



Department of Transport
An Roinn Iompair



6. Warning Signs

Traffic Signs Manual

Chapter 6 – Warning Signs

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6.1 Introduction

GENERAL

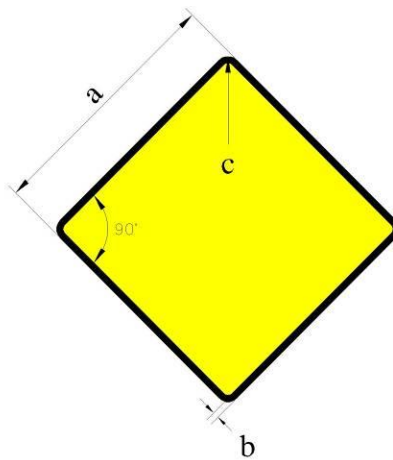
- 6.1.1 This Chapter provides details of the warning signs which may be used on roads in Ireland, including their layouts and symbols, the circumstances in which each sign may be used and guidance on positioning them. The chapter should be read in conjunction with other relevant chapters. Further information on the use of the Manual is given in Chapter 1.
- 6.1.2 For the purposes of this Manual:
- **Shall** or **must** indicates that a particular requirement is mandatory;
 - **Should** indicates a recommendation; and
 - **May** indicates an option.

DESIGN OF WARNING SIGNS

- 6.1.3 Warning signs are used to alert drivers to danger or potential danger ahead. They indicate the need for special caution and may require a consequent manoeuvre or reduction in speed. Appropriate use of warning signs assists with road safety. The application of the signs should be consistent, so that the signs are accepted by drivers as warnings of potential hazards.
- 6.1.4 Most warning signs are diamond in shape (square with one diagonal vertical) with a black border and encompassing a black symbol on a yellow background. The black symbol is usually a pictorial representation of the hazard. A supplementary plate showing a distance, word or phrase is sometimes mounted below the sign. All text must be bilingual Irish/English. If necessary, two signs may be provided – one with English text and the other with Irish.
- 6.1.5 The following sections of this chapter deal with the types of warning sign and describe where they should be used. Detailed designs for the signs are provided on the Department of Transport's website www.transport.ie. These are the only warning signs which may be used. **No other sizes, colours, symbols or text may be used.**
- 6.1.6 The diagrams for each sign indicate the variants which are permitted and any special supplementary plates which may (or shall) be used in conjunction with the sign.

SIGN SIZE AND LOCATION

6.1.7 Diamond shaped warning signs are designed in four sizes, with the larger signs intended for use on roads with higher traffic speeds and on dual carriageways. Sign sizes are defined by the length of each side. Standard dimensions for the signs are shown in Figure 6.1.



Nominal Sign Size (mm)	Side a (mm)	Border Width b (mm)	Corner Radius c (mm)
600	600	15	30
750	750	19	38
900	900	22	45
1200	1200	25	50

Figure 6.1: Standard Dimensions of Warning Signs

- 6.1.8 The higher the speed of the road, the further the sign should be sited in advance of the hazard. This will allow sufficient time for the warning message to be absorbed and any necessary action taken before the hazard is met. There must also be a distance clear of obstructions in advance of the sign; this clear visibility distance will depend on the speed of the traffic. Table 6.1 summarises the appropriate siting distances and clear visibility distances for various approach speeds.
- 6.1.9 The sizes and siting distances of signs and the visibility distances required are based on the speed of approaching traffic. This 'speed' should be determined as follows:
- On new or improved roads, 'speed' is the Design Speed, calculated in accordance with National Roads Authority Standard NRA TD 9¹, or the speed limit.
 - In the case of existing roads, 'speed' is the speed limit, except when there is a significant difference between the speed limit and actual vehicle speeds, in which case:
 - 'Speed' is the observed 85th percentile approach speed of private cars. This is the speed which is exceeded by only 15% of cars in dry weather and may be measured by accepted speed survey methods.
- 6.1.10 It is important that siting distances for signs be consistent, so that drivers can expect similar reaction times to be required. The recommended siting distances should, therefore, be adopted wherever practicable. However, site constraints may preclude this at some locations. Variations of up to 10% from the standard siting distance are generally acceptable.
- 6.1.11 On steep downhill gradients, it will generally be appropriate to adjust the siting distances to allow for longer braking distances. It is recommended that the distances in Table 6.1 be increased by 10% where there is a descending gradient (between the sign and the hazard) of 6% or steeper. Adjustment of the siting distances is less important where there is an uphill gradient: however, the siting distance may be reduced by 10% where there is an ascending gradient of 10% or steeper.

¹ National Roads Authority. *NRA TD 9, Road Link Design*. Part of the NRA Design Manual for Roads and Bridges. NRA, Dublin.

Table 6.1: Sizes of Warning Signs and Their Siting Details

Speed (see Paragraph 6.1.9) (km/h)	Type of Road	Sign Size (Side) (mm)	Siting Distance of Sign from Hazard (m)	Recommended Clear Visibility Distance of Sign (m)
30	Single Carriageway or Type 3 Dual Carriageway	600	40 to 50	50
50		600 (750)	50 to 70	60
60		600 (750)	70 to 90	75
80 or 85		750 (900)	120 to 160	90
100		750 (900)	160 to 215	120
≤ 60	Other Two-lane Dual Carriageways	750 (900)	70 to 90	90
80 or 85		900	120 to 160	90
100		900 (1200)	160 to 215	120
120		900 (1200)	215 to 295	120
≤ 60	Three (or more)- lane Dual Carriageway	900	90 to 120	90
80 or 85		900 (1200)	120 to 160	120
100		900 (1200)	160 to 215	120
120		900 (1200)	215 to 295	120

- Notes:
1. On existing roads, the measured 85-percentile approach speed of private cars may be assumed to be equivalent to the Design Speed.
 2. () Bracketed sizes may be used where deemed appropriate. On single carriageway roads, the larger size should normally be used where there is a hard shoulder.
 3. 'Dual Carriageway' includes motorways.

- 6.1.12 Where a supplementary plate is required, the size of plate shall be determined by using the specified 'x'-height for the lettering shown in the relevant table on the working drawing for the plate and appropriate to the size of the accompanying sign. The 'x'-height is the vertical height of the lower case 'x'. Information on 'x'-height and on the text styles to be used is provided in Chapter 2.
- 6.1.13 Warning signs should normally be positioned in the left-hand verge. However, on roads with restricted visibility, or for greater emphasis, it may be necessary to position a second sign in the right-hand verge. On one-way roads, including slip roads, warning signs should be positioned on both verges. Similarly, on dual carriageways warning signs should be positioned in both the left-hand verge and the central reserve. It may be necessary for narrow central reserves to be widened locally to accommodate the sign: allowance would need to be made at the appropriate stage in the design of the road alignment.
- 6.1.14 Where the required sizes or locations of warning signs differ from those set out in Table 6.1, the requirements are detailed in the section dealing with the relevant sign.
- 6.1.15 For further information on the siting, location and mounting of warning signs, including mounting of more than one sign on a post, see Chapter 1.

APPLICATION OF WARNING SIGNS

- 6.1.16 Warning signs are used to alert the road user. The following sections describe the situations in which the use of each type of sign is warranted. Signs should be provided where warranted unless there are specific reasons for not doing so.
- 6.1.17 In order to avoid unnecessary proliferation of signs, warning signs should be installed only if an engineering assessment indicates the need for the purpose of improving the safety of road users. The following conditions should apply in respect of all signs:
- There must be a situation identifiable as a hazard to road users;
 - The hazard should not be one that is easily perceived by a driver under virtually all conditions;
 - It should be considered that the hazard will be reduced effectively by the use of a sign. This assessment includes judgement that a driver will be able to understand the nature of the hazard from the message on the sign and select an appropriate response.

- 6.1.18 Rather than provide signs to warn of a hazard, it is preferable to try to eliminate the hazard. However, where this is not practicable, the appropriate warning signs should be provided.
- 6.1.19 There is a need to minimise the use of warning signs in urban areas, to reduce clutter and to enhance the impact of the signs that are required. However, Appendix 6A lists a number of signs that may be required in urban areas: i.e. roads in built-up areas where the speed limit is 60km/h or less. The other signs listed in Appendix 6A, in general, are not required in urban areas but may be needed in exceptional circumstances where the Road Authority considers that a particular hazard exists.
- 6.1.20 Specific advice about the use, purpose and layout of a range of warning signs is given in this Chapter. This should be read before a sign is selected.
- 6.1.21 Where the condition or activity requiring a warning sign is seasonal or temporary, the sign should be removed or covered when it is not needed. Yellow warning signs shall not be used for roadworks purposes: instead, orange roadworks signs shall be provided in accordance with Chapter 8.

6.2 Junction Ahead

6.2.1 'Junction Ahead' signs provide advance warning of a junction. In most instances they illustrate the principal through route at the junction by varying the widths of the road symbol arms. The signs are not intended to be true maps of the junction, but the sign selected should be reasonably representative of the layout. The main locations where warning signs should be used to warn of junctions ahead are:

- Junctions with a road of lesser importance;
- Junctions with a road of greater importance;
- Junctions where traffic merges (see Section 6.3); and
- Junctions with traffic control (see Section 6.4).



W 001: Crossroads



W 002L



W 002R

W 002: Side Road

JUNCTIONS WITH ROADS OF EQUAL IMPORTANCE

6.2.2 Except on roads with low speeds, such as within housing estates, it should be the policy of Road Authorities to eliminate the designation of junctions with roads of equal importance. At all other junctions, some form of traffic control should be provided: Stop or Yield signs or markings, traffic signals, or roundabouts. When reviewing existing uncontrolled road junctions, consideration should be given to imposing control.



W 003L



W 003R

W 003: T-junction (Type 1)

6.2.3 Accordingly, no warning signs are prescribed to indicate junctions with roads of equal importance.

JUNCTIONS WITH ROADS OF LESSER IMPORTANCE

6.2.4 The roads of lesser importance are indicated on the signs by arms of narrow width. Stop or Yield signs or markings will normally control traffic on the side roads. Signs W 001 to W 014 are available for use on the major road approaches to junctions.



W 004L



W 004R

W 004: T-junction (Type 2)

6.2.5 The signs shall indicate whether the side road is to the left or right. Thus, signs with an L suffix are for use when the side road is to the left and those with an R suffix for when the side road is to the right. Similarly, Sign W 007LR is for use when the side roads are to the left then right, while Sign W 007RL is for use when the side roads are right then left.



W 005L



W 005R

W 005: Y-junction

6.2.6 Signs W 007 and W 008 shall only be used where the distance between two consecutive junctions does not exceed the distance given in Table 6.2. Where that distance is exceeded, the junctions should be signed separately, using Signs W 002L and W 002R.

6.2.7 Where pairs of road junctions are further apart than the distances in Table 6.2, the sign for the second junction shall be positioned at least 40m beyond the first junction. This distance may be reduced to 20m for roads with a speed of 30km/h.



W 006L

W 006R

W 006: Crossroads at Sharp Corner

Table 6.2: Maximum Separation of Pairs of Junctions for use of Signs W 007 and W 008

Speed (km/h)	Max. Distance Between Centres of Junctions (m)
30	70
50	90
60	110
80 or 85	160
100	200



W 007LR

W 007RL

W 007: Staggered Junctions

Note:

- Beyond maximum distance signs W002L and W002R are used accordingly.
- Warning signs are not normally provided in urban areas with speeds of 30 or 50km/h unless the hazard is considered exceptional.



W 008L

W 008R

W 008: Two Junctions on Same Side

6.2.8 Signs W 009 to W 011 shall only be used where the curve is such that a bend warning sign is warranted (see Section 6.5).

6.2.9 The L and R variants of Signs W 009 to W 011 shall be used as appropriate to indicate whether the bend (not the side road) is to the left or right.



W 009L

W 009R

W 009: Side Road on Outside of Bend



W 010L

W 010R

W 010: Side Road on Inside of Bend



W 011L

W 011R

W 011: Crossroads on Bend

6.2.10 Where the major road is a dual carriageway, Signs W 012 to W 014 should be used to indicate the presence of a side road. The signs show whether there is a break in the central reserve or not. Where there is a break, the appropriate one of the Signs W 012L, W 012R or W 014 should be used. Where there is no break, a side road to the left is the only possibility so Sign W 013 should be used.



W 012L



W 012R

**W 012: Side Road on Dual
Carriageway
(With Central Reserve Break)**



**W 013: Side Road on Dual
Carriageway
(No Central Reserve Break)**



**W 014: Crossroads on Dual
Carriageway**

JUNCTIONS WITH ROADS OF GREATER IMPORTANCE

Junctions With Single Carriageway Roads

6.2.11 For the purposes of selecting traffic signs, a 'road of greater importance' is a road for which traffic on other roads has to Stop or Yield. Thus, traffic on a National Road may have to Stop at a junction with a Regional Road: at that junction, the Regional Road is the road of greater importance. The roads of greater importance are indicated on signs by wide arms.



W 015: Crossroads (Major Road) Ahead

6.2.12 Signs W 015 to W 018 are available for use on the minor road approaches to junctions with single carriageway roads. Traffic on the side roads will normally be controlled by Stop or Yield signs (RUS 027 or RUS 026) or markings (see Chapters 5 and 7). Where it is necessary to provide advance warning of the Stop or Yield, Signs W 040 or W 041 should normally be erected (see Section 6.4). However, where visibility is poor, or the Road Authority considers that a particular hazard exists, the appropriate one of Signs W 015 to W 018 should also be provided to warn of the hidden junction.



W 016: T-junction (Major Road) Ahead

6.2.13 Signs W 017 are for use at staggered crossroads, where the separation of the minor roads is no more than the distances given in Table 6.2. Where the separation is greater, Sign W 016 should be used.



W 017L **W 017R**
W 017: Staggered Crossroads Ahead

6.2.14 Signs W 018 are for use where a minor road joins a major road at a sharp corner such that the major road appears to be a continuation of the minor road. It is particularly important to warn drivers that they are approaching a major road. It may also be appropriate to erect Stop Ahead or Yield Ahead signs (W 040 or W 041) (see Section 6.4).

6.2.15 Where the road ahead is one-way, a Sign W 016 should be used together with a Turn Left Ahead or Turn Right Ahead sign (RUS 007 or RUS 008) to provide advance warning. Alternatively, Sign W 016 may be used with a No Right Turn or No Left Turn (RUS 012 or RUS 013). The warning sign should be mounted above the regulatory sign.



W 018L **W 018R**
W 018: Junction With Major Road at Sharp Corner



Sign RUS 007: Turn Left Ahead

Junctions With Dual Carriageways

6.2.16 Signs W 019 to W 022 are available for use on the minor road approaches to junctions with dual carriageways. These signs should normally be provided at all such junctions, even though there will be Stop or Yield signs, as they indicate the presence of a divided carriageway. Where signs W 040 or W 041 are provided to give advance warning of the junction (see Section 6.4), the Stop or Yield Ahead sign shall be mounted above the Dual Carriageway Ahead sign.



W 019: Crossroads Ahead at Dual Carriageway

6.2.17 Where the road ahead is a dual carriageway with a crossing of the central reserve, Signs W 019 to W 021 should be used to provide advance warning.

