The recommended values will be available. If warning and/or guidance signs are provided on gravel roads, Warrants for warning and guidance signs, and road markings available. The criteria given in the Manual are open to interpretation.

The figures given in brackets represent extended location design criteria. Refer to Volume 1, Chapters 1, 3 and 4 for full details). Class C, D and E road includes a lower class rural road if no appropriate destination name is available.

Consult the nomograms in Volume 1, Chapter 4, for specific values of parameters “D”, “N” and “X” as follows:

\[ D = 1.0; \quad N = 8 \quad (\text{Direction}); \quad X = 8: N = 5 \quad (\text{Tourism}) \]

The use of STREET NAME sign GL1 is acceptable to identify a lower class rural road if no appropriate destination name is available.

Guidance, or vice versa. The recommended values should be used between successive Guidance signs.

Guidance sign design for complex traffic environments should be used when successive signs are Warning and Guidance, or vice versa. The recommended values can be read and understood. The minimum values given may be used when successive signs are Guidance and vice versa. The recommended values should be used between successive Guidance signs.

NOTES:
(1) Refer to Volume 1, Chapters 1, 3 and 4 for fully detailed design criteria.

NOTES:
(1) “Clear Sight Distance” values are made up of the legibility distance PLUS an allowance of 100 m to 120 m for observation of the sign prior to reading.

NOTES:
(2) The figures given in brackets represent extended location positions recommended for advance signs but, as yet, not supported by research.

NOTES:
(2) Distances in brackets should be used on gravel road approaches.

NOTES:
(4) Successive signs must be spaced apart so that each can be read and understood. The minimum values given may be used when successive signs are Warning and Guidance, or vice versa. The recommended values should be used between successive Guidance signs.

NOTES:
(1) The letter sizes given here for guidance signs are for specific values of parameters “D”, “N” and “X” as follows:

\[ D = 1.0; \quad N = 8 \quad (\text{Direction}); \quad X = 8: N = 5 \quad (\text{Tourism}) \]

Consult the nomograms in Volume 1, Chapter 4, for different values and for an explanation of “D”, “N” and “X”.

NOTES:
(2) Guidance sign design for complex traffic environments shall include a review of the letter sizes for adequate reading time (see Volume 1, Chapter 4).

NOTES:
(1) See Tables 10.1 to 10.3, repeated to the right, for basic dimensional criteria. Refer to Volume 1, Chapters 1, 3 and 4 for full design requirements.

NOTES:
(2) Warrants for warning and guidance signs, and road markings are given in the individual subsections of Volume 1, Chapters 2.3 and 7.

NOTES:
(3) If warning and/or guidance signs are provided on gravel roads, the distances given in brackets in Table 10.1 are recommended.

NOTES:
(4) Road markings shown in the figures are nominal (see Chapters 2 and 3 for full details). Class C, D and E roads will commonly be un-surfaced.
Fig 10.17 Road Class E x B Junction

* = Optional Signs
Refer to Figure 10.34
Fig 10.18  
Road Class D x B Junction
Fig 10.19
Road Class C x B Junction
NOTES FOR FIGURE 10.20

1. If it is considered necessary to provide additional information to drivers a GD1 sign may be included on the Class B1 road approach. According to individual road authority policies such a GD1 sign should either replace sign W104, or lie between sign W104 and the junction so that sign GD1 is correctly positioned, and sign W104 is moved further from the junction (the distance on sign IN11.3 must reflect the correct W104 position).
Fig 10.21

Road Class E + E x B Junction

\[ \text{Fig 10.21} \quad \text{Road Class E + E x B Junction} \]
The recommended values given in brackets represent extended location design criteria.

Refer to Volume 1, Chapters 1, 3 and 4 for fully detailed design criteria.

Guidance sign design for complex traffic environments shall include a review of the letter sizes for adequate legibility distance PLUS an allowance of 100 m to 120 m for observation of the sign prior to reading.

Table 10.1: Junction Sign Location Criteria

<table>
<thead>
<tr>
<th>Operating Speed (km/h)</th>
<th>Clear Visibility Distance to Sign (m)</th>
<th>Distance of Single Advance Guidance or Warning Sign from Junction (m)</th>
<th>Recommended Side Length – Warning Sign (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>320</td>
<td>1200</td>
<td>1500</td>
</tr>
<tr>
<td>100</td>
<td>320</td>
<td>1600</td>
<td>1500</td>
</tr>
<tr>
<td>80</td>
<td>240</td>
<td>1600</td>
<td>1200</td>
</tr>
<tr>
<td>60</td>
<td>240</td>
<td>1500</td>
<td>900</td>
</tr>
</tbody>
</table>

NOTES:
1. Refer to Volume 1, Chapters 1, 3 and 4 for full details guides.
2. The figures given in brackets represent extended location design criteria.
3. Successive signs must be spaced apart so that each can be read and understood. The minimum values given may be used when successive signs are Warning and Guidance, or vice versa. The recommended values should be used between successive Guidance signs.

Table 10.2: Sign Clear Sight and Spacing Distances

<table>
<thead>
<tr>
<th>Operating Speed (km/h)</th>
<th>Letter Sizes (mm)</th>
<th>Clear Sight Distance (m)</th>
<th>Spacing Between Signs (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>280/200</td>
<td>260</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>280/200</td>
<td>260</td>
<td>80</td>
</tr>
<tr>
<td>80</td>
<td>210/150</td>
<td>220</td>
<td>60</td>
</tr>
<tr>
<td>60</td>
<td>210/150</td>
<td>220</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>75</td>
</tr>
</tbody>
</table>

NOTES:
1. “Clear Sight Distance” values are made up of the legibility distance PLUS an allowance of 100 m to 120 m for observation of the sign prior to reading.
2. Successive signs must be spaced apart so that each can be read and understood. The minimum values given may be used when successive signs are Warning and Guidance, or vice versa. The recommended values should be used between successive Guidance signs.

Table 10.3: Recommended Letter Sizes – Rural Signs

<table>
<thead>
<tr>
<th>Road</th>
<th>Operating Speed (km/h)</th>
<th>Sign Displacement To Left (X m)</th>
<th>Letter Sizes (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B, C</td>
<td>120</td>
<td>8 (1 lane)</td>
<td>280/200</td>
</tr>
<tr>
<td>B, C, D</td>
<td>100</td>
<td>8 (1 lane)</td>
<td>280/200</td>
</tr>
<tr>
<td>B, C, D</td>
<td>80</td>
<td>8 (1 lane)</td>
<td>210/150</td>
</tr>
</tbody>
</table>

NOTES:
1. The lettering sizes given here for guidance signs are for specific values of parameters “D”, “N” and “X” as follows: D = 1.0; N = 8 (Direction); X = 8; N = 5 (Tourism)
2. Consult the nomograms in Volume 1, Chapter 4, for different values and an explanation of “D”, “N” and “X”.

