INTERIM ADVICE NOTE 145/16

DIRECTIONAL SIGNS ON MOTORWAY AND ALL-PURPOSE TRUNK ROADS AT GRADE AND COMPACT GRADE SEPARATED JUNCTIONS

Summary
This document sets out guidance for the use of directional signs at motorway and all-purpose trunk road at grade and compact grade separated junctions.

Instructions for Use
This guidance applies to construction, improvement and renewal schemes for all-purpose and motorway trunk roads. It supplements existing standards and guidance.
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1. INTRODUCTION

General

1.1 Directional signs are provided to assist road users to identify the correct route to travel to their destination or to a facility of particular value or interest. The aim is to provide signs that direct road users safely and efficiently to their destinations, whilst minimising environmental impact. The signs must be understood easily, especially by road users who have never travelled along the route before. Poorly designed or maintained signs can lead to poor lane utilisation, late lane changes and congestion. The message must be unambiguous and understood easily. It must not be given too soon or too late to enable safe manoeuvres. Key elements are:

- Legibility
- Appropriate contrast with surroundings and background
- Simplicity of content
- Effective layout
- Visibility in all light conditions
- Affordability.

Clear signing is an essential component of all junction layouts, and especially those which require maximum use of available road space in a safe manner.

1.2 This document sets out guidance for the use of directional signs at all-purpose trunk road and motorway at grade junction layouts, and compact grade separated junctions.

1.3 Although this document provides information on the detailed layout of direction sign faces, its primary purpose is to provide guidance on the location, type and number of signs to be provided. Additional guidance on destination signing strategies and sign face layout is given in **LTN 1/94** [Ref 5] and in **Chapter 7** of the **Traffic Signs Manual (TSM)** (2013) [Ref 2].

1.4 **IAN 144/15 Directional Signs on Motorway and All-Purpose Trunk Roads – Grade Separated Junctions** [Ref 3] deals specifically with directional signs at grade separated interchanges and it covers junction diverge and merge arrangements detailed in **TD 22/06 (DMRB 6.2.1)** [Ref 4]. It includes guidance on signing for “Tiger Tail” diverge layouts.

Scope

1.5 This document sets out design guidance, requirements and methodology for the location of directional signs at all-purpose trunk road and motorway diverges, merges, links and slip roads at grade separated junctions. It is a supplement to **LTN 1/94** [Ref 5], which is still valid, and draws together experience gained since it was published from a number of sources. It also cross-references mandatory standards from **DMRB** and existing legal requirements, where pertinent. Warning and Regulatory signs are not generally shown in this document and should be provided as required by the Traffic Signs Manual.
1.6 This advice is focused on layouts and requirements from the following standards in DMRB Volume 6, Sections 2 and 3:

- **TD 42/95 (DMRB 6.2.6)** – Geometric Design of Major/Minor Priority Junctions [Ref 6]
- **TD 54/07 (DMRB 6.2.2)** – Design of Mini Roundabouts [Ref 7]
- **TD 16/07 (DMRB 6.2.3)** – Geometric Design of Roundabouts [Ref 8]
- **TD 40/94 (DMRB 6.2.5)** – Layout of Compact Grade Separated Junctions [Ref 9]
- **TA 86/03 (DMRB 6.2.8)** – Layout of Large Signal Controlled Junctions [Ref 10]
- **TD 50/04 (DMRB 6.2.3)** – The Geometric Layout of Signal-Controlled Junctions and Signalised Roundabouts [Ref 15]
- **TD 51/03 (DMRB 6.3.5)** – Segregated Left Turn Lanes and Subsidiary Deflection Islands at Roundabouts [Ref 16].

1.7 Use is made of guidance and requirements given in the following documents which are cross-referenced within this document:

- **IAN 144/15** – Directional Signs on Motorway and All-Purpose Trunk Roads – Grade Separated Junctions 2014 [Ref 3]
- **The Traffic Signs Regulations and General Directions 2002 (TSRGD)** and subsequent amendments [Ref 11]
- **The Traffic Signs Manual (TSM) Chapter 4** 2013 [Ref 12]
- **The Traffic Signs Manual (TSM) Chapter 7** 2013 [Ref 2]
- **TD 18/85 (DMRB 9.1.2)** Criteria for the Use of Gantries for Traffic Signs and Matrix Traffic Signals on Trunk Roads and Trunk Road Motorways [Ref 13]
- **TD 9/93 (DMRB 6.1.1)** – Highway Link Design. [Ref 14]
- **The Traffic Signs Manual (TSM) Chapter 3** 2008 [Ref 17]
- **The Traffic Signs Manual (TSM) Chapter 5** 2003 [Ref 18]
- **TD 52/04 (DMRB 8.2.4)** - Traffic Signs to Tourist Attractions in England: Tourist Signing – Trunk Roads ([Ref 19]
- **Road Traffic Regulation Act 1984** [Ref 20]
- **The Traffic Signs Manual (TSM) Chapter 1** 1982 [Ref 1]
- **Department for Transport Working Drawings for Traffic Signs** [Ref 21].