6.2.18 Where the road ahead is a dual carriageway with no crossing of the central reserve, Sign W 022 should be used. A Turn Left Ahead sign (RUS 007) should be used to provide advance warning: this sign would be mounted on the same post as, and below, the warning sign.



W 020: T-junction Ahead at Dual Carriageway (With Central Reserve Break)

6.2.19 Signs W 021 are for use at staggered crossroads, where the separation of the minor roads is no more than the distances given in Table 6.2. Where the separation is greater, Signs W 020 or W 022 should be used as appropriate.



W 021L **W 021R**
W 021: Staggered Crossroads Ahead at Dual Carriageway



W 022: T-junction Ahead at Dual Carriageway (No Central Reserve Break)

6.3 Merging Traffic

6.3.1 Signs W 030 and W 031 are available for indicating merging traffic. They should be used where two physically separated streams of traffic proceeding in the same direction join the same undivided section of carriageway. Sign W 030 should be used on the main carriageway where a stream of traffic merges from the left. Sign W 031 should be used on the minor stream (such as a motorway slip road) where the traffic has to merge with a stream of traffic on its right.



W 030: Merging Traffic From Left

6.3.2 Where practicable, Sign W 030, Merging Traffic From Left, should be provided on a main carriageway in advance of all merges from the left. However, at compact junctions there will often be only a small island (with direction signs) between the diverge and merge slip roads, providing no suitable location for Sign W 030. The sign must not be erected before the diverge slip road.



W 031: Merging With Traffic On Right

6.3.3 Sign W 031, Merging With Traffic on Right, should only be used where it is considered that drivers might not expect a merging movement or might not be sure where it is. Thus, the sign should be provided where a long link road at a complex interchange is about to merge with another carriageway on the right. There is no need for the sign at a normal 'diamond' interchange on a motorway or dual carriageway, where the slip roads are relatively short and straight.



W 032: Merging and Diverging Traffic

6.3.4 When used, Signs W 030 and W 031 should not obstruct the drivers' view of the merging traffic stream.

6.3.5 Sign W 032, Merging and Diverging Traffic, is available for use where a stream of traffic merges from the left and traffic then diverges to the left within a short distance. This sign should normally be used only where an auxiliary lane is added for the length of the merge and diverge. In most cases, gantries will also be required to indicate the destinations for the various lanes (see Chapter 2).



W 033: Loop

6.3.6 Where there are lane gains at a junction, such that at least one lane of joining traffic does not have to merge, Signs W 030 and W 031 shall not be used. Instead, the appropriate information signs, illustrating the layout of the lanes, should be used (see Chapter 4).

6.3.7 Sign W 033, Loop, may be used where merging and diverging traffic is being warned of a tight radius on a loop road, where it is difficult for a driver to anticipate the geometry of the road ahead. This sign may be used in conjunction with Supplementary Plate P 011, Cautionary Speed.

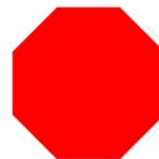


P 011: Cautionary Speed

Required Variant:	Speed shown shall be 25, 35, 45, 55 or 65km/h.
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6.4 Junctions With Traffic Control

6.4.1 Many road junctions are controlled by Stop or Yield signs (RUS 027 and RUS 026, see Chapter 5), roundabouts, or traffic signals (see Chapter 9). The approaches to these junctions may need warning signs to advise drivers of the presence of the junction and type of control, as indicated in the following paragraphs.



W 040: Stop Ahead

Requirement:	Shall be mounted with Supplementary Plate P 001.
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STOP OR YIELD AHEAD

6.4.2 Stop and Yield signs need to be positioned at or close to the relevant stop or yield road marking (see Chapters 5 and 7). Wherever practicable, the signs should be positioned, in accordance with the relevant rules as laid down in Chapter 5, such that they can be seen for the appropriate visibility distance in advance of the junction.



W 041: Yield Ahead

Requirement:	Shall be mounted with Supplementary Plate P 001.
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6.4.3 Where the Stop or Yield sign cannot be seen for the recommended clear visibility distance in advance of the junction (in accordance with Table 6.1), a Stop Ahead or Yield Ahead sign, Signs W 040 or W 041 respectively, should be provided to warn of the hidden junction. Nevertheless, these signs should only be used where considered necessary: it is preferable to provide the required visibility to the Stop or Yield sign.

6.4.4 Signs W 040 and W 041 shall only be used in conjunction with a Supplementary Plate P 001 showing the distance to the junction (see Section 6.24).



Typical Supplementary Plate P 001: Distance

Required Variant:	Distance shall be varied in accordance with Table 6.11.
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6.4.5 Where visibility is poor or the Road Authority considers that a particular hazard exists, the appropriate Junction Ahead sign may also be provided. This would normally be mounted on the same post as, and above, the Stop Ahead or Yield Ahead sign (see also Section 6.2).

TRAFFIC SIGNALS AHEAD

6.4.6 Sign W 042, Traffic Signals, is available to warn of traffic signals ahead.

6.4.7 Sign W 042 should be erected in advance of a junction controlled by traffic signals on roads with a speed limit greater than 60km/h. However, Signs W 042 may also be erected on roads with speed limits of 60 km/h or less where, in the opinion of the Road Authority, high approach speeds or inadequate visibility of the signal heads create a potential hazard.



W 042: Traffic Signals

6.4.8 Where Signs W 042 are required on dual carriageways or one-way roads, two signs should be provided, one on each side of the carriageway.

ROUNABOUT AHEAD

6.4.9 Sign W 043, is available to warn of a roundabout ahead. It should be provided on all approaches to roundabouts in addition to any map-type advance direction sign (see Chapter 2). It should normally be positioned in accordance with Table 6.1, but may need to be further from the junction to leave sufficient room for the advance direction sign. Care should be taken to ensure that the sign does not obscure the advance direction sign.



W 043: Roundabout Ahead

6.4.10 On one-way roads, including slip roads, Signs W 043 should be positioned on both verges. Similarly, on dual carriageways, the signs should be provided in pairs: one sign sited on the central reserve and the other on the verge.

6.4.11 On high-speed roads – those with an 85-percentile approach speed of private cars greater than 80km/h – additional Signs W 043 should be placed on the verge and central reserve at about 400m from the junction. These should be fitted with a Supplementary Plate P 001 showing the distance to the junction.

6.4.12 Sign W 043 should only be used for roundabouts with a central island of more than 4m diameter. The sign should not be used for advance warning of one-way working around a triangular or 'Y'-junction or at the entry to a large one-way system.

6.4.13 Sign W 044, Mini-roundabout Ahead, is available to warn of a mini-roundabout ahead. This is a roundabout with a central island of 4m diameter or less. Sign W 044 should be positioned in accordance with Table 6.1 and will, therefore, be the first warning of the roundabout. In addition to this sign, it will be necessary to provide mandatory blue Mini Roundabout signs (Sign RUS 049) at the entry to the roundabout (see Chapter 5).



W 044: Mini-roundabout Ahead

6.4.14 At signalised roundabouts, Sign W 042 should be mounted above Sign W 043 on each of the signalised approaches.

6.4.15 Diagrams illustrating typical signs and road markings at roundabouts are provided in Chapter 10.

6.5 Bends and Corners

6.5.1 Signs W 050 to W 053 are available to indicate sharp corners or bends ahead. These signs should be used sparingly, and only where drivers will experience difficulty in negotiating the corner or bend without slowing down.

6.5.2 The signs shall indicate whether the change of direction is to the left or right. For Signs W 052 and W 053, it is important to ensure that the change of direction for the first curve is indicated.

6.5.3 Engineering judgement will be needed to determine the need for one of these signs. The degree of danger at a corner or bend varies with the following factors:

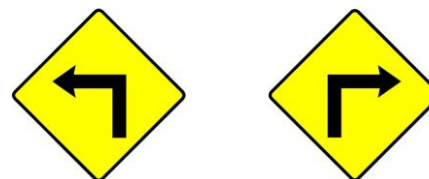
- The speed of approach;
- The radius of curvature;
- The superelevation; and
- The forward visibility.

6.5.4 Sign W 050 should normally be used where the inside radius of the corner is 20m or less, the change of direction is approximately 90° and, in the opinion of the Road Authority, the corner is deceptive and constitutes a potential hazard.

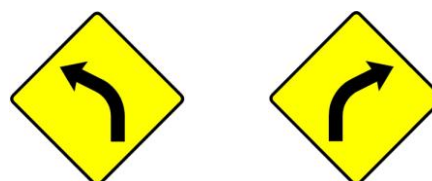
6.5.5 Sign W 051 should be used where the inside radius of the bend is greater than 20m but requires drivers to slow considerably from their approach speed and, in the opinion of the Road Authority, the bend is deceptive and constitutes a potential hazard.

6.5.6 Where there are two sharp corners or bends in close proximity both of which warrant signing, individual Signs W 050 or W 051 should be used, provided there is sufficient distance to erect the second sign. Table 6.1 indicates what is considered to be a sufficient distance in advance of the start of the curve and also the recommended visibility distance.

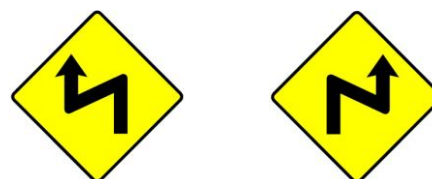
6.5.7 Where there are two sharp corners or bends in close proximity both of which warrant signing, but which are too close to meet the requirements of the above paragraph, Sign W 052 should be used where one or both of the curves are considered to be sharp corners, and Sign W 053 should be used where both curves are considered to be sharp bends.



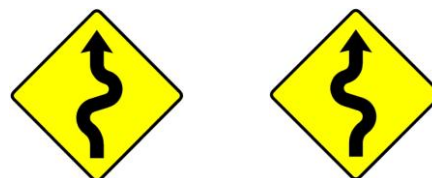
W 050L W 050R
W 050: Sharp Corner



W 051L W 051R
W 051: Sharp Bend



W 052L W 052R
W 052: Series of Sharp Corners



W 053L W 053R
W 053: Series of Sharp Bends

6.5.8 Where there are three or more sharp curves in close proximity several of which warrant signing, Sign W 052 should be used where one or more are considered to be sharp corners, and Sign W 053 should be used where they are considered to be sharp bends.

6.5.9 When a section of winding road which warrants the use of Signs W 052 or W 053 exceeds 1km in length, a Supplementary Plate P 002 should be added (see Section 6.24).

Loops

6.5.10 Where traffic has to negotiate a tight loop road at an interchange, Sign W 033, Loop, may be used: See Section 6.3.



**Supplementary Plate P 002:
Length**

Required Variant:	Distance shall be varied in accordance with Table 6.11.
-------------------	---

6.6 Sharp Change of Direction

MULTIPLE CHEVRONS

Policy

6.6.1 Multiple Chevrons, Signs W 062 and W 063, are available to indicate sharp changes of direction. These are rectangular signs consisting of yellow chevrons on a black background. Sign W 062 has two chevrons while Sign W 063 has three, but more chevrons can be added. The signs shall indicate whether the change of direction is to the left or right, using suffices L or R as appropriate.



**W 062L: Multiple Chevrons (Two)
(to Left)**

6.6.2 Unlike other warning signs, chevrons are 'sight boards', which are intended to be placed at the hazard so that drivers can see the change of direction clearly. They should be placed directly in the sight line of approaching drivers (see Paragraph 6.6.12).



**W 062R: Multiple Chevrons (Two)
(to Right)**

6.6.3 Signs W 062 and W 063, Multiple Chevrons, should be used:

- On roundabout islands, other than at mini-roundabouts, to face traffic on all approaches. The Chevron is used at roundabouts in conjunction with a Keep Left sign (RUS 006) (see Chapter 5);
- At a rural T-junction where the major road turns through a sharp angle;
- To supplement a Sharp Bend or Corner sign (Signs W 050 to W 053) which on its own does not provide sufficient warning;
- At other sharp changes of direction where, in the opinion of the Road Authority, the road layout is deceptive, not obvious to approaching drivers and constitutes a potential hazard;
- As a temporary measure at roadworks, to aid delineation of the site (see Chapter 8).



Permitted Variant:	More chevrons may be added.
--------------------	-----------------------------

**W 063L: Multiple Chevrons
(Three) (to Left)**

6.6.4 Further information on the use of multiple chevrons to sign horizontal curves and at roundabouts is given in Chapter 10.

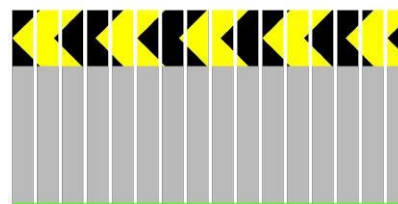
6.6.5 Signs W 062 and W 063 shall not be used to indicate a narrowing of the road.



Permitted Variant:	More chevrons may be added.
--------------------	-----------------------------

**W 063R: Multiple Chevrons
(Three) (to Right)**

6.6.6 At roundabouts with a history of vehicles running onto the central island, Multiple Chevrons may be constructed from a series of flexible strips, as illustrated in Figure 6.2. The width of each strip may be varied to suit the material and manufacturing process. At the height of the chevron the gaps between strips should not exceed 10mm. Below the chevron, the mounting may consist of wide strips or a series of posts, depending on the design; these areas should be coloured grey, similar to a backing board or post (see Chapter 1).



Sign Size

6.6.7 Multiple Chevrons are normally supplied as double or triple chevrons, as illustrated. However, the overall length of sign should be determined to suit the individual site. Longer signs can be assembled by placing two or more panels next to each other.

Figure 6.2: Typical Sign W 063L from Flexible Strips

6.6.8 Chevron signs are available in heights of 400mm, 600mm and 800mm and in corresponding widths, as shown in Table 6.3. The larger sizes should generally be used for higher speed approaches, as indicated in the table.

Table 6.3: Multiple Chevron Sign Sizes

Speed (km/h)	Height of Sign (mm)	Width of Sign (mm)	
		Double Chevron	Triple Chevron
≤ 70	400	1100	1700
80 to 100	600	1650	2550
120	800	2200	3400

Location

6.6.9 Chevron signs shall be oriented so that the chevron points in the direction in which drivers need to turn. At roundabout islands, this will be to the left. At corners, this will depend on the layout.

6.6.10 The normal mounting height for chevrons is 1000mm to the lower edge of the sign. However, this may be varied to suit sight lines and the particular layout.

6.6.11 On roundabout islands and on the outside of curves, chevron signs should be positioned 1200mm from the edge of carriageway. However, where space is restricted, the clearance to the edge of carriageway should be at least 600mm.

6.6.12 Chevrons should be positioned with care, so that drivers can see them. They should be visible by the time the driver is at the Stopping Sight Distance appropriate for the speed of approaching vehicles from the roundabout or corner and should remain visible until the hazard is reached. At roundabouts, chevrons are particularly important in defining where the island is; a long strip of chevrons is often required, so they are in the drivers' line of sight, both from a distance and when close to the Yield line.

SINGLE CHEVRONS

Policy

6.6.13 Single Chevrons, Signs W 061, are available to indicate sharp changes of direction. These are rectangular signs consisting of a single yellow chevron on a black background.



**W 061L: Single Chevron
(to Left)**

6.6.14 Unlike other warning signs, chevrons are 'sight boards', which are intended to be placed at the hazard so that drivers can see the change of direction clearly. They should be placed directly in the sight line of approaching drivers.