RURAL JUNCTIONS
Fig 10.22 Road Class D + E x B Junction
Fig 10.23

Road Class D + D x B Junction
Fig 10.24  Road Class C + E x B Junction
Fig 10.25
Road Class C + D x B Junction
Fig 10.26  Road Class C + C x B Junction
Fig 10.27  Road Class E + BI x Bh Junction
Fig 10.28
Road Class D + BI x Bh Junction
NOTES FOR FIGURE 10.29

(1) If it is considered necessary to provide additional information to drivers, a GD1 sign may be included on the Class Bl road approach. According to individual road authority policies such a GD1 sign should either replace sign W104, or lie between sign W104 and the junction so that sign GD1 is correctly positioned, and sign W104 is moved further from the junction (the distance on sign IN11.3 must reflect the correct W104 position).
see Table 10.2 re. distances

W303+IN11.3 or W302+IN11.3

W303 or W302 or R1 or R2

R1 or R2

W103+ IN11.3

+IN11.3

R1 or R2

W103+ IN11.3

+IN11.3

W302+IN11.3

W303+IN11.3

see Table 10.2 re. distances

NOTES FOR FIGURE 10.30

1. If it is considered necessary to provide additional information to drivers, a GD1 sign may be included on the Class Bl road approaches. According to individual road authority policies such a GD1 sign should either replace sign W104, or lie between sign W104 and the junction so that sign GD1 is correctly positioned, and sign W104 is moved further from the junction (the distance on sign IN11.3 must reflect the correct W104 position).
10.3.3 Rare or Non-Standard Junction and/or Signing Applications

1 If two roads which carry significant volumes of traffic, or have been developed to cater for significant future growth in traffic, intersect in a rural environment certain geometric and/or traffic control features, whilst rare on rural roads, become fairly frequent at such junctions. These features include:
   (a) the provision of sliproads or turning roadways;
   (b) the use of 4-WAY STOP control.

2 The fact that the rural roads in question are carrying significant volumes of traffic is, in itself, a reason for using higher than minimum levels of guidance signing. It is also likely, although not invariably so, that the roads are in fact numbered Class B routes. When the types of additional junction features noted above are also present, it is recommended that the highest levels of guidance signing available be specified. Figures 10.31 to 10.33 illustrate typical examples of signing for the type of features discussed.
Fig 10.31  Road Class Bl x Bh Junction (with Sliproad from Bh to Bl)

MAY 2012  SARTSM – VOL 2  RURAL JUNCTIONS

NOTES FOR FIGURE 10.31

(1) If it is considered necessary to provide additional information to drivers, a GD1 sign may be included on the Class Bl road approach. According to individual road authority policies such a GD1 sign should either replace sign W104, or lie between sign W104 and the junction so that sign GD1 is correctly positioned, and sign W104 is moved further from the junction (the distance on sign IN11.3 must reflect the correct W104 position).
Fig 10.32: Road Class Bl x Bh Junction (with Sliproad from Bl to Bh)

(1) When the slip road configuration is such and the island large enough and raised above road level, the GD2 sign on the Class Bl road approach to the intersection may be placed on the island it-
Fig 10.33
Road Class B x B on a Dual Carriageway Road
10.3.4 Street Names at Class E Junctions

1 Where a Class E road joins a higher order road, it is recommended that the Class E road be identified by a road name. The road name is to be displayed as indicated in Figure 10.34 so as to assist in clearly identifying the junction.

2 Standard STREET NAME signs of the GL1 type are to be used. For details of size, letter type, colour and other related details, refer to Volume 1, Chapter 4, Section 4.6.4. The position and height of these signs are detailed in Volume 1, Section 1.6, Fig 1.24.
Fig 10.34

Treatment of Street Names at Class E Road Junctions

NOTES FOR FIGURE 10.34

1. Where Class E roads are named it is desirable to erect the street name sign as shown.

2. Name signs to be mounted as indicated in Volume 1, Chapter 1, Section 1.6, Figure 1.18.
10.3.5 Signing for Minor Destinations and Special Cases

1 In rural areas it is often necessary to provide guidance information related to minor destinations such as:
   (a) schools;
   (b) rural clinics;
   (c) grain silos;
   (d) rural police stations;
   (e) small airfields.

2 When there is no orientational destination at a minor junction these minor types of destination should be displayed on a FINGERBOARD sign GD4. These destinations may alternatively be included in one panel of a GD2 sign if there is no orientational destination to be indicated along the route to be signed (see Figure 10.35). If it is considered necessary to display an orientational destination, AND a minor destination of the type listed, in one direction, both destinations should be displayed in a common GD2 sign panel.

3 The sign or sign panel should include the symbol for the type of destination, the name of the facility and where necessary the distance. The following symbols are applicable:
   (a) rural clinics - GFS B1-3;
   (b) grain silo - the word “Silo” after the name;
   (c) rural police station - GFS B1-3 (tourism sign);
   (d) small airfields - GDS-3;
   (e) shops or general store - GDS-14.

4 A tourism stack destination sign may be included with a GD2 direction stack provided that the tourist destination is the only public destination in the direction indicated. See example in Figure 10.35 and a typical junction situation in Figure 10.36. Since holiday peak tourist traffic could exceed the Class B 300 vpd criterion on occasions, the signing treatment shown is as for a Class B1 minor road. The example in Figure 10.36 could apply at almost any of the intersecting classes of road illustrated in Figures 10.3 to 10.32 - with the exception of B x B junctions.

5 The examples of typical junction signing covered by Figures 10.3 to 10.32 illustrate single junction situations. The general rules on destination display require that one orientational destination be displayed on GD1, GD1/GD2 and GD2 signs for each exit path from the junction, as appropriate. This rule is relaxed in the case of junctions where one of the minor approaches is a Class E road. In such instances, if the junction is a crossroad, the appropriate W101, W102 or W103 advance warning sign must be displayed even if this is in addition to a GD1 sign.

6 Destinations have not been indicated in the various junction figures to make the diagrams more generally applicable. However, Figure 10.37 shows situations involving staggered T junctions. In this case an indication of destinations is included to illustrate the recommended treatment in such cases.
Crossroad
G0S-1 Railway Station Symbol
G02-Typical Examples of Minor Destination G02 Direction Signs

G0S-3 Airfield symbol
G04-Typical Fingerboard G04 Direction Sign

G02/GF3-Combination Stack Sign

Optional distance to Emergency facility
G02 (Advance)
G02 and G03-Typical Rural Minor Tourist Service and Attraction Signs
Fig 10.36  Combination of Minor Destination/Tourism Destination
Notes for Figure 10.37

(1) Figure 10.37 illustrates three typical staggered T-junction situations. Each situation involves one or more numbered Class B routes. The purpose of the figure is to show how route numbers and destination names are recommended to be displayed under different circumstances. Other variations may occur. The treatment of these can be evolved from the examples given in Figure 10.37 by correlation with the appropriate minimum signing standards illustrated in the other figures for the various classes of intersecting road.

(2) The recommended information display treatment varies according to the value of “X” and the classes of road involved. “X” is the distance in metres between the two intersecting side roads. (The principles involved are also appropriate for two closely spaced side roads intersecting from the same side of the main or through road.)

(3) If “X” is greater than 500 m the two junctions should be signed as “isolated” or separate junctions and the information marked ▲ may be omitted. The information displayed would normally be as indicated in the relevant figures for Bl x Bh T-junctions (see Figure 10.20). However, if there is a well-defined traffic movement from one side road to the other, the destination displays given in Details 10.37.1 and 10.37.3 may be worthy of consideration.

(4) If “X” is between 300 m and 500 m signs shown by ▲2 may be retained in addition to the information marked ▲. The information marked ▲ in Detail 10.37.1 shows that there are two overlapping Class B routes between the closely spaced junctions. In Detail 10.37.3 the display is different because the routes do not overlap but the further side road destination still warrants display because of the close spacing of the intersections.

(5) When “X” is under 300 m it is recommended that signs shown by ▲2 be omitted and that the information marked ▲ be retained (see Details 10.37.1 and 10.37.3).

(6) Detail 10.37.2 shows a lower order situation requiring fewer signs. It is, however, recommended that on the GD2 signs facing side road traffic the destination for the other closely spaced side road be displayed.

(7) In Detail 10.37.3 signs marked ▲3, which are optional for “X” between 300 m and 500 m, have been omitted for clarity.

