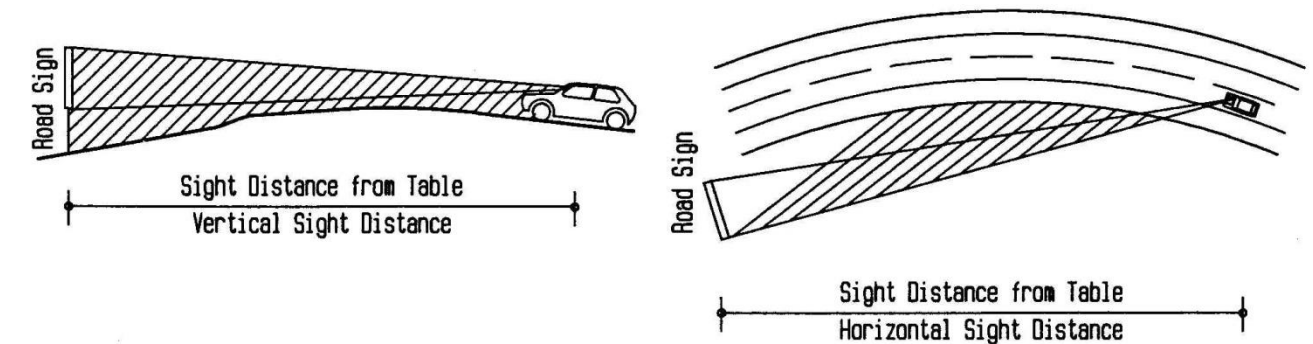
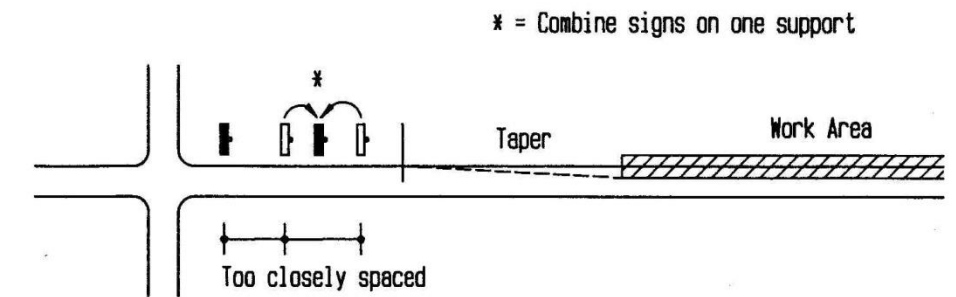


Detail 1.10.4 Closely Spaced Junctions



Signs combined on one support

Detail 1.10.5 Insufficient Longitudinal Space for Several Signs



Detail 1.10.6 Clear Line of Sight to Larger Guidance Signs

CLEAR SIGHT DISTANCE REQUIREMENTS	
Letter Size (mm)	Sight Distance (m)
490	380
420	340
350	300
280	260
210	220
140	180
112	160

NOTES:

- 1 As an alternative to repositioning signs the shaded area may be cleared of obstructions.
- 2 The "Clear Sight Distance" values include the legibility distance for the letter size PLUS 100 m to allow for observation of the sign prior to reading.

Fig 1.10
Typical Problems and Aspects of
Longitudinal Positioning of Road Signs

Reproduced under Government Printers Authorization No. 11542 dated 7th July 2017

1.2 CHAPTERS

1.2.1 General

- 1 Table 1.3 lists the principal subjects of each chapter in Volume 2. The subject matter of each chapter is expanded upon in later subsections.
- 2 In general terms the chapters in Volume 2 are intended to cover the "application" of various road signs, road markings and traffic signals in combination with each other, as appropriate to specific road environment situations. In most instances these "applications" are commonly used, although occasionally they are relatively rare.

3 When the development of Volume 2 started, there were no preconceptions regarding how individual chapters would deal with their subject matter, except that those which had previously been distributed as "Road Signs Notes" were likely to follow the coverage of the "Road Signs Notes". In the main the purpose of the chapters is to provide examples of the use of road traffic signs in terms of the chapter subject area's application requirements. In reality some of the chapter subjects do not specifically cover "applications".