6.6.15 Signs W 061, Single Chevrons, should be used instead of Signs W 062 or W 063 on bends or corners where there is restricted room on the verge or where their use will provide a clearer indication than a Multiple Chevron sign.



**W 061R: Single Chevron
(to Right)**

6.6.16 Signs W 061 shall not be used to indicate a narrowing of the road.

Sign Size

6.6.17 Single Chevron signs are available in heights of 400mm, 600mm and 800mm and in corresponding widths, as shown in Table 6.4. The larger sizes should generally be used for higher speed approaches, as indicated in the table.

Table 6.4: Single Chevron Sign Sizes

Speed (km/h)	Height of Sign (mm)	Width of Sign (mm)
≤ 70	400	500
80 to 100	600	750
120	800	1000

Location

- 6.6.18 Chevron signs shall be oriented so that the chevron points in the direction in which drivers need to turn.
- 6.6.19 At least three Signs W 061 shall be provided at any one curve in any one direction. A minimum of two such signs should be visible from a point on the approach to the curve from a distance equivalent to 3 seconds travel time, at the 85%-percentile approach speed of private cars, in advance of the start of the curve.
- 6.6.20 Single Chevrons, W 061, should be located in such a way that drivers are able to see at least three chevrons at all times as they travel through the curve. Where there is no vegetation behind the chevrons, the minimum number should be increased to five.
- 6.6.21 The normal mounting height for chevrons is 1000mm to the lower edge of the sign. However, this may be varied to suit sight lines and the particular layout.
- 6.6.22 Signs W 061 shall be placed close to the carriageway on the outside of the curve, preferably with a clearance of 600mm to 1200mm. They should be angled towards oncoming traffic such that they are at right angles to an approaching vehicle at the limit of visibility of the sign.

6.7 Road Narrows (Single Carriageway)

6.7.1 Different warning signs are used where the road narrows, depending on whether the road is a single or dual carriageway. For Type 3 Dual Carriageways see Section 6.10, and for all other types of dual carriageway see Section 6.9.

6.7.2 Signs W 070 and W 071 are available to indicate that a single carriageway road narrows on one or both sides. The L and R variants of Sign W 070 shall be used as appropriate to indicate whether the road narrows from the left or right.

6.7.3 Signs W 070 or W 071 should be erected on sections of two-lane road where, in the opinion of the Road Authority, a sudden reduction in carriageway width creates a potential hazard. These signs shall not be used to warn of the end of a climbing lane (see Section 6.12), the end of a dual carriageway (see Section 6.9), or the end of a passing lane section of a Type 3 Dual Carriageway (see Section 6.10).

6.7.4 Signs W 070 or W 071 should be erected in combination with a Yield sign (RUS 026) where the Road Authority considers it necessary to indicate priorities on single-lane sections of road (i.e. sections 5.0m wide or less). Such signing, which will generally be used as part of traffic calming schemes, requires traffic in one direction to yield to oncoming traffic at the narrow section.

6.7.5 Sign W 071 may also be used at the entrance to a traffic calming scheme, as indicated in the NRA Traffic Calming Guidelines². In such cases, it should be erected with Supplementary Plate P 063, Traffic Calming, or P 040, Reduce Speed Now. For this use, the sign may be mounted on a backing board with the Irish text of the supplementary plate above the sign and the English text below (see Figure 6.3). If Sign W 071 is erected in advance of the traffic calming, the distance to the start should be indicated on the plate in accordance with Table 6.11 (see Section 6.24).

6.7.6 If Sign W 071 is used with Supplementary Plate P 063, Traffic Calming, a distance to the narrowing may be added. The distance shown shall be in accordance with Table 6.11. It is not appropriate to show a distance with Supplementary Plate P 040, Reduce Speed Now.

6.7.7 Within a traffic calming area, carriageways may be narrowed by 'build-outs'. Signs W 070 or W 071 may be erected to warn of such narrowing.



W 070L

W 070R

W 070: Road Narrows on One Side



W 071: Road Narrows on Both Sides



Typical Supplementary Plate P 063: Traffic Calming

Permitted Variants:	<ol style="list-style-type: none"> 1. Distance shall be varied in accordance with Table 6.11. 2. Distance panel may be omitted.
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Supplementary Plate P 040: Reduce Speed Now

² National Roads Authority. *Guidelines on Traffic Calming for Towns and Villages on National Roads*. NRA, Dublin.

6.7.8 At some locations, such as at a narrow bridge, it may be necessary to warn that oncoming vehicles, especially large trucks, may occupy the centre of the carriageway. At these locations, Supplementary Plate P 060, Oncoming Traffic, may be mounted below Sign W 070 or W 071.



Supplementary Plate P 060:
Oncoming Traffic



Figure 6.3: Typical Sign at
Entrance to Traffic Calming

6.8 Two-way Traffic

6.8.1 Signs W 080 and W 081 are available to indicate that the road ahead, or crossing, carries two-way traffic.

6.8.2 Sign W 080, Two-way Traffic, should be used to indicate a change from one-way to two-way traffic on a single carriageway. It should be erected as close as possible to the beginning of two-way working, consistent with being readily visible to turning traffic. If necessary, it may be repeated after about 100m. Typical locations include:

- At a junction at the entrance to a two-way road which is directly opposite a one-way approach road;
- At the entrance to any two-way side roads which form a junction with a one-way road;
- Where a one-way road changes to two-way working; and
- At the end of a dual carriageway (see Sections 6.9 and 6.10).



W 080: Two-Way Traffic



W 081: Two-Way Traffic Crossing

6.8.3 Sign W 080 should also be used at intervals along a length of single carriageway which might be mistaken for a dual carriageway. Such signs will serve to remind drivers, especially at night, that they are on a single carriageway. The signs should be erected on both sides of the road. Whether they will be needed for both directions of travel will depend on the circumstances. The frequency of signs will also depend on the circumstances, but 400m to 800m spacing may be appropriate. Examples of this use include:

- On a high standard single carriageway which forms a continuation of a dual carriageway;
- On a high standard single carriageway with grade separated junctions; and
- Where the layout of a single carriageway might be mistaken for a dual carriageway. This could occur where only a single carriageway has been built although the earthworks and structures allow for the addition of a second carriageway.



**W 082: Three Lanes of Traffic
(Two With, One Against)**

6.8.4 Sign W 081, Two-way Traffic Crossing, is for use on a one-way road to indicate that a road it joins or one that crosses it carries two-way traffic. It can normally be sited on the back of the No Entry sign (Sign RUS 050).



**W 083: Three Lanes of Traffic
(One With, Two Against)**

6.8.5 Signs W 082 and W 083 are available to show that a single carriageway road contains two lanes in one direction and one in the other. The signs should be erected at intervals on both sides of the road. They shall not be used on Type 3 Dual Carriageways.

6.9 Dual Carriageway Roads

6.9.1 Unless otherwise noted, the signs described in this Section shall apply for all types of dual carriageways. Additional signage for Type 3 Dual Carriageways is set out in Section 6.10.

START OF DUAL CARRIAGEWAY

6.9.2 At the start of a dual carriageway, Sign W 094, Road Divides, shall be provided. The sign should be provided at the start of the taper for the dual carriageway. On rural roads, a pair of signs should also be erected 200m to 400m in advance of the start of the taper, one on each verge, together with Supplementary Plates P 001.



W 094: Road Divides

6.9.3 A Keep Left Sign (RUS 001) shall be provided at the start of the central reserve and at any gaps in the central reserve (see Chapter 5).

END OF DUAL CARRIAGEWAY

6.9.4 At the end of a dual carriageway, Signs W 095, Dual Carriageway Ends, and W 080, Two-Way Traffic, shall be provided. A pair of Signs W 095 should be erected on the verge and central reserve at the appropriate distance in accordance with Table 6.1 in advance of the end of the central reserve. On roads with a design speed or speed limit of 70km/h or greater, a second pair should also be erected on the verge and central reserve about 200m in advance of the first pair, together with Supplementary Plates P 001.



W 095: Dual Carriageway Ends

6.9.5 A pair of Signs W 080, Two-Way Traffic, shall be provided on the verge and the central reserve at or as near as possible to the end of the central reserve. On rural roads, a second pair of Signs W 080 should be erected, one on each verge, at or close to the end of the taper, where the road reduces to single carriageway width.



**Typical Supplementary Plate
P 001: Distance**

Required Variant:	Distance shall be varied in accordance with Table 6.11.
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6.9.6 Where the number of lanes reduces at the end of a dual carriageway, Lane Loss signs should also be provided in accordance with Paragraphs 6.9.9 to 6.9.14.

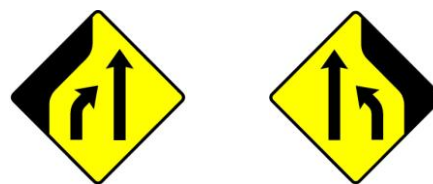
6.9.7 A typical layout for signs and road markings for the start and end of a dual carriageway is shown in Chapter 10.



W 080: Two-Way Traffic

NARROW CENTRAL RESERVES

6.9.8 On rural dual carriageways with narrow central reserves, it may be necessary to widen the central reserve locally to provide sufficient width for the warning signs in the central reserve: this will need to be considered at an early stage in the design of the road alignment. On urban dual carriageways with narrow central reserves, the warning signs in the central reserve may be omitted if the Road Authority considers it appropriate.



W 091L

W 091R

W 091: Lane Loss
(Two to One Lane)

LANE LOSS

6.9.9 For signs for lane loss at the ends of passing lanes on Type 3 Dual Carriageways, see Section 6.10. For signs for lane loss at the ends of climbing lanes, see Section 6.12.

6.9.10 Where the number of lanes in one direction reduces between junctions on a dual carriageway, Signs W 091, W 092 or W 093 should be provided as appropriate (for changes in the number of lanes at junctions, see Paragraphs 6.9.18 to 6.9.20, Lane Diverge). A pair of these signs shall be erected on the verge and central reserve, about 200m in advance of the start of the carriageway taper markings indicating the lane reduction and a second pair shall be erected on the verges 20m before the start of the taper markings. On roads where the 85-percentile approach speed of private cars is 60 km/h or greater, a third pair should also be erected on the verge and central reserve about 400m in advance of the start of the taper markings. On roads where the 85-percentile approach speed of private cars is 80 km/h or greater, a fourth pair should also be erected on the verge and central reserve about 800m in advance.



W 092L



W 092R (200)

Typical Signs W 092: Lane Loss
(Three to Two Lanes)

6.9.11 The signs at 200m, 400m and 800m shall indicate the distance to the taper. Diamond Signs W 091 shall be erected together with Supplementary Plate P 001, whereas rectangular Signs W 092 and W 093 shall have lower panels indicating the distance to the taper. It is recommended that the distance be included in the sign designation: e.g. W 092R(200).

6.9.12 Lane reductions should normally be carried out by removing the right-hand lane. Consequently, Signs W 091R, W 092R or W 093R should normally be used. However, there may be occasions, such as at the end of an extended auxiliary lane at a motorway merge, when it is appropriate to close the left-hand lane. Signs W 091L, W 092L and W 093L are available for such locations.

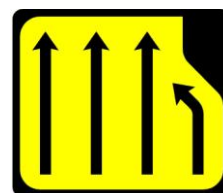
Permitted Variants:	<ol style="list-style-type: none"> 1. Distance shall be varied in accordance with Table 6.11. 2. Distance panel may be omitted.
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6.9.13 The sizes of Signs W 091 (diamond) shall be in accordance with the recommendations of Table 6.1. The sizes of Signs W 092 and W 093 (rectangular) shall be in accordance with the recommendations of Table 6.5.

6.9.14 A typical layout for signs and road markings at a lane reduction on a dual carriageway is illustrated in Chapter 10.



W 093L(400)



W 093R

**Typical Signs W 093: Lane Loss
(Four to Three Lanes)**

Permitted Variants:	<ol style="list-style-type: none"> 1. Distance shall be varied in accordance with Table 6.11. 2. Distance panel may be omitted.
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Table 6.5: Sizes of Rectangular Lane Loss Signs

Speed	≤ 70 km/h		80 to 100 km/h		120 km/h	
Sign	Height (mm)	Width (mm)	Height (mm)	Width (mm)	Height (mm)	Width (mm)
W 092	1085	980	1302	1176	1628	1470
W 093	1085	1305	1302	1566	1628	1958
Distance Panel						
Add'l Height (mm)	350		420		525	
'x'-height (mm)	100		120		150	

LANE GAIN

- 6.9.15 For signs for lane gain on a Type 3 Dual Carriageway, see Section 6.10.
- 6.9.16 Lane gains on other dual carriageways normally occur at junctions and interchanges where appreciable traffic flows join. The signs for these lane gains depict the road layout ahead, showing the number of lanes joining, which lanes merge and which continue as part of the main carriageway.
- 6.9.17 However, signs for lane gains on other dual carriageways are considered to be information signs, rather than warning signs. Therefore, they are rectangular and have backgrounds in blue on motorways, green on national roads and white on regional and local roads, similar to directional information signs. For details see Chapter 4.

LANE DIVERGE

- 6.9.18 Lane diverge occurs when the lanes in a carriageway split at a junction: one or more lanes lead off to a different destination with a consequent reduction in the number of lanes on the main carriageway.
- 6.9.19 In such cases it is necessary to inform drivers of the destinations reached via each lane. Therefore advance direction signs listing the relevant destinations are required. These are described in Chapter 2.
- 6.9.20 On multi-lane urban roads (single or dual carriageways) it may be necessary to advise drivers of the appropriate lanes to travel in for the different manoeuvres at a junction ahead. Such signs are described in Chapter 4.

6.10 Type 3 Dual Carriageways

6.10.1 A Type 3 Dual Carriageway (also known as a '2 + 1 road') is a divided all-purpose road with two lanes in one direction and one in the other divided by a central reserve barrier. The two-lane section is provided alternately for each direction of travel. For details see NRA TD 10³ and NRA TD 27⁴.

6.10.2 There is insufficient room for traffic signs in the central reserve on a Type 3 Dual Carriageway due to its narrow width. Therefore, where pairs of signs are required (one on each side of the carriageway) those on the right should be positioned in the verge of the opposing carriageway. In many cases, these signs can be mounted back-to-back with signs for the other carriageway.

START AND END OF TYPE 3 DUAL CARRIAGEWAY

6.10.3 At the start of a Type 3 Dual Carriageway, Signs W 094, Road Divides, and RUS 001, Keep Left, shall be provided as described in Section 6.9.



W 100: Start of Passing Lane

6.10.4 At the end of a Type 3 Dual Carriageway, Signs W 095, Dual Carriageway Ends, and W 080, Two-Way Traffic, shall be provided as described in Section 6.9.

6.10.5 A typical layout for signs and road markings for the start and end of a Type 3 Dual Carriageway is shown in Chapter 10.

START AND END OF PASSING LANE

6.10.6 Where a lane is gained in the direction of travel Signs W 100, Start of Passing Lane, shall be provided. The signs should be erected on both verges at the start of the taper from one to two lanes.



**W 091R: Lane Loss
(Two to One Lane)**

6.10.7 At the end of a passing lane, where a lane is lost in the direction of travel, Sign W 091R, Lane Loss (Two to One Lane), shall be provided. A pair of these signs shall be erected on both verges 20m before the start of the taper from one to two lanes. Two more pairs of these signs shall also be erected at about 200m and 400m in advance of the start of the taper, one on each verge, with Plates P 001 showing the distance to the start of the taper.