(8) MAP type signs GD8 may be used in place of signs W109/W110.
SIGNING FOR HEAVY VEHICLES

SECTIONS

11.0 Contents
11.1 Introduction
11.2 Range of Applicable Signs and Markings
11.3 Heavy Vehicle Signing Applications

MAY 2012
### SOUTH AFRICAN ROAD TRAFFIC SIGNS MANUAL

**Volume 2 Chapter 11**

<table>
<thead>
<tr>
<th>ISBN</th>
<th>STATUS</th>
<th>DOT FILE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Digitised Version</td>
<td>000/0/0/0</td>
<td>Digitised May 2012</td>
</tr>
</tbody>
</table>

**DIGITISING 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

**ORIGNAL AUTHOR**

J J A Prinsloo

**PUBLISHER ENQUIRIES**

Director-General: Transport
Department of Transport
Infrastructure Network Management
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**

<table>
<thead>
<tr>
<th>VOLUME SET</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 6</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 7</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 8</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 9</td>
<td>R</td>
</tr>
<tr>
<td>Chapter 10</td>
<td>R</td>
</tr>
</tbody>
</table>
## CHAPTER 11:
SIGNING FOR HEAVY VEHICLES

### CONTENTS

#### 11.0.1 Sections and Subsections

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0</td>
<td>CONTENTS</td>
<td>11.0.1</td>
</tr>
<tr>
<td>11.0.1</td>
<td>Sections and Subsections</td>
<td>11.0.1</td>
</tr>
<tr>
<td>11.0.2</td>
<td>Figures</td>
<td>11.0.1</td>
</tr>
<tr>
<td>11.0.3</td>
<td>Tables</td>
<td>11.0.2</td>
</tr>
<tr>
<td>11.1</td>
<td>INTRODUCTION</td>
<td>11.1.1</td>
</tr>
<tr>
<td>11.1.1</td>
<td>General</td>
<td>11.1.1</td>
</tr>
<tr>
<td>11.1.2</td>
<td>Summary of Typical Heavy Vehicle Problem Areas</td>
<td>11.1.1</td>
</tr>
<tr>
<td>11.1.3</td>
<td>Terminology</td>
<td>11.1.1</td>
</tr>
<tr>
<td>11.1.4</td>
<td>Road Traffic Sign Colour Indication</td>
<td>11.1.2</td>
</tr>
<tr>
<td>11.2</td>
<td>RANGE OF APPLICABLE SIGNS AND SYMBOLS</td>
<td>11.2.1</td>
</tr>
<tr>
<td>11.2.1</td>
<td>General</td>
<td>11.2.1</td>
</tr>
<tr>
<td>11.2.2</td>
<td>Basic Symbols</td>
<td>11.2.1</td>
</tr>
<tr>
<td>11.2.3</td>
<td>Regulatory Signs</td>
<td>11.2.2</td>
</tr>
<tr>
<td>11.2.4</td>
<td>Warning Signs</td>
<td>11.2.2</td>
</tr>
<tr>
<td>11.2.5</td>
<td>Guidance Signs</td>
<td>11.2.2</td>
</tr>
<tr>
<td>11.2.6</td>
<td>Combination Signs</td>
<td>11.2.8</td>
</tr>
<tr>
<td>11.2.7</td>
<td>Relative Placement of Signs at Road Junctions</td>
<td>11.2.10</td>
</tr>
<tr>
<td>11.3</td>
<td>FREEWAY SIGNING APPLICATIONS</td>
<td>11.3.1</td>
</tr>
<tr>
<td>11.3.1</td>
<td>General</td>
<td>11.3.1</td>
</tr>
<tr>
<td>11.3.2</td>
<td>Required Information Display for Access Interchanges</td>
<td>11.3.1</td>
</tr>
<tr>
<td>11.3.3</td>
<td>Required Information Display for Systems Interchanges</td>
<td>11.3.4</td>
</tr>
<tr>
<td>11.3.4</td>
<td>Basic Requirements for Freeway Direction Sign Sequences</td>
<td>11.3.6</td>
</tr>
<tr>
<td>11.3.5</td>
<td>Details of Freeway Direction Sign Sequences</td>
<td>11.3.11</td>
</tr>
<tr>
<td>11.3.6</td>
<td>Signing Requirement at Merges - Directional Systems Interchange – Fully Directional</td>
<td>11.3.15</td>
</tr>
<tr>
<td>11.3.7</td>
<td>Crossing Road Name Signing in Urban Areas</td>
<td>11.3.20</td>
</tr>
<tr>
<td>11.3.8</td>
<td>Emergency Vehicle Signing for Median Crossovers</td>
<td>11.3.25</td>
</tr>
</tbody>
</table>

#### 11.0.2 Figures

<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Title</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig 11.1</td>
<td>Applicable Symbols</td>
<td>11.2.3</td>
</tr>
<tr>
<td>Fig 11.2</td>
<td>Applicable Regulatory Signs</td>
<td>11.2.5</td>
</tr>
<tr>
<td>Fig 11.3</td>
<td>Applicable Warning Signs</td>
<td>11.2.6</td>
</tr>
<tr>
<td>Fig 11.4</td>
<td>Applicable Diagrammatic Type Guidance Signs</td>
<td>11.2.7</td>
</tr>
<tr>
<td>Fig 11.5</td>
<td>Examples of Typical Sign Combinations</td>
<td>11.2.9</td>
</tr>
<tr>
<td>Fig 11.6</td>
<td>Heavy Vehicle Routing Based on Vehicle Characteristics - Rural</td>
<td>11.3.2</td>
</tr>
<tr>
<td>Fig 11.7</td>
<td>Heavy Vehicle Routing Based on Vehicle Characteristics - Urban</td>
<td>11.3.3</td>
</tr>
<tr>
<td>Fig 11.8</td>
<td>Heavy Vehicle Routing Based on Vehicle and/or Freight Classification</td>
<td>11.3.5</td>
</tr>
<tr>
<td>Fig 11.9</td>
<td>Heavy Vehicle Prohibition at a Freeway Offramp – Ground Mounted Sign Sequence</td>
<td>11.3.7</td>
</tr>
<tr>
<td>Fig 11.10</td>
<td>Heavy Vehicle Prohibition at a Freeway Offramp – Overhead Signs: Upward Pointing Arrows</td>
<td>11.3.8</td>
</tr>
<tr>
<td>Fig 11.11</td>
<td>Heavy Vehicle Prohibition at a Freeway Offramp – Overhead Signs: Downward Pointing Arrows</td>
<td>11.3.9</td>
</tr>
<tr>
<td>Fig 11.12</td>
<td>Local Details of Heavy Vehicle Prohibitions</td>
<td>11.3.10</td>
</tr>
<tr>
<td>Fig 11.13</td>
<td>Lane Use Control on Multi-Lane Undivided Roads – Ground Mounted Signs</td>
<td>11.3.12</td>
</tr>
<tr>
<td>Fig 11.14</td>
<td>Lane Use Control on Freeways and Divided Multi-Lane Roads - -- Ground Mounted Signs</td>
<td>11.3.13</td>
</tr>
</tbody>
</table>
Figure No.   Title                                                                                                  Page No.
Fig 11.15   Lane Use Control on Freeways – Overhead Signs                                                      11.3.14
Fig 11.16   Steep Downgrades – Two Lane/Two-way Roads                                                      11.3.16
Fig 11.17   Steep Downgrades – Freeway and Multi-Lane Divided Roads                                          11.3.17
Fig 11.18   Compulsory Stopping Area in Advance of Steep Downgrade – Ground Mounted Signs                  11.3.18
Fig 11.19   Compulsory Stopping Area in Advance of Steep Downgrade – Overhead Signs                        11.3.19
Fig 11.20   Signing for Arrestor Bed - Ground Mounted Signs                                                11.3.21
Fig 11.21   Signing for Arrestor Bed - Overhead Signs                                                      11.3.22
Fig 11.22   Arrestor Bed Road Markings                                                                     11.3.23
Fig 11.23   Escape Road Markings                                                                          11.3.24
Fig 11.24   Mass measuring Station                                                                       11.3.26
Fig 11.25   Example of Signing for Heavy Vehicle Routing Through an Urban Area                              11.3.27