Chapter Number	Subject
1	Introduction
2	Road Marking Applications
3	Regulatory and Warning Signs and Markings Applications
4	Tourism Signing
5	Freeway Signing
6	Toll Route Signing
7	Signing for Railway Crossings
8	Public Transport Signing
9	Urban Guidance Signing
10	Rural Guidance Signing
11	Signing for Heavy Vehicles
12	Signing for Traffic Calming
13	Roadworks Signing
14	Signing for Pedestrian Environments
15	Structural Details of Road Signs
16	Road Signs Management
17	Road Sign Materials
18	Road Marking Materials
19	Variable Message Signs

4 The various subjects have tended to be treated in one of three basically different ways, according to the needs of the subject as perceived during the development of Volume 2. The chapters can be grouped under methods of treatment as follows:

- (a) basic sets of example "applications" - Chapters 3, 5 to 12, and 14;
- (b) coverage not based on "application" examples - Chapters 15 to 19;
- (c) more in-depth coverage including significant repetition of material from Volume 1 and/or Volume 4, including a wide range of example "applications" - Chapters 2, 4 and 13 (two of these chapters, namely Chapters 4 and 13 replace long-standing Road Signs Notes 3 and 13 respectively).

5 The chapters dealing essentially with sets of application examples are commonly structured in two parts. With the exception of Chapter 3: Regulatory and Warning Signs and Markings Applications, the first part illustrates specific road traffic signs relevant to the chapter subject, and the second part covers the example applications. Chapter 3 does not include a listing of regulatory and warning signs and road markings since the example applications could commonly apply to many of the large number of such signs and markings. Chapter 5: Freeway Signing deals fairly generically with many of its examples because these cover the use of guidance signs in standard sequences. In particular, the examples dealing with the upward-pointing arrow system, for overhead direction signs, cover standard sign sequences and illustrate a range of arrow clusters appropriate to each sequence.

6 The subject matter dealt with in Chapters 15 to 19 is not appropriate to being covered by example applications. Chapters 15 to 18 deal with sign manufacture, road sign management systems, and sign and marking materials in much greater detail and in a more in-depth technical manner than is given in Volumes 1 and/or 4. Chapter 19: *Variable Message Signs*, does illustrate a number of typical applications but primarily covers a systems approach to the use of variable message signs and more technical detail of variable message sign design (see also Volume 1, Chapter 9).

7 Chapter 2: *Road Marking Applications* covers an extensive range of examples of road marking applications but also includes material on the principles of road marking and the basic design parameters such as module dimensions and patterns from Volume 1, together with dimensional details of all unique markings, arrows and symbols from Volume 4. Special coverage is given to options for the use of PAINTED ISLAND marking RM5. Another special feature of this chapter is provided in the form of Table 2.3 which lists all markings by number, type and dimensions, with representative areas of each marking. The latter may be used to estimate quantities for road marking contracts with reasonable levels of accuracy.

8 Chapter 4: *Tourism Signing* similarly covers the subject in greater depth than other chapters. At the time of writing there are still matters of policy relating to tourism signing which are under consideration, or have been requested for re-consideration. The chapter includes new information on:

- (a) the structure of tourism organisations;
- (b) the processing of requests for tourism signs;
- (c) the management of requests for tourism signs;
- (d) a re-structured tourism sign classification;
- (e) the tourism signing of high density tourism areas.

In addition the tourism signface layout and dimension rules covered in Volumes 1 and 4 are repeated for guidance. These have been condensed into a set of figures for convenient reference.

The coverage of tourism signing in Chapter 4 is centred on rural tourism signing practices. The majority of the information given is also relevant to the design and provision of tourism signs in urban environments, subject to the policies and rules specific to urban tourism signing. These aspects are covered in Volume 2, Chapter 9: *Urban Guidance Signing*. Chapter 4 currently includes a section on tourism signing warrants which is incomplete.

9 At the time of publication, work on the development of tourism signing warrants and certain identified tourism symbol requirements is incomplete. The committee structure dealing with these aspects has recommended that all Tourism Direction and Local Direction signing warrants, both rural and urban be collated in a single document rather than separately in Chapter 4 and 9. This concept has been developed in principle, in the form of a "Supplement 4-9" but is not yet complete, or approved. The conceptual layout of "Supplement 4-9" includes an illustration of all symbols. The listing of symbols currently in Chapter 4 may therefore be deleted when the Chapter is finalised (see paragraph 1.1.1.3). In making the proposal for a "Supplement 4-9" the intention was to create a document which would directly meet the needs of those responsible for assessing compliance with warrants, and which would also be easy to update if new symbols and warrants are required in the future.

10 Chapter 13: *Roadworks Signing* is like other chapters in that it illustrates the range of available temporary signs and has a large number of temporary signing applications for use at roadworks sites. Because the use of temporary signs at roadworks is not covered in Volume 1, this chapter gives information on the following principles relating to signing at roadworks:

- (a) traffic management;
- (b) setting of speed limits at roadworks;
- (c) temporary delineation;
- (d) contract specification.

Reproduced under Government Printers Authorization No. 11542 dated 7th July 2017