**Typical Supplementary Plate
P 001: Distance**

³ National Roads Authority. *NRA TD 10, Road Link Design for Type 2 and Type 3 Dual Carriageways*. Part of the NRA Design Manual for Roads and Bridges. NRA, Dublin.

⁴ National Roads Authority. *NRA TD 27, Cross-Sections and Headroom*. Part of the NRA Design Manual for Roads and Bridges. NRA, Dublin.

Required Variant:	Distance shall be varied in accordance with Table 6.11.
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6.10.8 Where the start or end of a passing lane occurs at a junction, the signs indicating the start or end shall be positioned so as not to conflict with the signs for the junction. It is important that the signs are clear and unambiguous for both the through traffic and the side road traffic.

6.10.9 Typical layouts for the signs and road markings at changeovers (the start and end of a passing lane) on a Type 3 Dual Carriageway are illustrated in Chapter 10.

PASSING LANE

6.10.10 Approximately 200m after the start of the passing lane, a pair of Signs W 102, Two-Lane Section, shall be erected (one on each verge) together with Supplementary Plate P 002, Length, showing the remaining length to the end of the passing lane. Where the passing lane is more than 2km long, additional Signs W 102 should be provided at intervals not exceeding 2km, with plates showing the remaining length.



W 102: Two-Lane Section



W 101: One-Lane Section

SINGLE LANE SECTION

6.10.11 Approximately 200m after the start of a single lane section, Sign W 101, One-Lane Section, shall be erected together with Supplementary Plate P 002, Length, showing the remaining length to the end of the passing lane. Where the one-lane section is more than 2km long, additional Signs W 101 should be provided at intervals not exceeding 2km, with plates showing the remaining length.



**W 020: T-junction Ahead at Dual Carriageway
(With Central Reserve Break)**

JUNCTIONS AND ACCESSES

6.10.12 Where there are junctions and accesses onto Type 3 Dual Carriageways, the signs visible to drivers on the Type 3 Dual Carriageway should be as for dual carriageway roads.

6.10.13 Where it is possible for traffic to join a Type 3 Dual Carriageway, the warning sign on the side road shall be the appropriate one to warn of a junction with a dual carriageway (Signs W 019 to W 022, see Section 6.2). Where there is no break in the central reserve barrier, a Turn Left sign, RUS 006, shall also be erected in the central reserve to face the side road.



**W 022: T-junction Ahead at Dual Carriageway
(No Central Reserve Break)**

6.11 Steep Hills

6.11.1 Signs W 105, Steep Descent, and W 106, Steep Ascent, are available to warn of steep gradients ahead.

6.11.2 Sign W 105, Steep Descent, should normally be used where the down gradient is greater than 10% for a distance of at least 30m. Similarly, Sign W 106, Steep Ascent, should normally be used where the up gradient is greater than 10% for a distance of at least 30m. However, these signs may also be used on hills which do not meet these criteria, where the Road Authority considers that there is a particular need, such as a very long hill or one with a bad accident record.

6.11.3 The gradient displayed on Signs W 105 and W 106 should be the steepest gradient, rounded to the nearest whole percent.

6.11.4 Where the gradient is at least 10% for 800m or longer, a Supplementary Plate P 002, Length, should be added below the sign to indicate the length of the hill.

6.11.5 On long descents, Sign W 105 should be repeated at intervals of about 800m or at locations where the gradient steepens appreciably. On long ascents, however, repeating Sign W 106 is less important, but it may be done. On some long hills there may be lengths that are steep and others that are appreciably less so and which fall below the warrant for a steep hill sign. In such cases it may be appropriate to treat the steeper portions as separate descents or ascents.



W 105: Steep Descent

Permitted Variants:	<ol style="list-style-type: none"> 1. Gradient shall be rounded to nearest whole percent. 2. Supplementary Plate P 002 may be added.
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W 106: Steep Ascent

Permitted Variants:	<ol style="list-style-type: none"> 1. Gradient shall be rounded to nearest whole percent. 2. Supplementary Plate P 002 may be added.
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6.12 Climbing Lanes

6.12.1 It is important that the signs and road markings be co-ordinated properly at the start and end of a climbing lane. See Chapter 7 for the required road markings. Diagrams illustrating typical layouts of both signs and markings are provided in Chapter 10.

START OF CLIMBING LANE

6.12.2 Sign W 103, Start of Climbing Lane, should be provided at the start of a climbing lane on a single carriageway road. On a Type 3 Dual Carriageway Sign W 100, Start of Passing Lane, should be used (see Section 6.10). No warning sign is needed for the start of a climbing lane on a Type 1 or Type 2 Dual Carriageway.



W 103: Start of Climbing Lane

END OF CLIMBING LANE

Single Carriageway Roads

6.12.3 At the end of a climbing lane, where a lane is lost in the direction of travel, Sign W 091R, Lane Loss (Two to One Lane), shall be provided. A pair of these signs shall be erected on both verges 20m before the start of the taper from one to two lanes. A pair of these signs shall also be erected at about 200m in advance of the start of the taper, one on each verge, with Supplementary Plates P 001, Distance, showing the distance to the start of the taper. The location of these signs should be adjusted where necessary to ensure that they are visible before the crest. Where the taper is more than 300m long, a third pair of Signs W 091R should be erected about 200m after the start of the taper.



**W 091R: Lane Loss
(Two to One Lane)**

6.12.4 On roads where the 85-percentile approach speed of private cars is 80 km/h or greater, a third pair of Signs W 091R, each with Supplementary Plate P 001, should also be erected on the verge and central reserve about 400m in advance of the start of the taper markings.

Type 1 and Type 2 Dual Carriageway Roads

6.12.5 The signs used to warn of the end of a climbing lane on a Type 1 or Type 2 Dual Carriageway road should be the same as for a single carriageway road except that pairs of Signs W 092R, Lane Loss (Three to Two Lanes), shall be erected on the verge and the central reserve instead of Signs W 091R. Instead of supplementary plates, Signs W 092R 200m or more in advance of the start of the taper shall have lower panels indicating the distance to the start of the taper.



Type 3 Dual Carriageway Roads

6.12.6 Signs at the ends of climbing lanes on Type 3 Dual Carriageways shall be in accordance with Section 6.10 for the ends of passing lanes.

**W 092R(200): Lane Loss
(Three to Two Lanes)**

Permitted Variants:	<ol style="list-style-type: none"> 1. Distance shall be varied in accordance with Table 6.11. 2. Distance panel may be omitted.
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6.13 Restricted Headroom

6.13.1 Restricted headroom should be signed wherever the available headroom is less than 5.03m over the whole width of the carriageway, including hard shoulders. At bridges, the regulatory Maximum Headroom sign, Sign RUS 016, shall be used at the point where the restriction commences (see Chapter 5), but warning signs should be used to provide advance warning before the point of no return.



W 110: Restricted Headroom

6.13.2 Where a warning sign is appropriate, Sign W 110 should be used, with the available headroom indicated in metres to two decimal places.

Required Variant:	Height shall show the available headroom in accordance with Paragraphs 6.13.3 to 6.13.5.
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AVAILABLE HEADROOM

6.13.3 The available headroom indicated on the sign shall always be less than the actual minimum headroom, to allow for error, vertical movement of the vehicle and sag curves. The following procedure should be adopted to calculate the appropriate signed height:

- a) The actual minimum height shall be measured in metric units to two decimal places, rounded down to the nearest centimetre;
- b) If the second decimal of a metre is 8 or 9, use the measured whole number and the first decimal digit and replace the second decimal digit with zero;
- c) If the second decimal of a metre is 0 to 2, use the measured whole number, reduce the first decimal by 1 (reducing the whole number if appropriate) and replace the second decimal digit with zero;
- d) If the second decimal of a metre is 3 to 7, use the measured whole number, reduce the first decimal by 1 (reducing the whole number if appropriate) and replace the second decimal digit with 5.

For example:

- Measured height 4.57m, sign as 4.45m;
- Measured height 4.39m, sign as 4.30m;
- Measured height 4.12m, sign as 4.00m;
- Measured height 4.06m, sign as 3.95m.

6.13.4 The signed height shall be the same as (or less than) the signed height on any regulatory signs RUS 016.

6.13.5 In the case of rail bridges, the clearance headroom shall be agreed with the relevant railway authority.

ARCH BRIDGES

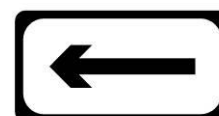
6.13.6 At arch bridges with restricted headroom, high vehicles may need to move into the centre of the carriageway in order to pass under the centre of the arch. At such locations, Signs W 110 should be erected on the immediate approaches to the bridge together with Supplementary Plates P 060, Oncoming Traffic. These signs and plates shall be in addition to the signs (RUS 016) mounted on the bridge itself.



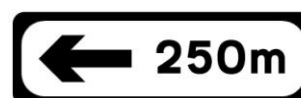
**Supplementary Plate P 060:
Oncoming Traffic**

ADVANCE WARNING

6.13.7 It is important to provide advance warning of restricted headroom. The relevant advance warning sign should be erected immediately after the last place where an alternative route could be chosen to avoid the restriction. It may also be appropriate to warn of a restriction down a side road. Sign W 110 should be provided, together with Supplementary Plate P 001, P 003 or P 004 to indicate the distance and/or direction to the restriction (see Section 6.24). This sign should be used even though the sign at the bridge is the regulatory Sign RUS 016. The regulatory sign should not be used as advance warning, as it would be an offence for a driver of an overheight vehicle to pass such a sign: this would prevent legitimate access to premises or side roads between the sign and the bridge.



**Typical Supplementary Plate
P 003: Direction**



**Typical Supplementary Plate
P 004: Direction and Distance**

6.13.8 Diversion signing may also be warranted, especially if the bridge is on a busy route or has a history of frequent strikes. Diversion signs for overheight vehicles are described in Chapter 4.

OVERHEAD ELECTRICAL CABLES

6.13.9 Where there is a danger that high vehicles may contact overhead electrical cables, Sign W 111, Overhead Electrical Cables, should be provided on each approach. Supplementary Plate P 067, Safe Headroom, shall always accompany the sign.



W 111: Overhead Electrical Cables

Requirement:	Shall be mounted with Supplementary Plate P 067.
Permitted Variant:	Supplementary Plate P 001, P 003 or P 004 may be mounted below Plate P 067.

6.13.10 Sign W 111 will normally be required where electrified railways or tramways cross roads: they should be used in advance of all level crossings on such lines. It may also be required where other electrical cables cross a road. Because of the high voltage of some cables, it is very important to ensure that adequate warning is given based on consultation with the owner of the power-line.

6.13.11 At some locations it may be appropriate to provide advance warning of overhead cables by erecting additional signs at some distance from the crossing. Sign W 111 and Supplementary Plate P 067 together with a second supplementary plate may be used for this purpose. The second plate should be P 001, P 003 or P 004 as appropriate, to show the distance to the crossing and/or, where the crossing is in a side road, an arrow indicating the direction (see Section 6.24).

6.13.12 The Road Authority shall consult with the owner of the electrical cables in order to agree the safe height to be displayed. It should be at least 600mm below the lowest hot weather height of the overhead conductor for systems of 25kV or more and at least 450mm below for lower voltages. The height displayed should be rounded down in accordance with Paragraph 6.13.3.



**Supplementary Plate P 067:
Safe Headroom**

Required Variant:	Height shall show the agreed safe headroom rounded in accordance with Paragraph 6.13.3.
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6.14 Advance Warning of Restrictions

6.14.1 Several restrictions on the types of traffic permitted on a road are indicated by regulatory signs at the location where the restriction applies. For the use of these regulatory signs see Chapter 5. These restrictions may indicate limits on vehicle height, weight, length, width or number of axles. This section describes the use of the appropriate warning signs.



W 112: Maximum Vehicle Length

Requirement:	Shall show the maximum length to nearest 0.5m.
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6.14.2 It is important to warn drivers in advance of these restrictions, by using warning signs, so they can use alternative routes if necessary. The regulatory signs should not be used as advance warning, as it would be an offence for a driver of a vehicle exceeding the limit to pass such signs: this would prevent legitimate access to premises or side roads between the sign and the beginning of the restriction.

6.14.3 For advance warning of height restrictions, see Section 6.13.

6.14.4 Apart from restricted headroom, the following signs are available for advance warning:

- Sign W 112: Maximum Vehicle Length;
- Sign W 113: Maximum Vehicle Width;
- Sign W 114: Maximum Gross Weight (Traffic Management);
- Sign W 115: Maximum Gross Weight (Safety);
- Sign W 116: Maximum Axle Weight; and
- Sign W 117: Prohibited Number of Axles (for Goods or Other Non-Passenger Vehicles).



W 113: Maximum Vehicle Width

Requirement:	Shall show the maximum width to nearest 0.05m.
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6.14.5 These signs shall not be provided unless the relevant regulatory sign is provided at the restriction.

6.14.6 The relevant advance warning sign should be erected immediately after the last place where an alternative route could be chosen to avoid the restriction. It may also be appropriate to warn of a restriction down a side road. Supplementary Plates P 001, P 003 or P 004, as appropriate, may be used with the signs to indicate the distance and/or direction to the restriction.

6.14.7 The warning signs shall depict the same restriction as the regulatory sign to which they refer. Sign W 112 shall show the maximum dimension to the nearest 0.5m and Sign W 113 to the nearest 0.05m.

6.14.8 Signs W 114 and W 115 shall show one of the following gross vehicle weights:

3.5t, 7.5t, 10t, 12.5t, 18t, 26t and 32t.

6.14.9 Sign W 116 shall show the maximum axle weight to the nearest tonne. Sign W 117 shall show the prohibited number of axles as x3, x4, x5 or x6 axles.



W 114: Maximum Gross Weight (Traffic Management)

Requirement:	Shall show the maximum weight in accordance with Paragraph 6.14.8.
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W 116: Maximum Axle Weight

Requirement:	Shall show the maximum weight to the nearest tonne.
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W 115: Maximum Gross Weight (Safety)

Requirement:	Shall show the maximum weight in accordance with Paragraph 6.14.8.
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W 117: Prohibited Number of Axles (for Goods or Other Non-Passenger Vehicles)

Requirement:	Shall show x3, x4, x5 or x6 axles.
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6.15 Level Crossings

6.15.1 Level crossings require a series of traffic signs, signals and road markings, both regulatory and warning. The use of all the signs is described in this section, but details of the regulatory signs are given in Chapter 5 and the signals in Chapter 9. Road markings for use at level crossings are described in Chapter 7 and typical layouts of signs and markings are illustrated in Chapter 10.

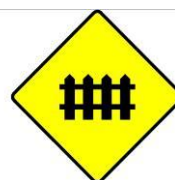
RAILWAY LEVEL CROSSINGS

6.15.2 There are several types of railway level crossing. From the road user's point of view, these may be grouped as follows:

- Barrier crossings with flashing red signals and barriers. The barriers lift vertically and are either full barriers controlled by CCTV or an adjacent railwayman, or automatic half barriers;
- Barrier crossings with full barriers, but without flashing red signals. These are controlled by an adjacent railwayman;
- Automatic open crossings controlled by flashing red signals, but with no barriers or gates;
- Gated crossings with red/white gates. The gates swing horizontally, controlled by a railwayman, and close the railway when open to road traffic;
- Gated crossings with iron gates operated by an attendant. These gates open away from the railway and, therefore, do not close the railway when open to road traffic. Some, but not all, are interlocked so that a train receives a red signal unless the gates are closed to road traffic; and
- Gated crossings with iron gates operated by the user. These gates also open away from the railway and rely on the user to take care that the line is clear before crossing.