11.0.3  Tables

Table No.   Title                                                                                                  Page No.
Table 11.1  Applicable Regulatory Signs                                                                       11.2.4
Table 11.2  Applicable Warning Signs                                                                          11.2.6
Table 11.3  Applicable Guidance Signs                                                                        11.2.7
Table 11.4  Advance Warning Sign Location and Size                                                           11.2.10
Table 11.5  Spacing Between Consecutive Signs                                                                11.2.10
CHAPTER 11:
SIGNING FOR HEAVY VEHICLES

11.1 INTRODUCTION

11.1.1 General

1 The purpose of this chapter is to provide guidelines on, and illustrate how, under various circumstances, specific signing related to heavy vehicles and abnormal vehicles should be provided.

2 This chapter should be read in conjunction with various chapters of Volume 1, "Uniform Traffic Control Devices", which deal with signing policies and design principles, together with specific information in the meaning of, and individual application of, all traffic control devices. Specifically the following should be referred to:
   (a) Chapter 2 - Regulatory Signs;
   (b) Chapter 3 - Warning Signs;
   (c) Chapter 4 - Guidance Signs;
   (d) Chapter 7 - Road Markings.

3 Numerous supplementary aspects relating to the application of these various road signs are dealt with in Volume 2, and the following chapters should be referred to:
   (a) Chapter 2 - Road Marking Applications;
   (b) Chapter 3 - Regulatory and Warning Sign Applications;
   (c) Chapter 5 - Freeway Signing.

11.1.2 Summary of Typical Heavy Vehicle Problem Areas

1 Heavy and abnormal vehicles create numerous problems and are subject to limitations due to their size, mass, freight and/or operational characteristics. These problems must be addressed in order to provide safe and efficient traffic operation, and inter alia, specific signing to assist heavy vehicle drivers should be provided.

2 The typical problem areas are:
   (a) steep down-grades;
   (b) steep up-grades;
   (c) routes, particularly in urban areas where the presence of heavy vehicles creates or increases congestion problems;
   (d) routes with physical limitations which do not allow for passage of vehicles with certain characteristics;
   (e) routes with environmental limitations along which passage of certain freight is undesirable or along which noise, vibration or air pollution limits are required;
   (f) delivery sites where there is inadequate off-street parking for the delivery vehicles.

3 Signing measures to address the problems related to steep down-grades shall include:
   (a) adequate warning of the down-grade and, where necessary, details of the down-grade inclusive of slope, bends and distance;
   (b) enforcement of measures to be taken such as engaging of low gear and speed restrictions;
   (c) adequate advance warning of arrestor beds and escape lanes;
   (d) lane use control.

4 Signing measures to address steep up-grade problems include:
   (a) adequate warning of the up-grade;
   (b) lane use control.

5 Signing measures to address routing problems include:
   (a) indication of mandatory routing;
   (b) prohibition of use of certain routes.

6 In all situations the agreed signing for heavy vehicles should be provided an adequate distance before the beginning of the condition requiring special signing.

11.1.3 Terminology

1 The term "heavy vehicle" is used throughout this chapter. The term does not, however, have specific legal significance with regard to road traffic signs. It refers generally to vehicles over 3500 kg gross vehicle mass (GVM) or gross combination mass (GCM).

2 For signing purposes the term "heavy vehicles" commonly applies to vehicles over a specified GVM or GCM which is considered "heavy" in the environment to which it is related, and is therefore somewhat subjective.

3 "Heavy vehicles" over 10 tonnes GVM or GCM refers to all such vehicles, including any buses, tractors, construction vehicles etc. To sign such a collective group of vehicles would require the use of signs such as R102 or R202. If it is required to sign only for a single class of vehicle, such as goods heavy vehicles, signs such as R123 to R127 and R229 to R233 are appropriate (see Section 11.2).

4 It should be noted that "command" regulatory signs such as R102 and R123 to R127 have two functions. The one is to "command" that, in the context of heavy vehicles, a specific class of vehicle proceeds only in a particular lane or a part of a roadway. The other "command" function is to reserve that lane or part of a roadway for the indicated class of vehicle only, therefore, no other class of vehicle shall use such a portion of the roadway.
11.1.2 Road Traffic Sign Colour Indication

1. The chapters of Volume 2 of the South African Road Traffic Signs Manual (SARTSM) are not prepared in colour. Relevant examples used to illustrate appropriate signs, signals and markings are shaded in a black and white coding which is illustrated below.

2. The basic principles of the road traffic sign colour coding system are shown, in colour, in the SADC-RTSM Volume 1, Chapter 1, Section 1.4, and in the Contents sections of relevant Volume 1 and 4 Chapters.
11.2 RANGE OF APPLICABLE SIGNS AND MARKINGS

11.2.1 General

1. This section provides firstly an indication of the symbols related to heavy vehicle regulation, and then relates these to the specific signs used for this purpose. It also indicates the range of signs and markings necessary for adequate control and guidance of heavy vehicles.

11.2.2 Basic Symbols

1. There are a number of basic symbols which are used in various signs, and as road markings for regulating heavy and abnormal vehicles. The symbols which are illustrated in Figure 11.1 relate to aspects such as:
   (a) indication of type or class of vehicle;
   (b) controlling physical characteristics of vehicles such as mass, width, length and height which may restrict the use of a particular route or facility;
   (c) specification of specific action such as engaging a lower gear;
   (d) demarcation of a specific feature such as an arrestor bed.

2. These symbols are used in regulatory, warning and guidance signs.
11.2.3 Regulatory Signs

1 The range of regulatory signs applicable specifically to heavy and abnormal vehicles is given in Table 11.1 and illustrated in Figure 11.2.

2 The details of the warrants for, and the placement requirements of, individual signs, are provided in the respective sub-sections of Volume 1, Chapter 2 while their application is dealt with in Section 11.3. General applications of regulatory signs are also covered in Volume 2, Chapter 3.

3 The specific size and colour of regulatory signs is dealt with in Volume 1, Chapter 1, Section 1.4 and Chapter 2, Section 2.0.

11.2.4 Warning Signs

1 The range of warning signs applicable specifically to heavy and abnormal vehicles is given in Table 11.2 and illustrated in Figure 11.3.

2 The details of the warrants for, and the placement requirements of, individual signs are dealt with in detail in Volume 1, Chapter 1, Section 1.6 and Chapter 3, and their application is dealt with in Section 11.3. General applications of warning signs are also covered in Volume 2, Chapter 3.

3 The shape, size and colour of the warning signs is dealt with in Volume 1, Chapter 1, Section 1.4 and Chapter 3, Section 3.1.

11.2.5 Guidance Signs

1 The guidance signs which are primarily related to heavy vehicle application are those of the diagrammatic type and these are listed in Table 11.3 and illustrated in Figure 11.4.

2 The details of the warrants for, and the placement requirements of, individual diagrammatic signs, are dealt with in detail in Volume 1, Chapter 1, Section 1.6 and Chapter 4, Section 4.12. Their shape, size and colour are also dealt with in Section 4.12.

3 When it is required to create a preferred route for heavy vehicles, or even a route prohibition, it may become necessary to provide versions of MAP-TYPE DIRECTION sign GD9. These signs may include appropriate command and/or prohibition signs and/or vehicle class symbols. An example of such signing is illustrated in Figure 11.24.
<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
<th>USED ON CLASS OF SIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>![t]</td>
<td>MASS LIMIT (tonnes)</td>
<td>Regulatory</td>
</tr>
<tr>
<td>![&lt;]</td>
<td>HEIGHT LIMIT (m) (2 decimal places)</td>
<td>Regulatory/Warning</td>
</tr>
<tr>
<td>![&gt;]</td>
<td>DIMENSION LIMIT (m) (Width -1 decimal places Length -to nearest metre)</td>
<td>Regulatory/Warning</td>
</tr>
<tr>
<td>![&lt;-]</td>
<td>AXLE MASS LOAD LIMIT (tonnes)</td>
<td>Regulatory</td>
</tr>
<tr>
<td>![truck]</td>
<td>GOODS VEHICLES</td>
<td>Regulatory</td>
</tr>
<tr>
<td>![truck]</td>
<td>DELIVERY VEHICLES</td>
<td>Regulatory</td>
</tr>
<tr>
<td>![truck]</td>
<td>GOODS VEHICLES OVER A SPECIFIED GROSS VEHICLE MASS (GVM) (<em>X</em> tonnes)</td>
<td>Regulatory</td>
</tr>
<tr>
<td>![av]</td>
<td>ABNORMAL VEHICLES</td>
<td>Regulatory</td>
</tr>
<tr>
<td>![truck]</td>
<td>CONSTRUCTION VEHICLES</td>
<td>Regulatory/Warning</td>
</tr>
<tr>
<td>![truck]</td>
<td>VEHICLES CONVEYING DANGEROUS GOODS</td>
<td>Regulatory</td>
</tr>
<tr>
<td>![truck]</td>
<td>AGRICULTURAL VEHICLES</td>
<td>Regulatory/Warning</td>
</tr>
<tr>
<td>![arrow]</td>
<td>CHANGE TO LOWER GEAR</td>
<td>Guidance</td>
</tr>
<tr>
<td>![arrestor_bed]</td>
<td>ARRESTER BED</td>
<td>Guidance</td>
</tr>
</tbody>
</table>

Fig 11.1 Applicable Symbols
<table>
<thead>
<tr>
<th>Sign Category Description</th>
<th>Sign Number</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Volume 1</td>
</tr>
<tr>
<td><strong>COMMAND SIGNS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicles exceeding mass only</td>
<td>R102</td>
<td>2.3.2</td>
</tr>
<tr>
<td>Delivery vehicles only</td>
<td>R122</td>
<td>2.3.11</td>
</tr>
<tr>
<td>Goods vehicles only</td>
<td>R123</td>
<td>2.3.11</td>
</tr>
<tr>
<td>Goods vehicles over indicated GVM only</td>
<td>R124</td>
<td>2.3.12</td>
</tr>
<tr>
<td>Construction vehicles only</td>
<td>R125</td>
<td>2.3.12</td>
</tr>
<tr>
<td>Vehicles conveying dangerous goods only</td>
<td>R126</td>
<td>2.3.12</td>
</tr>
<tr>
<td>Abnormal vehicles only</td>
<td>R127</td>
<td>2.3.12</td>
</tr>
<tr>
<td>Agricultural vehicles only</td>
<td>R130</td>
<td>2.3.13</td>
</tr>
<tr>
<td><strong>PROHIBITION SIGNS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass limit</td>
<td>R202</td>
<td>2.4.2</td>
</tr>
<tr>
<td>Axle massload limit</td>
<td>R203</td>
<td>2.4.3</td>
</tr>
<tr>
<td>Height limit</td>
<td>R204</td>
<td>2.4.4</td>
</tr>
<tr>
<td>Length limit</td>
<td>R205</td>
<td>2.4.5</td>
</tr>
<tr>
<td>No overtaking goods vehicles by goods vehicles</td>
<td>R215</td>
<td>2.4.10</td>
</tr>
<tr>
<td>No delivery vehicles</td>
<td>R228</td>
<td>2.4.18</td>
</tr>
<tr>
<td>No goods vehicles</td>
<td>R229</td>
<td>2.4.18</td>
</tr>
<tr>
<td>No goods vehicles over indicated GVM</td>
<td>R230</td>
<td>2.4.19</td>
</tr>
<tr>
<td>No construction vehicles</td>
<td>R231</td>
<td>2.4.19</td>
</tr>
<tr>
<td>No vehicles conveying dangerous goods</td>
<td>R232</td>
<td>2.4.19</td>
</tr>
<tr>
<td>No abnormal vehicles</td>
<td>R233</td>
<td>2.4.19</td>
</tr>
<tr>
<td>No agricultural vehicles</td>
<td>R236</td>
<td>2.4.20</td>
</tr>
<tr>
<td>Width limit</td>
<td>R239</td>
<td>2.4.21</td>
</tr>
<tr>
<td><strong>RESERVATION SIGNS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivery vehicle reservation</td>
<td>R312</td>
<td>2.5.7</td>
</tr>
<tr>
<td>Delivery vehicle parking reservation</td>
<td>R312-P</td>
<td>2.5.7</td>
</tr>
<tr>
<td>Goods vehicle reservation</td>
<td>R313</td>
<td>2.5.7</td>
</tr>
<tr>
<td>Goods vehicle parking reservation</td>
<td>R313-P</td>
<td>2.5.7</td>
</tr>
<tr>
<td>Goods vehicles over indicated GVM reservation</td>
<td>R314</td>
<td>2.5.8</td>
</tr>
<tr>
<td>Goods vehicles over indicated GVM parking reservation</td>
<td>R314-P</td>
<td>2.5.8</td>
</tr>
<tr>
<td>Construction vehicles reservation</td>
<td>R315</td>
<td>2.5.8</td>
</tr>
<tr>
<td>Construction vehicles parking reservation</td>
<td>R315-P</td>
<td>2.5.8</td>
</tr>
<tr>
<td>Vehicles conveying dangerous goods reservation</td>
<td>R316</td>
<td>2.5.8</td>
</tr>
<tr>
<td>Vehicles conveying dangerous goods parking reservation</td>
<td>R316-P</td>
<td>2.5.8</td>
</tr>
<tr>
<td>Abnormal vehicles reservation</td>
<td>R317</td>
<td>2.5.8</td>
</tr>
<tr>
<td>Abnormal vehicles parking reservation</td>
<td>R317-P</td>
<td>2.5.8</td>
</tr>
</tbody>
</table>
Fig 11.2  Applicable Regulatory Signs
**TABLE 11.2**  
**APPLICABLE WARNING SIGNS**

<table>
<thead>
<tr>
<th>Sign Category Description</th>
<th>Sign Number</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Volume 1</td>
</tr>
<tr>
<td>Height restricted</td>
<td>W320</td>
<td>3.4.8</td>
</tr>
<tr>
<td>Length restricted</td>
<td>W321</td>
<td>3.4.9</td>
</tr>
<tr>
<td>Steep descent</td>
<td>W322</td>
<td>3.4.10</td>
</tr>
<tr>
<td>Steep ascent</td>
<td>W323</td>
<td>3.4.10</td>
</tr>
<tr>
<td>Slow moving heavy vehicles</td>
<td>W324</td>
<td>3.4.11</td>
</tr>
<tr>
<td>Construction vehicles crossing/left</td>
<td>W344</td>
<td>3.4.20</td>
</tr>
<tr>
<td>Construction vehicles crossing/right</td>
<td>W345</td>
<td>3.4.20</td>
</tr>
<tr>
<td>Agricultural vehicles</td>
<td>W352</td>
<td>3.4.24</td>
</tr>
<tr>
<td>Width restricted</td>
<td>W360</td>
<td>3.4.26</td>
</tr>
</tbody>
</table>