W 120: Level Crossing with Flashing Red Signals



W 121: Level Crossing with No Flashing Red Signal (with Barriers or Gates)

6.15.3 The set of signs required on the road approaches depends on the type of crossing. Four signs are required on each road approach, designated Positions A to D in the order in which an approaching driver encounters them – see Table 6.7 and Figure 6.5.

Positions A, B and C

6.15.4 Three appropriate yellow diamond 'Level Crossing Ahead' signs shall be erected on each road approach – at Positions A, B and C. These shall be Sign W 120 for crossings with flashing red signals (RTS 005), or Sign W 121 for crossings without flashing red signals but with barriers or gates. These signs should normally be positioned on the left-hand verge, but may be repeated on the opposite verge for greater emphasis or where the road is on a left-hand curve.



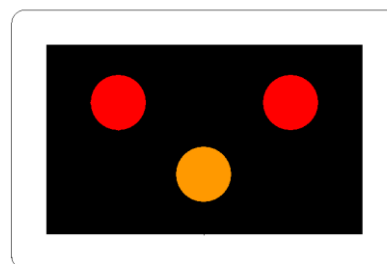
**Typical Supplementary Plate
P 004: Direction and Distance**

6.15.5 Where the level crossing is close to a road junction, such that the junction is closer than Position A, warning signs W 120 or W 121, as appropriate, shall be erected on all road approaches, with Supplementary Plates P 004 showing the distance and direction to the crossing.

Required Variant:	Distance shall be varied in accordance with Table 6.11.
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Position D

6.15.6 At crossings with signals and barriers or with signals only, the flashing red Level Crossing Signals, RTS 005, shall be placed at or adjacent to the Stop line at the level crossing – Position D. For details of these signals, see Chapter 9.



RTS 005: Level Crossing Signals

6.15.7 At crossings without flashing red signals a Stop sign (RUS 027) is required at or adjacent to the Stop line at the level crossing – Position D – as described below.

6.15.8 At crossings with lifting barriers only, a Stop sign shall be fixed to the barrier boom such that, when the barrier is lowered, the sign is approximately in the centre of the approaching road traffic lane.

6.15.9 At crossings with gates, a Stop sign shall be fixed to the gate such that, when the gate is closed, the sign is approximately in the centre of the approaching road traffic lane. However, where the gates are operated by the road user or where attendant operated gates are not interlocked with the railway signals, a Stop sign shall also be erected on a post on the verge adjacent to the crossing Stop line. This sign is required to ensure that all traffic stops before crossing, as the presence of an open gate does not mean that a train cannot cross.



RUS 027: Stop

Table 6.7: Road Traffic Signs at Railway Level Crossings

Sign Position	Level Crossing Type				
	Full Barrier or Half Barrier	No Barrier	Full Barrier	Gates Which Close Railway or With Signal Interlock	Gates Without Signal Interlock (User or Attendant Operated)
	Flashing Red Signals		Without Flashing Red Signals		
A	Sign W 120 with Plate P 001 or Marker W 122.3L		Sign W 121 with Plate P 001 or Marker W 122.3L		
B	Sign W 120 with Plate P 001 or Marker W 122.2L		Sign W 121 with Plate P 001 or Marker W 122.2L		
C	Sign W 120 with Plate P 001 or Marker W 122.1L		Sign W 121 with Plate P 001 or Marker W 122.1L		
D	Signal RTS 005 ¹		Sign RUS 027 on Barrier	Sign RUS 027 on Gate	Signs RUS 027 on Gate and on Post ²

Notes:

1. Supplementary Plate P 061 is also required on double-track lines with automatic half barriers or no barriers. (See Paragraph 6.15.14).
2. Gates without signal interlock but which close across the railway do not require the additional Stop sign on a post.

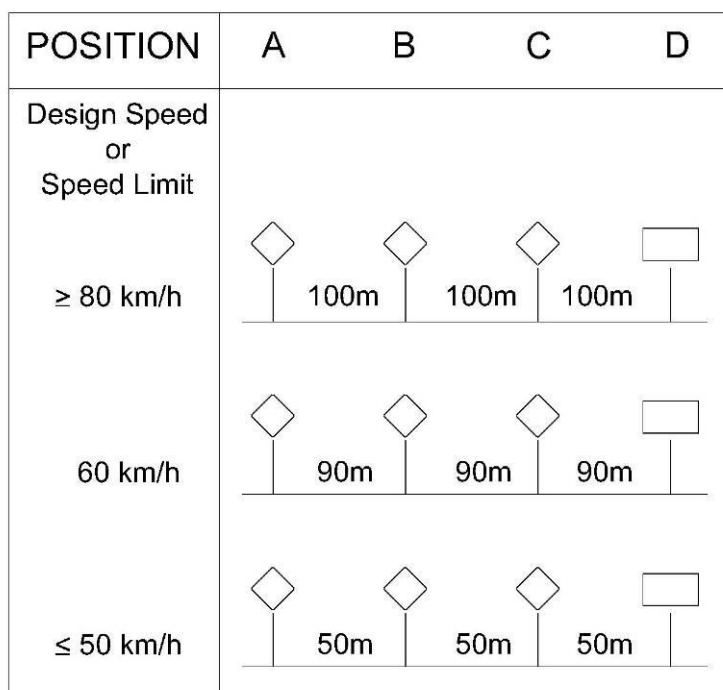


Figure 6.5: Spacing and Distances of Signs From Level Crossings

DISTANCE PLATES AND COUNTDOWN MARKERS

6.15.10 Supplementary Plates P 001, showing the distance to the crossing should be mounted below the level crossing warning signs (W 120 or W 121) at Positions A, B and C, unless Countdown Markers are used instead.

6.15.11 Level Crossing Countdown Markers, Signs W 122.1 to W 122.3, may be provided as an alternative to Supplementary Plates. In particular, Countdown Markers should be provided on the approaches to railway level crossings on National Roads outside urban areas. The markers (suffix L) should be mounted below the left hand side level crossing warning signs at Positions A, B and C instead of distance plates. The markers may be duplicated on the right hand side (with or without the warning Signs W 120 or W 121), for greater emphasis or to improve visibility. If they are, the slope of the diagonal bars shall be reversed (suffix R). If the level crossing warning signs are repeated on the right hand side, the right hand Countdown Markers shall be mounted below them.



Typical Supplementary Plate
P 001: Distance

Required Variant:	Distance shall be varied in accordance with Table 6.11.
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W 122.3L



W 122.2L



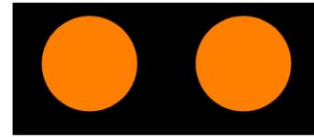
W 122.1L

W 122: Level Crossing Countdown Markers

Required Variant:	Diagonal bars shall be reversed (suffix R) when sign is mounted on right hand side.
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FLASHING AMBER SIGNALS

6.15.12 Where additional warning of the level crossing is considered necessary, Flashing Amber Signals, S 102, may be provided. These signals consist of two amber lamps on a black background: see Chapter 9. The amber signals may be provided at crossings with lights and barriers or with lights only. The lights shall flash whenever the lights on Signal RTS 005 are activated. Regard should be had to current railway infrastructure guidelines for exact locations of these signals, details of which are available from the Railway Safety Commission. However, the locations must be approved by the Road Authority.



Signal S 102: Flashing Amber Signals

6.15.13 Circumstances where the provision of S 102 may be considered include:

- Crossings where the Annual Average Daily Traffic exceeds 2,000 vehicles;
- Crossings where the recommended visibility for the approach speed of traffic is not available to the Signals RTS 005; and
- Crossings where the road alignment is such that a driver's view of the Signals RTS 005 may be impaired by the sun at certain times.

ANOTHER TRAIN COMING

6.15.14 At automatic half barrier level crossings on double-track lines, Supplementary Plate P 061, Another Train Coming, shall be erected below or adjacent to the red flashing signals RTS 005.



**Supplementary Plate P 061:
Another Train Coming**

RESPONSIBILITY

6.15.15 The Road Authority shall consult with the railway authority to ascertain the operational details of the crossing and agree the signs and road markings required.

6.15.16 At all level crossings, the railway authority shall be responsible for providing, operating and maintaining the barriers, gates, Level Crossing Signals, RTS 005, and Flashing Amber Signals, S 102. They shall also be responsible for providing and maintaining Stop signs, RUS 027, fixed to the barriers or gates. The railway authority shall also provide any telephone equipment and associated information signs required to enable drivers to contact the railway. All other signs and road markings at the crossing shall be provided and maintained by the Road Authority.

SPEED LIMITS

6.15.17 The speed of road traffic on the approaches to the level crossing needs to be considered. If a special speed limit is considered necessary, the relevant procedure will need to be followed for obtaining the necessary bye-law; see Chapter 5.

RISK OF GROUNDING

6.15.18 At some level crossings, where the road rises to cross the rails, there can be a danger that long road vehicles may ground on the crossing, due to the relative levels of the approaches and the tracks. In such instances Sign W 123, Risk of Grounding, should be provided. Where appropriate, additional Signs W 123 together with Supplementary Plates P 001 or P 004 may be erected at nearby junctions to provide advance warning.

6.15.19 Where Sign W 123 is provided, a lay-by or parking area should be provided near the crossing, to enable drivers of long vehicles to pull in. Sign W 123 should be repeated adjacent to this lay-by, together with Supplementary Plate P 062, Long Low Vehicles. A telephone and appropriate information notices should be provided nearby, to enable the driver to phone the railway signalman for permission to cross.



W 123: Risk of Grounding



**Supplementary Plate P 062:
Long Low Vehicles**

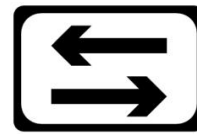
LIGHT RAIL AND TRAMWAY LEVEL CROSSINGS

6.15.20 Level crossings for light rail and trams generally occur in urban areas and are ungated, with road traffic controlled by conventional traffic signals. Sign W 124, Tram Crossing, shall be provided on the road approaches to such a level crossing, sited at the standard distance given in Table 6.1. A pair of Signs W 124 shall also be positioned, one on each side of the road, adjacent to the signals. This second pair of signs should be positioned primarily for pedestrians and shall be mounted with Supplementary Plate P 005 to indicate that trams may approach from either direction.



W 124: Tram Crossing

6.15.21 Where light rail or tram tracks cross roads, bridleways, cycle tracks or footpaths without traffic signals, Sign W 124 shall be provided on the road or track approaches, sited at the standard distance given in Table 6.1, and a pair of Signs W 124 shall be sited adjacent to the crossing, one on each side of the road. The pair adjacent to the crossing shall be mounted with Supplementary Plate P 005 to indicate that trams may approach from either direction.



**Supplementary Plate P 005:
Both Ways**

6.15.22 Where light rail or tram tracks on a dedicated right-of-way cross roads, bridleways, cycle tracks or footpaths, Pedestrians Prohibited signs, RUS 038, should be erected on either side of the level crossing, to show that pedestrians are prohibited from walking along the rail or tram way.



**RUS 038:
Pedestrians Prohibited**

6.15.23 Where level crossings for light rail and trams are provided with flashing red Level Crossing Signals, RTS 005, the appropriate set of signs for a railway level crossing shall be provided, except that Sign W 124 shall be provided in place of Sign W 120 or W 121.

6.15.24 For signs to warn cyclists at junctions with tram tracks, see Section 6.17.

ADVISORY SPEED FOR TRAMS

6.15.25 Where trams are running on the public road, the tram operating authority may wish to warn tram drivers to travel no faster than certain speeds. Sign W 125, Tram Advisory Speed, is available for this use. The tram operating authority will determine the need for the sign and its location. The design of the sign is deliberately different from signs for other road users.



W 125: Tram Advisory Speed

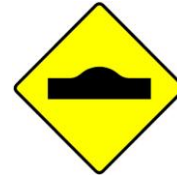
6.15.26 Information and regulatory signs relating to trams are contained in Chapters 4 and 5 respectively.

Permitted Variant:	Speed may be varied.
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6.16 Road Surface

HUMP OR DEPRESSION

6.16.1 Where there is an individual sharp rise or depression in the road surface, Sign W 130, Road Hump, or Sign W 131, Road Depression, should be provided as appropriate.



W 130: Road Hump

6.16.2 Sign W 130 should also be provided at the start of a road where road humps have been introduced as a traffic calming measure. The sign should not normally be required on a road with a 30km/h speed limit.

6.16.3 These signs may be used to warn of temporary humps or depressions. However, there are orange versions of these signs for use at roadworks sites, (see Chapter 8).



W 131: Road Depression

HUMPBACK BRIDGE

6.16.4 Sign W 132, Humpback Bridge, is available to warn of a humpback bridge ahead.

6.16.5 At some humpback bridges it may be necessary also to provide Sign W 123, Risk of Grounding (see Section 6.15).



W 132: Humpback Bridge

UNEVEN ROAD

6.16.6 Sign W 133, Uneven Road, should be used to warn of danger arising from irregularities in the road surface which might impair control of vehicles at their normal speed. The sign should be regarded as temporary, pending remedial work to the carriageway and should be removed following repairs. The sign should not be used at level crossings, since the level crossing signs provide adequate warning (see Section 6.15). Where the length of uneven road continues for more than about 400m, a Supplementary Plate P 002 should be used to indicate the length of uneven road.



W 133: Uneven Road

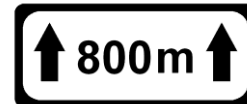
SLIPPERY ROAD

6.16.7 Sign W 134, Slippery Road, should be used to warn that the danger of vehicles skidding is greater than normal, usually due to the skid resistance of the surfacing being low. The degree of danger cannot be defined as it depends on the skid resistance, speed of traffic, superelevation and other factors. The Road Authority will need to judge when to display this sign. However, it should not be over-used, or its credibility would be undermined.



W 134: Slippery Road

6.16.8 Sign W 134 should be regarded as temporary, pending remedial work to the carriageway or drainage and should be removed following repairs.



P 002: Length

6.16.9 The orange roadworks version of this sign (WK 072) may be required at roadworks where traffic is running on a temporary surface or the final surfacing has not yet been laid. Also, where roadworks are substantially complete but it is necessary for a road to remain for a period with a surface having less skid resistance than the intended final solution, orange roadworks signs WK 001 and WK 072 should be used to warn drivers (see Chapter 8).



P 011: Cautionary Speed

6.16.10 Supplementary Plate P 002, Length, may be used together with Sign W 134 to indicate the length for which the sign applies.

Required Variant:	Speed shown shall be 25, 35, 45, 55 or 65km/h.
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6.16.11 Where it is considered advisable to reduce the speed of vehicles due to the slippery road surface, Supplementary Plate P 011, Cautionary Speed, may be erected below Sign W 134 to show the maximum advisable speed. It is a general principle that cautionary speeds are not advised, since the duty is on the driver to drive at the appropriate speed for the conditions. However, an exception is made in the case of Sign W 134, since a slippery road surface may not be apparent to drivers.