**Fig 11.3**  
**Applicable Warning Signs**
TABLE 11.3

<table>
<thead>
<tr>
<th>Sign Category Description</th>
<th>Sign Number</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIAGRAMMATIC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrestor bed pre-advance exit</td>
<td>GS501</td>
<td>4.12.24</td>
</tr>
<tr>
<td>Arrestor bed advance exit</td>
<td>GS502</td>
<td>4.12.24</td>
</tr>
<tr>
<td>Arrestor bed exit</td>
<td>GS503</td>
<td>4.12.24</td>
</tr>
<tr>
<td>Arrestor bed gore exit</td>
<td>GS504</td>
<td>4.12.24</td>
</tr>
<tr>
<td>Low gear engagement</td>
<td>GS505</td>
<td>4.12.24</td>
</tr>
<tr>
<td>Overhead: arrestor bed advance exit</td>
<td>GS601</td>
<td>4.12.26</td>
</tr>
<tr>
<td>Overhead: arrestor bed exit</td>
<td>GS602</td>
<td>4.12.26</td>
</tr>
<tr>
<td>Overhead: lane use control (command)</td>
<td>GS603</td>
<td>4.12.26</td>
</tr>
<tr>
<td>Overhead: lane use control (prohibition)</td>
<td>GS604</td>
<td>4.12.26</td>
</tr>
<tr>
<td>Overhead: lane use control – with distance (command)</td>
<td>GS605</td>
<td>4.12.26</td>
</tr>
<tr>
<td>Overhead: lane use control – with distance (prohibition)</td>
<td>GS606</td>
<td>4.12.26</td>
</tr>
<tr>
<td>Overhead: arrestor bed pre-advance exit sign</td>
<td>GS6501</td>
<td>4.12.28</td>
</tr>
<tr>
<td><strong>DIRECTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Map-type direction</td>
<td>GD9</td>
<td>4.8.17</td>
</tr>
</tbody>
</table>
11.2.6 Combination Signs

There are numerous combinations of signs which relate to the regulation of heavy and abnormal vehicles, a few examples of which are given in Figure 11.5.

There are four relevant types of sign combination:

(a) regulatory selective restriction combining primary and secondary messages (these messages are classified into LIMIT, ACTION, OBJECT messages in combination) - selective restriction signs may also be combined with an information class SUPPLEMENTARY PLATE sign IN11 (see Details 11.5.1 and 11.5.4);

(b) guidance/regulatory signs in combination in one of two forms:
   (i) a regulatory sign placed on the face of a DIRECTION sign (such applications are not common except for toll routes and will usually require a specifically designed sign) (see Detail 11.5.2);
   (ii) one or more regulatory signs placed on a DIAGRAMMATIC sign (see Detail 11.5.3);

(c) advance warning/information sign combinations involving one or more information SUPPLEMENTARY PLATE signs IN11 (see Detail 11.5.5);

(d) regulatory and/or warning signs on high visibility backgrounds - with or without information signs (see Detail 11.5.5).

2 LIMIT-LIMIT type of SELECTIVE RESTRICTION regulatory signs comprise primary and secondary message signs both of which relate to limits of one type or another. The addition of the secondary limit message to the primary limit message qualifies the applicability of the primary limit (see Volume 1, Chapter 2, Subsection 2.7.15). Typical examples are:

(a) a PROHIBITION sign indicating that vehicles exceeding a MASS LIMIT of 5 tonnes shall not proceed beyond the sign within the TIME LIMIT of 18:00 to 08:00 - see Detail 11.5.1;

(b) a PROHIBITION sign indicating a SPEED LIMIT of 40 km/h for all vehicles with a GVM exceeding a MASS LIMIT of 10 tonnes - see Detail 11.5.1.

3 LIMIT-OBJECT type of SELECTIVE RESTRICTION regulatory signs comprise primary message signs relating to limits, the applicability of which are qualified by secondary message signs relating to an object being regulated, (see Volume 1, Chapter 2, Subsection 2.7.16). A typical example is:

(a) a COMMAND sign indicating a MINIMUM SPEED of 30 km/h applies to all GOODS VEHICLES - see Detail 11.5.1.

4 ACTION-LIMIT types of SELECTIVE RESTRICTION regulatory signs comprise primary message signs relating to actions, which include movements or turns, the applicability of which are qualified by secondary message signs relating to a limit (see Volume 1, Chapter 2, Subsection 2.7.17). A typical example is:

(a) a COMMAND sign indicating a mandatory requirement to PROCEED STRAIGHT ON ONLY applying only to GOODS VEHICLES of the GVM or GCM MASS INDICATED (on the symbol) - see Detail 11.5.1.

5 ACTION-OBJECT types of SELECTIVE RESTRICTION regulatory signs comprise primary message signs relating to actions, which include movements or turns, the applicability of which are qualified by secondary message signs relating to an object being regulated, (see Volume 1, Chapter 2, Subsection 2.7.18). Typical examples are:

(a) a COMMAND sign indicating the mandatory requirement to TURN LEFT ahead, applying to DELIVERY VEHICLES only - see Detail 11.5.1;

(b) a PROHIBITION sign indicating that a prohibition exists on the OVERTAKING of GOODS VEHICLES by VEHICLES CONVEYING HAZARDOUS SUBSTANCES - see Detail 11.5.1.

6 OBJECT-LIMIT types of SELECTIVE RESTRICTION regulatory signs comprise primary message signs relating to objects, the applicability of which are qualified by secondary message signs relating to a limit. Applications of this type of SELECTIVE RESTRICTION SIGN should be restricted to secondary message TIME LIMITS. Speed or mass limits should not be used, (see Volume 1, Chapter 2, Subsection 2.7.19). A typical example is:

(a) a TEMPORARY RESERVATION sign indicates a TEMPORARY reservation on the use of a roadway or area by CONSTRUCTION VEHICLES within the TIME LIMIT 06:30 to 22:00 - see Detail 11.5.1.

7 A LIMIT-OBJECT type of SELECTIVE RESTRICTION sign (see paragraph 11.2.6.3) which may be particularly relevant in urban areas relates to a parking restriction specific to a class of heavy vehicle. A typical example is:

(a) a (TIME) LIMITED PARKING RESERVATION sign indicating a maximum stay limit of 120 minutes for DELIVERY VEHICLES - see Detail 11.5.1.

8 These types of combination selective restriction regulatory signs may also include a supplementary information plate as indicated in Detail 11.5.4.

9 Prior advice of a limiting factor which may affect heavy vehicles at some point on the road ahead should be given well in advance of the limiting point as indicated in Detail 11.5.4. In this example, early indication is given of a height restriction ahead enabling the affected vehicles to take an alternative route.

10 Various heavy vehicle and abnormal vehicle related advance warning signs may be used in combination as indicated in the following examples:

(a) a steep down-grade sign (W323) combined with an information sign (IN11.2) indicating the length of the down-grade - see Detail 11.5.5;

(b) the combination of the steep down-grade sign (W322) with a warning of a winding road ahead sign (W209) on a high visibility background and an indication of the length of the down-grade (IN11.2 information sign) is shown in Detail 11.5.5;

(c) various combinations of warning of a steep down-grade or compulsory stop on a high visibility background with details of the nature of the downgrade, and including the option of flashing warning lights, are illustrated in Detail 11.5.5.
**Signs and Markings**

11.2.9

**Fig 11.5** Examples of Typical Sign Combinations

- **R101-598** Minimum Speed - Goods Vehicles
- **R107-569** Proceed Straight On Only Goods Vehicles Over 6MW or 6CD Indicated
- **R108-567** Turn Left Ahead - Delivery Vehicles
- **R201-532** Speed Limit - Mass Limit (GW or CDW)

Inclusion of regulatory sign messages in diagrammatic sign backgrounds to give lane specific prohibition.