P 065: Oil Spill

6.16.12 Where the road surface has become slippery due to an oil or other chemical being spilt on the road or due to ice, Sign W 134 may be erected temporarily together with Supplementary Plate P 065, Oil Spill, or P 066, Ice.



P 066: Ice

SOFT VERGES

6.16.13 Where it is considered necessary to warn drivers of soft verges, Sign W 135, Soft Verge, may be erected.

6.16.14 Supplementary Plate P 002, Length, may be used together with Sign W 135 to indicate the length for which the sign applies.



W 135: Soft Verge

6.17 Pedestrians and Cyclists

PEDESTRIAN CROSSING

6.17.1 Sign W 140, Pedestrians, is available for use where the visibility to an uncontrolled pedestrian crossing or to a zebra crossing is impaired by a bend or hump in the road. At a zebra crossing, the sign will not be needed if both beacons at the crossing are visible from a distance of 45m on a 50km/h road, or 80m on a 60km/h road. If sight lines to the crossing are obscured by parked vehicles, the imposition of parking restrictions should be considered.



W 140: Pedestrians

6.17.2 Sign W 140 shall not be used on the approaches to a signal controlled pedestrian crossing. Should a warning be required, Sign W 042, Traffic Signals, would be more appropriate.

VULNERABLE PEDESTRIANS

6.17.3 Where pedestrians frequently use a road without a proper footway, Sign W 140 may be provided to warn drivers of their presence. Where the length over which pedestrians are likely to be on the road is longer than about 250m, a Supplementary Plate P 002 should be used to indicate the length.

6.17.4 The sign may also be provided where vulnerable road users are likely to cross a road in appreciable numbers.



W 141: School Ahead

CHILDREN

6.17.5 Sign W 141, School Ahead, may be provided to warn of the likelihood of encountering children on the road. It should normally be used where children cross to go to school or a playground.

6.17.6 At a school, Sign W 141 may be supplemented by Flashing Amber Signals, S 102, mounted below the warning sign. These signals consist of two amber lamps on a black background: see Chapter 9. Such signals may be provided either where an adult or junior school warden service operates or where prevailing circumstances such as vehicle speeds or road alignment constitute a significant danger to children crossing.



S 102: Flashing Amber Signals

6.17.7 Flashing amber signals, Signal S 102, should not be erected within 100m of signals or pedestrian crossings where children may otherwise cross in safety.

6.17.8 Sign W 142, Children Crossing, may be used to alert drivers to the danger of children crossing roads in residential areas other than at schools and playgrounds. The sign should be provided only in towns and villages, on roads of a primarily residential character with continuous housing frontage. The sign may also be provided at the entrances to housing estates from main traffic routes.



W 142: Children Crossing

CYCLISTS

6.17.9 Sign W 143, Cyclists, is available for use where it is considered necessary to warn traffic of a cycle track crossing or joining a road, other than at a controlled crossing. It may also be used to warn of the likely presence of a significant number of cyclists along a route. Where the length over which a significant number of cyclists may be encountered is longer than about 250m, Supplementary Plate P 002, Length, may be used to indicate the length.



W 143: Cyclists

6.17.10 Sign W 143 should be provided on a national or regional road in advance of a junction at which a signed cycle route crosses. Where a signed cycle route runs along a national or regional road, Sign W 143 should be provided together with Supplementary Plate P 002, Length, to indicate the length of road along which cyclists are likely to be encountered. It may be necessary to repeat this sign at intervals along the relevant length. For details of signs for cycle routes, see Chapter 4.



W 144: Slippery for Cyclists

6.17.11 In some places, especially at junctions, tram tracks can cause problems for cyclists due to the slippery surface of the tracks. In such locations Sign W 144, Slippery for Cyclists, may be provided. The sign should be erected together with Supplementary Plate P 064, Tram Track.



**Supplementary Plate P 064:
Tram Track**

6.18 Animals

6.18.1 Warning signs are available to indicate the possibility of animals on the road. The signs indicate Accompanied Horses, Cattle or Farm Animals, Sheep, and Deer or Wild Animals.



W 150: Accompanied Horses

6.18.2 Accompanied Horses, Sign W 150, should only be used where traffic exceeds 300 vehicles per day and at least five accompanied horses or ponies a day regularly cross or use a stretch of road.

6.18.3 Cattle or Farm Animals, Sign W 151, may be used where livestock is brought across the road or is likely to be encountered on a stretch of road. The following should be considered before such a sign is erected:



W 151: Cattle or Farm Animals

- The location should be in regular use for livestock;
- The location should be considered hazardous: for example, there may have been accidents at the site; and
- The available sight distance to the crossing should be less than the relevant distance from Table 6.8.

Table 6.8: Stopping Sight Distance for Animal Crossings

Speed (km/h)	Sight Distance (m)
30	50
50	70
60	90
80 or 85	160
100	215



W 152: Sheep

6.18.4 Sheep, Sign W 152, may be used where sheep are likely to be encountered on a road; for example on commonage.

6.18.5 Deer or Wild Animals, Sign W 153, may be used where wild animals are likely to be encountered.



W 153: Deer or Wild Animals

CATTLE GRID

6.18.6 The presence of a cattle grid should be marked by the provision of Sign W 170, Other Hazard, with the 'Cattle Grid' variant of Supplementary Plate P 069 on the approaches (see Section 6.21).

6.19 Water

QUAYSIDES

6.19.1 Wherever a public road approaches an unprotected body of water, such as a river, canal or quayside, Sign W 160, Unprotected Water, should be provided. The sign may be used as an advance warning on the approach to a quayside, and at intervals along the unprotected length.



W 160: Unprotected Water

FORD

6.19.2 Sign W 161, Ford, should be used at all fords, even those which dry up in the summer. The sign may also be placed at the entrance to the road leading to the ford, together with a Supplementary Plate P 001 to indicate the distance to the ford.



W 161: Ford

6.19.3 A depth gauge may be erected at fords, indicating the depth at the deepest point. Gauges should be sited so that the depth can be seen by a road user on the approach before entering the water.

6.20 Tunnels

6.20.1 Sign W 162, Tunnel, shall be used in advance of a road tunnel. Where the headroom over any part of the carriageway is less than 5.03m, the relevant warning or mandatory signs should also be provided, as described in Section 6.13.



W 162: Tunnel

6.20.2 Where the tunnel is 500m or more in length, Supplementary Plate P 002 shall be used with Sign W 162 to indicate the length of the tunnel. Alternatively, a separate information sign, Sign F 800, may be provided to indicate the name of the tunnel and its length (see Chapter 4).

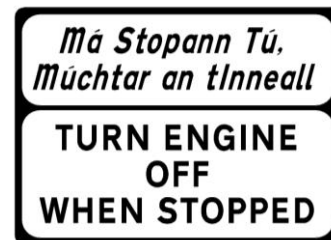
6.20.3 In tunnels of 3,000m or more in length, the remaining length of the tunnel shall be indicated every 1,000m by repeating Sign W 162 and Supplementary Plate P 002 to show the remaining length of tunnel (or by repeating Sign F 800).



F 800: Typical Tunnel Name and Length

6.20.4 Since the build-up of carbon monoxide can be dangerous in tunnels, Supplementary Plate P 068, Turn Engine Off When Stopped, is available to warn motorists to turn off their engine when stopped. This sign may be used in tunnels where queues of stationary traffic are likely. Plate P 068 may be mounted in conjunction with Sign W 163, Queues Likely, (see Section 6.21) or (unlike other supplementary plates) mounted on its own as a separate sign.

6.20.5 An information sign is also available to advise drivers to turn their headlights on (see Chapter 4).



Supplementary Plate P 068:
Turn Engine Off When Stopped

6.21 Miscellaneous Hazards

6.21.1 A number of other warning signs are available for warning of miscellaneous hazards, either using specific symbols or the Other Hazard (!) sign.

QUEUES LIKELY

6.21.2 Drivers should expect to encounter traffic queues on the approaches to traffic signals or other junctions, where advance warning of the junction will suffice to warn of possible queues. If long queues occur, additional advance warning of the junction can be provided. However, there are situations where drivers might come across queues unexpectedly, such as over the brow of a hill or around a bend. For such situations Sign W 163, Queues Likely, is available. This sign should only be used where there is a persistent problem, causing a significant hazard. The sign should be sited sufficiently in advance of the obstruction to the sight line and the likely end of the queue to enable drivers to slow and stop in time. Supplementary plates denoting the distance to the queue shall not be used with this sign.



W 163: Queues Likely

6.21.3 Sign W 163 may also be used on motorways or grade-separated dual carriageways where queues on a slip road regularly extend back, thereby shortening the deceleration length available or even encroaching onto the main carriageway.

6.21.4 In tunnels Sign W 163 may be erected with Supplementary Plate P 068, Turn Engine Off When Stopped (see Section 6.20).

6.21.5 Where traffic queues are likely because of roadworks, an orange background version of the sign (Sign WK 062) should be used. Sign WK 062 shall always be preceded by Sign WK 001, Roadworks Ahead (see Chapter 8).



W 164: Falling Rocks

FALLING ROCKS

6.21.6 Sign W 164, Falling Rocks, may be used where there is a danger of rocks falling onto a stretch of road. Supplementary Plate P 002 may be used with the sign to show the length of road which might be affected.

LOW-FLYING AIRCRAFT

6.21.7 Sign W 165 is for use on roads near airfields. It is used to warn of low-flying aircraft or sudden aircraft noise which may startle road users.



W 165: Low-flying Aircraft

CROSSWINDS

6.21.8 Sign W 166, Crosswind, should be used where crosswinds occur regularly and may cause drivers to lose control of their vehicle. The sign can also be used where there is a danger that crosswinds may cause high-sided goods vehicles to overturn. Risk prone areas will include lengthy or elevated sections of viaduct spanning high sided valleys, exposed coastal roads and other areas where there is no natural protection from crosswinds.



W 166: Crosswind

OPENING BRIDGE

6.21.9 Sign W 167, Opening Bridge should be used on the approaches to a lifting or swing bridge. At the bridge itself, additional traffic control is required. This should normally include flashing red Level Crossing Signals, RTS 005 (see Section 6.15 and Chapter 9).



W 167: Opening Bridge

AGRICULTURAL (OR OTHER) MACHINERY

6.21.10 Sign W 168 is available for use where it is necessary to warn drivers that they may encounter slow-moving traffic of an agricultural or industrial nature. Use of the sign should normally be limited to locations where visibility is poor on the approaches to a farm or factory entrance.



W 168: Tractors

DRIVE ON LEFT

6.21.11 Sign W 169, Drive on Left, should be used at the exits from ports and airports and major tourist attractions. It may also be used at the exits from long-stay tourist camps or resorts. Pairs of signs should be positioned on both the left and right hand verges a short distance from the exit. These signs are particularly valuable where traffic exits from a tourist site directly onto a relatively lightly trafficked single carriageway.

6.21.12 Since Sign W 169 is intended for foreign drivers speaking English, French or German, there is no need for an Irish version, even in Gaeltacht areas.

6.21.13 Sign W 169 should be supplemented by arrows on the carriageway indicating the direction of traffic in each lane (see Chapter 7).



W 169: Drive on Left

OTHER HAZARD

6.21.14 Where other hazards occur for which specific warning signs are not prescribed in this Chapter, Sign W 170, Other Hazard, may be used. The sign should not normally be used on its own, without specifying the danger.

6.21.15 Sign W 170 should normally be used together with Supplementary Plate P 069 denoting the nature of the hazard. It may also be used by the Road Authority or emergency services as a temporary sign to warn of a temporary hazard such as an accident or flood. The various messages which may be shown on Supplementary Plate P 069 are listed in Table 6.9. No other text may be used.



W 170: Other Hazard

Required Variant:	The sign should normally be mounted with Supplementary Plate P 069 or P 070.
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Table 6.9: Variants of Supplementary Plates P 069 and P 070, Hazard

Text	
English	Irish
Temporary Hazards:	
COLLISION	<i>Timpiste</i>
FALLEN TREE	<i>Crann Tite</i>
FLOOD	<i>Tuile</i>
NO ROAD MARKINGS	<i>Níl Aon Marcanna Bóthar</i>
ROAD CLOSED	<i>Bóthar Dúnta</i>
TEST BRAKES	<i>Tástáil na Coscáin</i>
INCIDENT AHEAD	<i>Teagmhas Romhat</i>
Permanent Hazards:	
BLIND CREST	<i>Buaic Chaoch</i>
CATTLE GRID	<i>Greille Eallaigh</i>
HIDDEN DIP	<i>Claonas Ceilte</i>
FLOODING RISK	<i>Baol Tuilte</i>



Typical Supplementary Plate P 069: Temporary Hazard

Required Variant:	The wording shall conform to one of the variants of Table 6.9.
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6.21.16 It may sometimes be necessary to warn of the presence of one of these ‘other hazards’ in advance or at the entrance to a road, in order to give an opportunity for drivers to choose alternative routes. At such locations, Sign W 170 should be erected with the appropriate variant of Supplementary Plate P 070, showing the nature of the hazard and the distance and/or direction to it. The text shall be one of the options listed in Table 6.9. Where the distance is shown, it shall be rounded in accordance with Table 6.11 (see Section 6.24). Direction arrows should be used where the sign indicates a hazard down a side road.



**Typical Supplementary Plate
P 070: Hazard – Direction and
Distance**

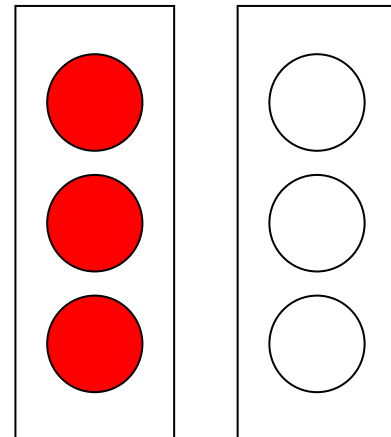
6.21.17 Sign W 170 shall not be used where the temporary hazard is roadworks or similar: for example hedge cutting, surveying, road marking, maintenance of utilities’ equipment, etc. In such cases, orange roadworks signs shall be used (see Chapter 8).

Permitted Variants:	<ol style="list-style-type: none"> 1. The wording shall conform to one of the variants of Table 6.9. 2. Arrow may be reversed and positioned to right, or omitted. 3. Distance shall be varied in accordance with Table 6.11, or may be omitted.
---------------------	---

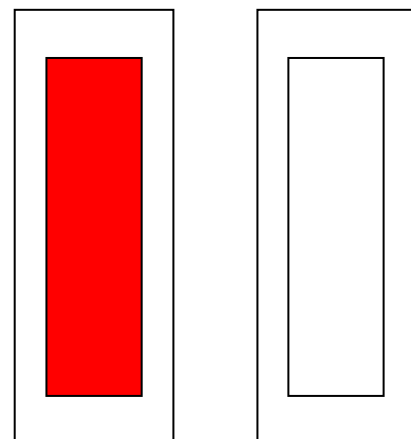
6.22 Hazard Markers and Nosing Markers

HAZARD MARKERS

- 6.22.1 Hazard Markers, Sign W 180, are available to help define the edge of carriageway and draw drivers' attention to particular hazards.
- 6.22.2 Hazard Markers consist of corner cube reflectors mounted on low posts in the verge. The reflectors shall consist of either a 60mm wide by 210mm high reflectorised strip or three 60mm reflectorised discs mounted in a vertical line at 75mm centres. The colour of the reflectors shall be red on the left hand side edge of the carriageway and white on the right hand side. The reflectors shall be mounted on a white background approximately 100mm wide by 300mm high.
- 6.22.3 Posts for Hazard Markers may be of any suitable material. They should normally be coloured white and be of sufficient length for the centre of the reflectors to be about 500mm to 600mm above the adjacent carriageway. Where there is a safety barrier, Hazard Markers may be mounted on top of the barrier (see also Paragraphs 6.22.9 to 6.22.11).
- 6.22.4 Hazard Markers should be placed about 1.0m from the edge of carriageway where there is no hard shoulder, or about 0.5m from the edge of hard shoulder. However, the nature of the hazard which they are marking may require different placement. Wherever practicable, lines of Hazard Markers should be a constant distance from the carriageway and at a constant height above it, so as to present a smooth alignment to oncoming traffic.
- 6.22.5 Hazard Markers may be used to indicate the edge of carriageway on sharp bends. They may also be used on mountain roads and at other points where they may be of value in alleviating a particular hazard. However, it is recommended that they be used only where necessary, since the posts form an obstruction to verge maintenance.
- 6.22.6 Hazard Markers should be positioned at regular spacings, since this can help to indicate the exact course of the curve, its length and sharpness. On bends, spacings of 12m or 6m may be appropriate. It is recommended that the spacing be such that drivers can see a minimum of nine Hazard Markers at the same time, all the way through the curve. On straight sections of road, spacings of about 24m are recommended.



Discs



Rectangular

**W 180R
Red
(Left Side)**

**W 180W
White
(Right Side)**

W 180: Hazard Markers

DELINEATOR POSTS

6.22.7 Where the provision of road studs (see Chapter 7) is impracticable, Delineator Posts may be provided instead. These are reflectors mounted on short posts in the verge. They shall comply with the requirements for Hazard Markers, W 180, and posts, except that they may have a single 60mm diameter reflector.

Layby Markers

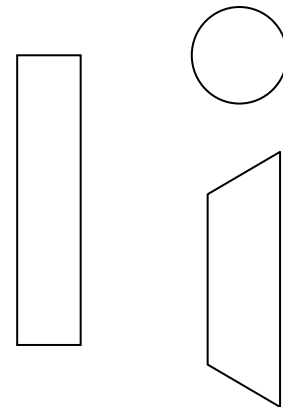
6.22.8 A particular use of Delineator Posts is for the definition of the reserve between the carriageway and a layby, as illustrated in Figure 6.6.



Figure 6.6:
Delineator Post at a Layby

REFLECTORS ON SAFETY BARRIERS

6.22.9 On dual carriageways, white Safety Barrier Reflectors, Sign W 186, should be mounted on central reserve safety barriers where the traffic face of the barrier is 1.2m or less from the edge of carriageway. These reflectors should be provided at about 24m spacing. They should preferably be the same as standard rectangular or circular reflectors for Hazard Marker Posts, but smaller rectangular reflectors or single 60mm diameter circular reflectors are permitted. Trapezoidal reflectors (approximately 120mm and 100mm by 60mm) with corner cube reflectors may also be used. Safety Barrier Reflectors may be mounted on a white background or have no background.



W 186:
Safety Barrier Reflectors

6.22.10 Safety Barrier Reflectors may be mounted on top of the barrier, on the posts, on the face of the barrier, or threaded onto the wires of a wire rope barrier. Where practicable, they should be mounted about 500mm above the adjacent carriageway surface.

6.22.11 Similar reflectors may be mounted on verge safety barriers if considered desirable. Such reflectors should be red on the left-hand verge, and white on the right hand verge of a single carriageway.

NOSING MARKERS

6.22.12 Nosing Markers, Signs W 181, consist of large reflective white triangles on a green or blue backing board placed at the back of nosing at a diverge slip road. The backing board shall be green for nosing markers on all-purpose roads and blue on motorways. The assembly is semi-circular in plan with a diameter of either 1.0m or 2.0m.

6.22.13 The Large Nosing Marker, Sign W 181G, shall be 1,600mm high at the centre, reducing to about 800mm to 900mm at the ends and with white reflective triangles about 1250mm high. The Small Nosing Marker, Sign W 181S, shall be 1,300mm high at the centre, reducing to about 800mm to 900mm at the ends and with white reflective triangles about 750mm high.

6.22.14 Nosing Markers may be located at the back of the nosing where a slip road diverges from the main carriageway, either on the end of the paved area or at the front of the grass verge (see Figure 6.7). The Large Nosing Marker is the preferred option, but the Small Nosing Marker may be used where space is restricted.



W 181G: Large Nosing Marker



W 181S: Small Nosing Marker



Figure 6.7: Nosing Marker Installation (France)

6.23 Barrier Boards

6.23.1 Where a traffic lane is closed, Signs W 183, W 184 or W 185, Barrier Board, may be used. This sign will normally be used at roadworks, in conjunction with cones and other traffic management measures (see Chapter 8). However, the signs may be used as a permanent installation to indicate the actual end of a lane or hard shoulder.



W 183: Barrier Board – 3 Bars

6.23.2 Unlike most other warning signs, Barrier Boards are ‘sight boards’, which are intended to be placed at the hazard so that drivers can see the obstruction clearly. They should be placed where the lane or shoulder ends.

6.23.3 Signs W 183 to W 185 should not normally be used on their own, but should be preceded by Road Narrows or other appropriate signs. They are intended to supplement the other warning signs and show the actual place where the narrowing or closure occurs.



W 184: Barrier Board – 4 Bars

6.23.4 Barrier Boards may also be used as part of an assembly of signs forming the ‘gateway’ sign at the entrance to a town or village. See Chapter 4 and the NRA Traffic Calming Guidelines.

6.23.5 Where there is a narrow hazard close to the carriageway, such as a bridge abutment, Signs W 183 to W 185 may be mounted vertically either on, or immediately in front of the hazard.



W 185: Barrier Board – 5 Bars

Sign Size

6.23.6 Barrier Boards are supplied with three, four or five red bars, as illustrated. The boards shall always start and finish with a red bar. They are available in heights of 300mm and 600mm and in corresponding widths, as shown in Table 6.10. The larger sizes should generally be used for higher speed approaches, as indicated in the table.

Table 6.10: Barrier Board Sizes

Speed (km/h)	Height of Sign (mm)	Width of Sign (mm)		
		W 183 3 Bars	W 184 4 Bars	W 185 5 Bars
≤ 80	300	1000	1400	1800
> 80	600	2000	2800	3600

6.24 Supplementary Plates

6.24.1 Many warning signs may have supplementary plates attached immediately below the sign to provide additional information. The most common plates indicate the distance and/or direction to the hazard or the length of the hazard; these may be used with almost any warning sign. Other supplementary plates are intended for use only with specific warning signs.

6.24.2 The size of supplementary plate shall be determined by using the specified 'x'-height for the lettering shown in the relevant table on the working drawing for the plate and appropriate to the size of the accompanying sign.



P 001: Distance

Required Variant:	Distance shall be varied in accordance with Table 6.11.
-------------------	---

DISTANCE TO HAZARD

6.24.3 Supplementary Plate P 001, Distance, may be used to show the distance to a hazard.

6.24.4 The distance shall be shown in metres (up to 1,900m), or kilometres (from 2km), rounded in accordance with Table 6.11. The suffix **m** or **km** shall always be shown to indicate the units. When the distance is a whole number of kilometres the decimal point shall not be used: e.g. show as **1 km**, not 1.0 km. The suffix km shall be 75% of the x-height of the numerals.

Table 6.11: Distances for Supplementary Plates

Measured Distance to Hazard	Distance to be Rounded to Nearest
< 100m	10m
≥ 100m < 800m	50m
≥ 800m < 1,950m	100m
≥ 1.95km < 4km	0.5km
≥ 4km	1km

EXTENT OF HAZARD

6.24.5 Supplementary Plate P 002, Length, may be used to show the extent of a hazard. Where required, the plate shall be attached to the warning sign at the standard distance from the hazard, in accordance with Table 6.1, and shall show the distance from that point to the end of the hazard. The length shown shall be indicated in accordance with Paragraph 6.24.4 and Table 6.11.



P 002: Length

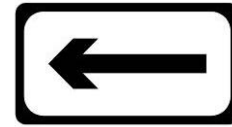
Required Variant:	Distance shall be varied in accordance with Table 6.11.
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6.24.6 On long lengths of continuous hazard it may be appropriate for the warning sign and Plate P 002 to be repeated at intervals, showing the remaining distance to the end of the hazard.

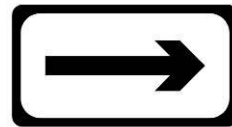
DIRECTION AND DISTANCE TO HAZARD

6.24.7 It is sometimes necessary to warn of a hazard or restriction, such as a level crossing or low headroom, down a side road. In such circumstances, warning signs may be erected on the major road in advance of the junction, together with supplementary plates showing the direction and (if necessary) the distance to the hazard. Supplementary Plates P 003 and P 004 are available for such use.

6.24.8 Supplementary Plate P 003, Direction, consists of an arrow pointing left or right, while Supplementary Plate P 004, Direction and Distance, has an arrow and a distance. The distance shown on Plate P 004 shall be in accordance with Paragraph 6.24.4 and Table 6.11.

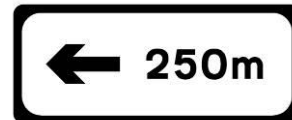


P 003L



P 003R

P 003: Direction



P 004L



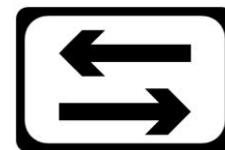
P 004R

P 004: Direction and Distance

Required Variant:	Distance shall be varied in accordance with Table 6.11.
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LOOK BOTH WAYS

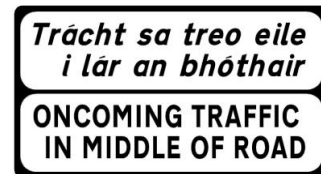
6.24.9 At light rail and tram crossings it is necessary to warn pedestrians to look both ways before crossing. Supplementary Plate P 005 is available for this use in conjunction with Sign W 124.



P 005: Both Ways

ONCOMING TRAFFIC

6.24.10 At arch bridges with restricted headroom, high vehicles may need to move into the centre of the carriageway in order to pass under the centre of the arch. At such locations, Signs W 110 should be erected on the immediate approaches to the bridge together with Supplementary Plates P 060, Oncoming Traffic: see Section 6.13. The plate may also be used at other locations where the road narrows: see Section 6.7.



P 060: Oncoming Traffic

LEVEL CROSSINGS

6.24.11 Supplementary Plates P 061 and P 062 are available for use at level crossings. Plate P 061 warns of a second train coming if the lights continue to show, while Plate P 062 advises drivers of long low vehicles to phone for permission to cross the line. The use of these plates is described in Section 6.15.



P 061: Another Train Coming



P 062: Long Low Vehicles

TRAFFIC CALMING

6.24.12 Supplementary Plates P 063, Traffic Calming Ahead, and P 040, Reduce Speed Now, are available for use with Sign W 071, Road Narrows on Both Sides, to warn of the start of a traffic calming layout. The use of these plates is described in Section 6.7.



P 063: Traffic Calming Ahead

Permitted Variants:	<ol style="list-style-type: none"> 1. Distance shall be varied in accordance with Table 6.11. 2. Distance panel may be omitted.
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P 040: Reduce Speed Now

PLATES FOR SLIPPERY ROADS

6.24.13 Supplementary Plate P 002, Length, may be used together with Sign W 134 to indicate the length for which the sign applies.

6.24.14 Where it is considered advisable to limit the speed of vehicles due to the slippery road surface, Supplementary Plate P 011, Cautionary Speed, may be erected below Sign W 134 to show the maximum advisable speed (see Section 6.16). Plate P 011 may also be erected below Sign W 033 to show the advisable speed on a tight loop road (see Section 6.3).



P 011: Cautionary Speed

Required Variant:	Speed shown shall be 25, 35, 45, 55 or 65km/h.
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6.24.15 It is a general principle that, apart from roadworks sites, cautionary speeds are not used, since the duty is on the driver to drive at the appropriate speed for the conditions. However, an exception is made in the case of Signs W 033 and W 134 since a tight loop or a slippery road surface may not be apparent to drivers. Plate P 011 shall not be used with any other warning sign without the approval of the National Roads Authority, although it may be used together with certain roadworks signs (see Chapter 8).

6.24.16 Where oil or some other chemical has been spilt on a road, making it slippery, Supplementary Plate P 065, Oil Spill, may be erected below Sign W 134. Similarly, Supplementary Plate P 066, Ice, may be erected below Sign W 134 to warn of possible icy patches on the road.



P 065: Oil Spill



P 066: Ice

6.24.17 Supplementary Plate P 064, Tram Track, should be used in conjunction with Sign W 144, Slippery for Cyclists, to warn cyclists that the road may be slippery due to tram tracks (see Section 6.17).



P 064: Tram Track

TUNNELS

6.24.18 Supplementary Plate P 068, Turn Engine Off When Stopped, is available for use in tunnels, where there may be a danger of a build-up of carbon monoxide from stationary traffic. Plate P 068 may be mounted in conjunction with Sign W 163, Queues Likely, or (unlike other supplementary plates) mounted on its own as a separate sign. See Sections 6.20 and 6.21.



**P 068:
Turn Engine Off When Stopped**

SAFE HEADROOM

6.24.19 Supplementary Plate P 067 is available to show the safe headroom below electrical cables. It shall be erected in conjunction with Sign W 111, Electrical Cables: see Section 6.13.



P 067: Safe Headroom

6.24.20 The Road Authority shall consult with the owner of the electrical cables in order to agree the safe height to be displayed. The height displayed should be rounded down in accordance with Paragraph 6.13.3.

Required Variant:	Height shall show the agreed safe headroom rounded in accordance with Paragraph 6.13.3.
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OTHER HAZARDS

6.24.21 Supplementary Plates P 069, Hazard, and P 070, Hazard – Direction and Distance, are available for use with Sign W 170, Other Hazard. These are described in Section 6.21.