- **R202-501** Mass Limit IDYN or CDW-Time Limit
- **R215-571** No Overtaking Goods Vehicles By Vehicles Conveying Dangerous Goods

**Diagrammatic/Regulatory/Information Sign Combinations**

Sign indicates a prohibition on goods vehicles leaving the freeway at the exit lane ahead. R202 signs must be located on the Howick Road off ramp to effect the prohibition. This application is not appropriate for COMMAND signs unless the exit is for the indicated class of vehicles only. Application could be used with temporary prohibition signs such as TR29 if required.

**Guidance Sign/Regulatory Combination - Includes a Distance**

- **R108-569 + TIN1.1.3** For 5 km
- **R310-411** For 8 km
- **K322+IN1.2** For 1.5 km
- **K322+IN1.3**

**Examples show progressive options for increasing sign target value using high visibility backgrounds and/or flashing yellow lights**

- **Geometric Road Dimension in 4 km**
- **R204 + IN1.1.4**
- **200 m**
- **4.42 m**

**Advance Warning/Information Sign Combinations - Incl. High Visibility Applications**

- **TR108-569 + TIN1.1.3**
- **SAIT...**

**Fig 11.5** Examples of Typical Sign Combinations

**Detail 11.5.2**

**Detail 11.5.4**

**Detail 11.5.5**

- **Detail 11.5.1**
- **Detail 11.5.3**
- **Detail 11.5.5**
11.2.7 Relative Placement of Signs at Road Junctions

1 At road junctions numerous signs in addition to the heavy vehicle related signs have to be accommodated, namely:
   (a) regulatory signs such as stop and yield signs;
   (b) advance warning and hazard marker signs;
   (c) direction signs;
   (d) tourism and/or local direction signs.

2 The basic requirement for the placement of signs is dealt with in the following chapters/sections of the Manual:
   (a) regulatory signs - Volume 1, Chapter 2 and Volume 2, Chapter 3;
   (b) warning signs - Volume 1, Chapter 3 and Volume 2, Chapter 3;
   (c) direction signs - Volume 1, Chapter 4, Section 4.8 (see specifically Figures 4.56, 4.57 and 4.58);
   (d) tourism signs - Volume 1, Chapter 4, Section 4.10 and Volume 2, Chapter 4;
   (e) local direction signs - Volume 1, Chapter 4, Section 4.11 and Volume 2, Chapter 9.

3 The distance which an advance warning sign must be placed ahead of the hazard, and its size, are dependent on the operating speed of the road, as indicated in Table 11.4.

4 In all cases of signing where several sign types are required close to each other, as on the immediate approach to a junction, priority should be given firstly to the regulatory signs, then the warning signs, the direction signs and finally the tourism signs. Signing for heavy vehicle control on the approach to an intersection is likely to require signs in addition to a standard sequence of signs. Care must be exercised regarding the proximity of one sign to another. In addition sign spacings must always be adjusted to take account of the total sign display and the road geometry, both horizontal and vertical (see Volume 1, Section 1.6). Guidelines for sign spacing are given in Table 11.5.

### Table 11.4: Advance Warning Sign Location and Size

<table>
<thead>
<tr>
<th>Operating Speed (km/h)</th>
<th>Location Distance from Hazard (m)</th>
<th>Recommended Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>330 (400)</td>
<td>1500</td>
</tr>
<tr>
<td>100</td>
<td>240 (320)</td>
<td>1500</td>
</tr>
<tr>
<td>80</td>
<td>160 (220)</td>
<td>1200</td>
</tr>
<tr>
<td>60</td>
<td>120 (160)</td>
<td>900</td>
</tr>
</tbody>
</table>

**Note:**
(1) Figures in brackets represent extended location positions for advance signs.

### Table 11.5: Spacing Between Consecutive Signs

<table>
<thead>
<tr>
<th>Operating Speed (km/h)</th>
<th>Minimum Separation (m)</th>
<th>Preferred Separation (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freeway</td>
<td>Other Roads</td>
</tr>
<tr>
<td>120</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>80</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td>60</td>
<td>n/a</td>
<td>50</td>
</tr>
</tbody>
</table>

**Note:**
(1) Separations indicated apply between any two consecutive signs irrespective of class.
(2) Legibility of text must also be taken into account when deciding which sign should come first of a closely separated pair of signs.
(3) The sign sequences in this chapter should not be erected without due attention to sign spacing – there is no point in putting up signs that cannot be seen.
(4) If a section of road is "busy" in terms of driver workload preferred sign separations, or better, should be specified.
11.3 HEAVY VEHICLE SIGNING APPLICATIONS

11.3.1 General

1 The problem areas identified in Subsection 11.1.2 of this chapter are looked at in detail in this section and the signing requirements for the following situations are addressed:

(a) heavy vehicle routing based on vehicle physical characteristics for rural and urban situations;
(b) heavy vehicle routing based on vehicle or freight classification;
(c) prohibition of vehicles on certain routes;
(d) lane control in relation to steep up-grades;
(e) lane control in relation to down-grades, inclusive of mandatory stopping points;
(f) requirements at arrestor beds;
(g) requirements at mass measuring stations.

2 In the following sections the figures detailing the signing requirements focus specifically on the heavy vehicle/abnormal vehicle aspects, but where necessary other signing is indicated although not detailed.

11.3.2 Routing Based on Vehicle Characteristics

1 Under various limiting circumstances it will be necessary to divert heavy or abnormal vehicles from a route which has certain physical restrictions and will thus not permit passage of certain vehicles. Thus drivers of vehicles which exceed a specified mass, height, width or length must be provided with clear signing as to what alternatives are open to them.

2 Principles which should be borne in mind are:

(a) positive guidance for such vehicles must be given to the alternative route(s), that is, there must not merely be a prohibition of a specific route but the alternative(s) must be clearly and continuously signed until the original route can be joined again; where appropriate a MAP TYPE ADVANCE DIRECTION sign GD9 indicating the extent of the detour should be considered (see Figure 11.24);
(b) adequate warning of a restriction ahead must be given.

3 The signing requirements for routing heavy vehicles are given in Figure 11.6 for rural application and in Figure 11.7 for urban application. The examples indicate a requirement for all goods vehicles over 10 tonnes to follow the route indicated. The instruction could also be based on the height restriction, width restriction, length restriction or axle mass restriction. Other routing specifications may be used where appropriate and as shown in the respective figures. The route to be taken by heavy vehicles is shaded in the figures for additional emphasis.

4 Mandatory command signs such as R108-569 or R109-569 must be used with care. The primary regulatory message used in selective restriction signs of this sort must be chosen so as to achieve the intended purpose. As a general rule the use of an ACTION-OBJECT selective restriction combination is recommended. The use of a primary OBJECT message is NOT recommended unless the route is exclusively for the class of vehicles concerned (see paragraphs 11.3.4).
Notes for Figure 11.6

(1) Other routing specifications may be used in place of the "goods vehicle over specified tonnage". The appropriate symbols indicating the restriction would be used in the command and prohibition signs and the following are applicable:

Description  
Symbo for Mandatory Sign (Command or Prohibition)

i. Vehicles Exceeding Given Mass (GM- X tonnes)  
\[ X_t \]

ii. Axle Mass Load Limit X tonnes  
\[ X_t \]

iii. Height Limit (X metres to 2 decimal places)  
\[ X,YZ \]

iv. Length Limit (X metres to nearest metre)  
\[ X_m \]

v. Goods Vehicles Exceeding Given Mass (GW-X tonnes)  
\[ X! \]

vi. Abnormal Vehicles  
\[ AV \]

vii. Width Limit (X metres to 1 decimal place)  
\[ X,Y \]

Fig 11.6  
Heavy Vehicle Routing Based on Vehicle Characteristics - Rural
Fig 11.7
Heavy Vehicle Routing Based on Vehicle Characteristics - Urban

### Notes for Figure 11.7

1. Other routing specifications may be used in place of the "goods vehicle over specified tonnage". The appropriate symbols indicating the restriction would be used in the command and prohibition signs and the following are applicable:

2. Where appropriate a map type advance sign (GD9) should be used to guide vehicles through a complicated routing. See also Figure 11.24 as an additional example.

---

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol for Mandatory Sign (Command or Prohibition)</th>
<th>Prohibition Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Vehicles Exceeding Given Mass (GVW-X tonnes)</td>
<td><img src="symbol1.png" alt="Symbol" /></td>
<td><img src="prohibition1.png" alt="Prohibition Symbol" /></td>
</tr>
<tr>
<td>ii. Axle Mass Load Limit X tonnes</td>
<td><img src="symbol2.png" alt="Symbol" /></td>
<td><img src="prohibition2.png" alt="Prohibition Symbol" /></td>
</tr>
<tr>
<td>iii. Height Limit (X metres to 2 decimal places)</td>
<td><img src="symbol3.png" alt="Symbol" /></td>
<td><img src="prohibition3.png" alt="Prohibition Symbol" /></td>
</tr>
<tr>
<td>iv. Length Limit (X metres to nearest metre)</td>
<td><img src="symbol4.png" alt="Symbol" /></td>
<td><img src="prohibition4.png" alt="Prohibition Symbol" /></td>
</tr>
<tr>
<td>v. Goods Vehicles Exceeding Given Mass (GV-X tonnes)</td>
<td><img src="symbol5.png" alt="Symbol" /></td>
<td><img src="prohibition5.png" alt="Prohibition Symbol" /></td>
</tr>
<tr>
<td>vii. Width Limit (X metres to 1 decimal place)</td>
<td><img src="symbol6.png" alt="Symbol" /></td>
<td><img src="prohibition6.png" alt="Prohibition Symbol" /></td>
</tr>
</tbody>
</table>
11.3.3 Routing Based on Vehicle and/or Freight Classification

1. Under certain circumstances it may be necessary to re-route certain types of vehicles and/or vehicles carrying certain types of freight, such as various toxic materials, away from certain areas. Drivers of these vehicles must be provided with clear signing as to what alternatives are open to them.

2. For the principles applicable here, see paragraph 11.3.2.2.

3. The example given in Figure 11.8 illustrates the required signing for rerouting vehicles carrying hazardous materials. Other routing specifications may be used where appropriate as shown in this figure. The route to be taken by heavy vehicles is shaded in the figures for additional emphasis.

4. Mandatory command signs such as R108-569 or R109-569 must be used with care. The primary regulatory message used in selective restriction signs of this sort must be chosen so as to achieve the intended purpose. As a general rule the use of an ACTION- OBJECT selective restriction combination is recommended. The use of a primary OBJECT message is NOT recommended unless the route is exclusively for the class of vehicles concerned (see paragraph 11.1.3.4).
Notes for Figure 11.8

(1) Other routing specifications may be used in place of the “vehicle carrying hazardous substances” symbol. The appropriate symbols indicating the restriction would be used in the command and prohibition signs and those listed below are applicable.

(2) Where appropriate a MAP TYPE ADVANCE DIRECTION sign G39 should be used to guide vehicles through a complicated routing (see also Figure 11.24).

**Description** | **Symbol for Mandatory Sign** | **Prohibition Signs**
--- | --- | ---

i. Vehicles Exceeding Gross Mass (GW) 10 tonnes | ![Symbol](image1.png) | ![Symbol](image2.png)

ii. Delivery Vehicles | ![Symbol](image3.png) | ![Symbol](image4.png)

iii. Goods Vehicles | ![Symbol](image5.png) | ![Symbol](image6.png)

iv. Goods Vehicles Exceeding Gross Mass (GW) 4 tonnes | ![Symbol](image7.png) | ![Symbol](image8.png)

v. Construction Vehicles | ![Symbol](image9.png) | ![Symbol](image10.png)

vi. Abnormal Vehicles | ![Symbol](image11.png) | ![Symbol](image12.png)

vii. Agricultural Vehicles | ![Symbol](image13.png) | ![Symbol](image14.png)

---

Fig 11.8
Heavy Vehicle Routing Based on Vehicle and/or Freight Classification
11.3.6 Heavy Vehicle Route Prohibition

Specific circumstances may necessitate the prohibition of certain vehicles or types of freight along certain routes. Aspects of using prohibition signs have been indicated in Subsections 11.3.2 and 11.3.3 where the signs have been used in conjunction with a system of positive guidance through command signs. There are instances, however, where only prohibition signs are used, namely:

(a) prohibited exit from a freeway at a specific interchange;
(b) prohibition of access onto a minor side road;
(c) prohibition of access into a private entrance to a development such as an office park, shopping centre, townhouse complex, etc.

The signing for prohibiting of certain vehicles from exiting a freeway at a particular interchange is illustrated in Figure 11.9 where a ground-mounted sign system is used, and in Figure 11.10 where an overhead upward pointing arrow sign system is used. The means of indicating the prohibition is by incorporating the appropriate prohibition sign into the section of the arrow indicating the off-ramp in each of the direction signs in the sequence leading up to the off-ramp. In order to make the prohibition legally effective a ground-mounted prohibition sign shall be placed at the entrance to, and on the left side of the off-ramp as shown in the figures. A second sign on the right of the off-ramp is recommended (see Figure 11.12).

Where a downward pointing arrow system is used in the direction signs in advance of an interchange, the incorporation of the prohibition sign in the arrows is not possible. In such a sequence this is only possible in the arrow of the GC1 pre-advance exit direction sign. Another approach must be taken to indicate the exit prohibition as illustrated in Figure 11.11. For the example shown, this is achieved by:

(a) including a R107-569-RA sign with the GC2 sign one kilometre from the exit and with and between the GC2 and GC3 signs 500 metres from the exit;
(b) including a GS604 sign (incorporating the R230 sign) next to the GC4D sign as shown.

The example illustrated in Figure 11.11 indicates a prohibition for all goods vehicles over 10 tonnes but other alternatives for other vehicle restrictions, as indicated, are also possible. The appropriate prohibition sign shall also be ground-mounted on the left-hand side of the exit ramp. A second sign on the right of the off-ramp is recommended. The display of a ground-mounted version of a command sign such as R107-569 on the left of the through carriageway of the freeway, just beyond the GORE-EXIT sign GA4, is optional (see Figure 11.12).

At a minor side street junction or private access to a development where heavy vehicle access is prohibited, a selective restriction R209 sign in combination with the symbol of the prohibited vehicle should be placed immediately ahead of the entrance while a similar R210 combination sign for right-turning vehicles should be placed on the far side approach as indicated in Figure 11.12. In this example a prohibition on goods vehicles exceeding 10 tonnes is indicated. If advance indication is considered necessary, signs such as R209-569 and R210-569 can be located up to 180 m in advance of the junction or access, subject to the operating speed of the road. These signs should then be followed by signs R211-569 and R212-569 at the point of turn, as illustrated in Detail 11.12.2 in Figure 11.12.