P 069: Hazard

Required Variant:	The wording shall conform to one of the variants of Table 6.9.
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**P 070:
Hazard – Direction and Distance**

Permitted Variants:	<ol style="list-style-type: none"> 1. The wording shall conform to one of the variants of Table 6.9. 2. Arrow may be reversed and positioned to right, or omitted. 3. Distance shall be varied in accordance with Table 6.11, or may be omitted.
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Appendix 6A: Schedule of Warning Signs

Number	Description	See Section	Provide in Urban Areas	Provide on Major Roads in Urban Areas
W 001	Crossroads	6.2		
W 002	Side Road	6.2		
W 003	T-junction (Type 1)	6.2		Yes
W 004	T-junction (Type 2)	6.2		Yes
W 005	Y-junction	6.2		Yes
W 006	Crossroads at Sharp Corner	6.2		Yes
W 007	Staggered Junctions	6.2		
W 008	Two Junctions on Same Side	6.2		
W 009	Side Road on Outside of Bend	6.2		
W 010	Side Road on Inside of Bend	6.2		
W 011	Crossroads on Bend	6.2		
W 012	Side Road on Dual Carriageway (With Central Reserve Break)	6.2		Yes
W 013	Side Road on Dual Carriageway (No Central Reserve Break)	6.2		Yes
W 014	Crossroads on Dual Carriageway	6.2		Yes
W 015	Crossroads (Major Road) Ahead	6.2, 6.4, 6.10		Yes
W 016	T-junction (Major Road) Ahead When used at one-way road with RUS 007, RUS 008, RUS 012 or RUS 013	6.2, 6.4, 6.10 6.2, 6.10	- Yes	Yes Yes
W 017	Staggered Crossroads Ahead	6.2, 6.4, 6.10		
W 018	Junction With Major Road at Sharp Corner	6.2, 6.4, 6.10	Yes	Yes
W 019	Crossroads Ahead at Dual Carriageway	6.2, 6.4, 6.10	Yes	Yes
W 020	T-junction Ahead at Dual Carriageway (With Central Reserve Break)	6.2, 6.4, 6.10	Yes	Yes
W 021	Staggered Crossroads Ahead at Dual Carriageway	6.2, 6.4, 6.10	Yes	Yes
W 022	T-junction Ahead at Dual Carriageway (No Central Reserve Break)	6.2, 6.4, 6.10	Yes	Yes
W 030	Merging Traffic From Left	6.3		Yes
W 031	Merging With Traffic on Right	6.3		Yes
W 032	Merging and Diverging Traffic	6.3		Yes
W 033	Loop	6.3, 6.24		Yes
W 040	Stop Ahead	6.4, 6.2	Yes	Yes

Number	Description	See Section	Provide in Urban Areas	Provide on Major Roads in Urban Areas
W 041	Yield Ahead	6.4, 6.2	Yes	Yes
W 042	Traffic Signals	6.4, 6.17		Yes
W 043	Roundabout Ahead	6.4	Yes	Yes
W 044	Mini-roundabout Ahead	6.4	Yes	Yes
W 050	Sharp Corner	6.5, 6.6	Yes	Yes
W 051	Sharp Bend	6.5, 6.6		
W 052	Series of Sharp Corners	6.5, 6.6		
W 053	Series of Sharp Bends	6.5, 6.6		
W 061	Single Chevron	6.6	Yes	Yes
W 062	Multiple Chevrons (Two)	6.6	Yes	Yes
W 063	Multiple Chevrons (Three)	6.6	Yes	Yes
W 070	Road Narrows on One Side	6.7, 6.12	Yes	Yes
W 071	Road Narrows on Both Sides	6.7, 6.24	Yes	Yes
W 080	Two-way Traffic	6.8, 6.10	Yes	Yes
W 081	Two-way Traffic Crossing	6.8	Yes	Yes
W 082	Three Lanes of Traffic (Two With, One Against)	6.8	Yes	Yes
W 083	Three Lanes of Traffic (One With, Two Against)	6.8	Yes	Yes
W 091	Lane Loss (Two to One Lane)	6.9, 6.10, 6.12	Yes	Yes
W 092	Lane Loss (Three to Two Lanes)	6.9, 6.12	Yes	Yes
W 093	Lane Loss (Four to Three Lanes)	6.9	Yes	Yes
W 094	Road Divides	6.9, 6.10	Yes	Yes
W 095	Dual Carriageway Ends	6.9, 6.10	Yes	Yes
W 100	Start of Passing Lane	6.10, 6.12		Yes
W 101	One-Lane Section	6.10		Yes
W 102	Two-Lane Section	6.10		Yes
W 103	Start of Climbing lane	6.12	Yes	Yes
W 105	Steep Descent	6.11	Yes	Yes
W 106	Steep Ascent	6.11	Yes	Yes
W 110	Restricted Headroom	6.13, 6.24	Yes	Yes
W 111	Overhead Electrical Cables	6.13, 6.24	Yes	Yes
W 112	Maximum Vehicle Length	6.14	Yes	Yes
W 113	Maximum Vehicle Width	6.14	Yes	Yes
W 114	Maximum Gross Weight (Traffic Management)	6.14	Yes	Yes

Number	Description	See Section	Provide in Urban Areas	Provide on Major Roads in Urban Areas
W 115	Maximum Gross Weight (Safety)	6.14	Yes	Yes
W 116	Maximum Axle Weight	6.14	Yes	Yes
W 117	Prohibited Number of Axles	6.14	Yes	Yes
W 120	Level Crossing With Flashing Red Signals	6.15	Yes	Yes
W 121	Level Crossing with No Flashing Red Signal (with Barriers or Gates)	6.15	Yes	Yes
W 122	Level Crossing Countdown Marker	6.15	Yes	Yes
W 123	Risk of Grounding	6.15, 6.16	Yes	Yes
W 124	Tram Crossing	6.15, 6.24	Yes	Yes
W 125	Tram Advisory Speed	6.15	Yes	Yes
W 130	Road Hump	6.16	Yes	Yes
W 131	Road Depression	6.16	Yes	Yes
W 132	Humpback Bridge	6.16	Yes	Yes
W 133	Uneven Road	6.16	Yes	Yes
W 134	Slippery Road	6.16, 6.24	Yes	Yes
W 135	Soft Verge	6.16	Yes	Yes
W 140	Pedestrians	6.17	Yes	Yes
W 141	School Ahead	6.17	Yes	Yes
W 142	Children Crossing	6.17	Yes	Yes
W 143	Cyclists	6.17	Yes	Yes
W 144	Slippery for Cyclists	6.17, 6.24	Yes	Yes
W 150	Accompanied Horses	6.18		
W 151	Cattle or Farm Animals	6.18		
W 152	Sheep	6.18		
W 153	Deer or Wild Animals	6.18		
W 160	Unprotected Water	6.19	Yes	Yes
W 161	Ford	6.19	Yes	
W 162	Tunnel	6.20	Yes	Yes
W 163	Queues Likely	6.21, 6.20, 6.24		
W 164	Falling Rocks	6.21		
W 165	Low-flying Aircraft	6.21	Yes	Yes
W 166	Crosswind	6.21		
W 167	Opening Bridge	6.21	Yes	Yes
W 168	Tractors	6.21		Yes
W 169	Drive on Left	6.21	Yes	Yes

Number	Description	See Section	Provide in Urban Areas	Provide on Major Roads in Urban Areas
W 170	Other Hazard	6.21, 6.18, 6.24	Yes	Yes
W 180	Hazard Marker	6.22		
W 181	Nosing Marker	6.22		Yes
W 183	Barrier Board (Three Bars)	6.23	Yes	Yes
W 184	Barrier Board (Four Bars)	6.23	Yes	Yes
W 185	Barrier Board (Five Bars)	6.23	Yes	Yes
W 186	Safety Barrier Reflector	6.22		Yes

Number	Description	See Section
Supplementary Plates		
P 001	Distance	6.24 and others
P 002	Length	6.24 and others
P 003	Direction	6.13, 6.14, 6.24
P 004	Direction and Distance	6.13, 6.14, 6.15, 6.24
P 005	Both Ways	6.15, 6.24
P 011	Cautionary Speed	6.3, 6.16, 6.24
P 040	Reduce Speed Now	6.7, 6.24
P 060	Oncoming Traffic in Middle of Road	6.7, 6.13, 6.24
P 061	Another Train Coming	6.15, 6.24
P 062	Long Low Vehicles	6.15, 6.24
P 063	Traffic Calming Ahead	6.7, 6.24
P 064	Tram Tracks	6.17, 6.24
P 065	Oil Spill	6.16, 6.24
P 066	Ice	6.16, 6.24
P 067	Safe Headroom	6.13, 6.24
P 068	Turn Engine Off When Stopped	6.20, 6.21, 6.24
P 069	Hazard	6.18, 6.21, 6.24
P 070	Hazard – Direction and Distance	6.21, 6.24

Appendix 6B: Summary of Warning Signs



W 001
Crossroads



W 002L
Side Road –
Left



W 002R
Side Road –
Right



W 003L
T-Junction
(Type 1) – Left



W 003R
T-Junction
(Type 1) – Right



W 004L
T-Junction
(Type 2) – Left



W 004R
T-Junction
(Type 2) – Right



W 005L
Y-Junction –
Left



W 005R
Y-Junction –
Right



W 006L
Crossroads at
Sharp Corner –
Left



W 006R
Crossroads at
Sharp Corner –
Right



W 007LR
Staggered
Junctions –
Left/Right



W 007RL
Staggered
Junctions –
Right/Left



W 008L
Two Junctions
on Left



W 008R
Two Junctions
on Right



W 009L
Side Road on
Outside of Left
Bend



W 009R
Side Road on
Outside of Right
Bend



W 010L
Side Road on
Inside of Left
Bend



W 010R
Side Road on
Inside of Right
Bend



W 011L
Crossroads on
Left Bend



W 011R
Crossroads on
Right Bend



W 012L
Side Road on
Dual C'way – Left
(With CR Break)



W 012R
Side Road on
Dual C'way –
Right
(With CR Break)



W 013
Side Road on
Dual C'way –
(No CR Break)



W 014
Crossroads on
Dual C'way



W 015
Crossroads
(Major Road
Ahead)



W 016
T Junction (Major
Road Ahead)



W 017L
Staggered
Crossroads
Ahead - Left



W 017R
Staggered
Crossroads
Ahead - Right



W 018L
Junction With
Major Road at
Sharp Corner -
Left



W 018R
Junction With
Major Road at
Sharp Corner -
Right



W 019
Crossroads
Ahead at Dual
C'way



W 020
T-Junction
Ahead at Dual
C'way
(With CR Break)



W 021L
Staggered
Crossroads
Ahead at Dual
C'way - Left



W 021R
Staggered
Crossroads
Ahead at Dual
C'way - Right



W 022
T-Junction
Ahead at Dual
C'way
(No CR Break)



W 030
Merging Traffic
From Left



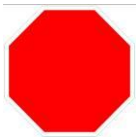
W 031
Merging With
Traffic From
Right



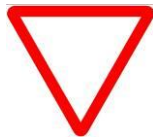
W 032
Merging and
Diverging Traffic



W 033
Loop



W 040
Stop Ahead



W 041
Yield Ahead



W 042
Traffic Signals



W 043
Roundabout
Ahead



W 044
Mini-Roundabout
Ahead



W 050L
Sharp Corner –
Left



W 050R
Sharp Corner –
Right



W 051L
Sharp Bend –
Left



W 051R
Sharp Bend –
Right



W 052L
Series of Sharp
Corners – Left



W 052R
Series of Sharp
Corners – Right



W 053L
Series of Sharp
Bends – Left



W 053R
Series of Sharp
Bends – Right



W 061L
Single Chevron –
Left



W 061R
Single Chevron –
Right



W 062L
Multiple
Chevrons (Two)
– Left



W 062R
Multiple
Chevrons (Two)
– Right



W 063L
Multiple
Chevrons (Three)
– Left



W 063R
Multiple
Chevrons (Three)
– Right



W 070L
Road Narrows on
Left



W 070R
Road Narrows on
Right



W 071
Road Narrows on
Both Sides



W 080
Two-way Traffic



W 081
Two-way Traffic
Crossing



W 082
Three Lanes of
Traffic
(Two With, One
Against)



W 083
Three Lanes of
Traffic
(One With, Two
Against)



W 091L
Lane Loss on
Left (Two to One
Lane)



W 091R
Lane Loss on
Right (Two to
One Lane)



W 092L
Lane Loss on
Left (Three to
Two Lanes)



W 092R
Lane Loss on
Right (Three to
Two Lanes)



W 093L
Lane Loss on
Left (Four to
Three Lanes)



W 093R
Lane Loss on
Right (Four to
Three Lanes)



W 094
Road Divides



W 095
Dual
Carriageway
Ends



W 100
Start of Passing
Lane



W 101
One-Lane
Section



W 102
Two-Lane
Section



W 103
Start of Climbing
Lane



W 105
Steep Descent



W 106
Steep Ascent



W 110
Restricted
Headroom



W 111
Overhead
Electrical Cables



W 112
Maximum
Vehicle Length



W 113
Maximum
Vehicle Width



W 114
Maximum Gross
Weight (Traffic
Management)



W 115
Maximum Gross
Weight (Safety)



W 116
Maximum Axle
Weight



W 117
Prohibited
Number of Axles



W 120
Level Crossing
With Flashing
Red Signals



W 121
Level Crossing
With No Flashing
Red Signals



W 122.3L
Countdown
Marker - Left



W 122.2L
Countdown
Marker - Left



W 122.1L
Countdown
Marker - Left



W 123
Risk of
Grounding



W 124
Tram Crossing



W 122.3R
Countdown
Marker - Right



W 122.2R
Countdown
Marker - Right



W 122.1R
Countdown
Marker - Right



W 125
Tram Advisory
Speed



W 130
Road Hump



W 131
Road Depression



W 132
Humpback
Bridge



W 133
Uneven Road



W 134
Slippery Road



W 135
Soft Verge



W 140
Pedestrians



W 141
School Ahead



W 142
Children
Crossing



W 143
Cyclists



W 144
Slippery for
Cyclists



W 150
Accompanied
Horses



W 151
Cattle or Farm
Animals



W 152
Sheep



W 153
Deer or Wild
Animals



W 160
Unprotected
Water



W 161
Ford



W 162
Tunnel



W 163
Queues Likely



W 164
Falling Rocks



W 165
Low-flying
Aircraft



W 166
Crosswind



W 167
Opening Bridge



W 168
Tractors



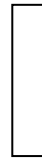
W 169
Drive on Left



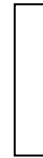
W 170
Other Hazard



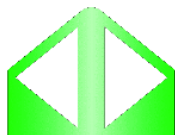
W 180R
Hazard Marker
Post –
Left Hand Side



W 180W
Hazard Marker
Post –
Right Hand Side



W 186
Safety Barrier
Reflector



W 181G
Large Nosing
Marker



W 181G
Small Nosing
Marker



W 183
Barrier Board –
Three Bars



W 184
Barrier Board –
Four Bars



W 185
Barrier Board –
Five Bars

Supplementary Plates



P 001
Distance



P 002
Length



P 003L
Direction – Left



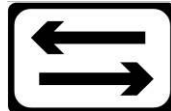
P 003R
Direction – Right



P 004L
Direction and
Distance – Left



P 004R
Direction and
Distance – Right



P 005
Both Ways



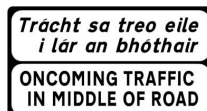
P 010
End



P 011
Cautionary
Speed



P 040
Reduce Speed
Now



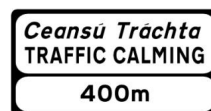
P 060
Oncoming Traffic
in Middle of Road



P 061
Another Train
Coming



P 062
Long Low
Vehicles



P 063
Traffic Calming



P 064
Tram Track



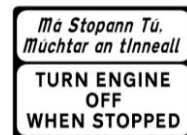
P 065
Oil Spill



P 066
Ice



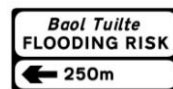
P 067
Safe Headroom



P 068
Turn Engine Off
When Stopped



P 069
Hazard



P 070
Hazard –
Direction and
Distance