**Implementation**

1.8 The Design Organisation must confirm application of this document to particular schemes with the Overseeing Organisation. This guidance applies to construction, improvement and renewal schemes for all-purpose and motorway trunk roads currently being prepared, except where the procurement of works at any stage (from conception through design to completion of construction) has reached a stage at which, in the opinion of the Overseeing Organisation, use of this document would result in significant additional expense or delay progress (in which case the decision must be recorded in accordance with the Highways England’s Departures from Standards procedure).
Definitions

1.9 The following terms have been defined for use in this guidance. Where these have been quoted from another standard, the appropriate reference number is indicated:

**Overseeing Organisation** - The highway, road or traffic authority for the road construction or improvement scheme.

**Design Organisation** - The organisation commissioned to undertake the various phases of scheme preparation.

**Downstream** - That part of the carriageway(s) where the traffic is flowing away from the section in question.

**Upstream** - That part of the carriageway(s) where traffic is flowing towards the section in question.

**Crossroads** - An at grade junction of two roads that cross approximately at right angles.

**Ghost Island Junction** - An at grade junction usually a 'T' or staggered junction, within which an area is marked on the carriageway, shaped and located so as to direct traffic movement.

**Grade Separated Roundabout** – A roundabout which has at least one approach coming from a road at a different level. This type of roundabout is frequently employed at motorway junctions, but may also be used to link underpasses, flyovers and other multiple level intersections.

**Gyratory system** - A road system which consists of one-way links connected together, so as to make it possible for traffic from several approaches to enter and circulate along one or more links before exiting. Different types of junction control may be used, but each entry is often signalised. Standard junction layouts are given in **TD 50/04 (DMRB 6.2.3)** [Ref 15]. Alternatively, gyratory systems, particularly in built-up areas, make use of existing routes converted to one way working, to form the circulatory carriageway.

**Local Un-numbered Road** - An all-purpose road which is not numbered either as an A or B road.

**Major Road** - The road which is assigned a permanent priority of traffic movement over that of the other road or roads.

**Minor Road** - A road which has to give priority to the major road.

**Mini roundabout** - Roundabout which has a central, circular, solid white road marking, which is flush with the road surface or slightly domed, instead of the central island found on conventional roundabouts. Mini roundabouts have an Inscribed Circle Diameter (ICD) of 28m or less.

**Normal Roundabout** – A roundabout which has a kerbed central island at least 4 metres in diameter. Its approaches may be dual or single carriageway roads.

**Roundabout** - Junction with a one-way circulatory carriageway around a central island. Vehicles on the circulatory carriageway have priority over those approaching the roundabout.
**Signalised Junction** - A junction arrangement where incoming flows on the majority of arms are controlled by traffic signals.

**Signalised Roundabout** – A roundabout which has traffic signals on one or more of the approaches and at the corresponding point on the circulatory carriageway itself.

**Single Lane Dualling** - An at grade junction, usually a ‘T’ or staggered junction, within which central reservation islands are shaped and located so as to direct traffic movement.

**Simple Priority Junction** – A ‘T’ or staggered junction without any ghost or physical islands in the major road, and without islands in the minor road approach.

**Skew or Y- Junction** - An at grade junction of two roads, at which the minor road approaches the major road at an oblique angle and terminates at the junction.

**Slip Road** – A connector road within a junction between the main carriageway of a major route and the local highway network, another major route, a combination of both, or vice versa, and the routes meet at grade. Traffic using a slip road usually has to give way to traffic already on the main carriageway or already on the at grade junction.

**Staggered Junction** - An at grade junction of three roads at which the major road is continuous through the junction, and the minor roads connect with the major road so as to form two opposed T- junctions displaced at some distance from each other.

**T-Junction** - An at grade junction of two roads at which the minor road joins the major road approximately at right angles.

**Advance Direction Sign (ADS)** – Sign giving route information in respect of a junction ahead. It may be either post mounted, located on the verge or footway, or gantry mounted. The three types of post mounted signs are:

- **Map Type** – an advance direction sign giving route destinations and showing a diagrammatic layout of the junction ahead
- **Stack Type** – an advance direction sign that shows route destinations but does not show a diagrammatic layout of the junction ahead
- **Dedicated Lane Type** – an advance direction sign showing dedicated lanes that are to be followed for each individual destination.

**Direction Sign** – Sign placed at a junction and pointing along specific routes. The most common type used for at grade junctions is the flag type sign with a chevron end.

**Confirmatory Direction Sign** – Direction sign placed on a confirmatory gantry just prior to, or in verge mounted form, a rectangular direction sign located on the nosing diverge of a slip road and main carriageway at a grade separated junction, or at the diverge of a dedicated slip lane, or auxiliary lane from the main carriageway.

**Route Confirmation Sign** – Sign placed after a junction confirming the route being followed and, in most cases, destinations that may be reached together with the appropriate distances. These are placed after junctions where the advance direction signs do not give distances to the various destinations.
Primary Definitions

1.10 This document gives design guidance and recommended good practice. It does not introduce new requirements. Users should apply this guidance as necessary, to minimise safety risks to road users, improve journey time reliability, and improve driver understanding of road layouts and signs.

1.11 The word ‘must’ indicates an existing legal requirement which must be complied with, ‘shall’ indicates a mandatory requirement of compliance with an existing standard cross-referenced by this document, and ‘should’ indicates a course of action that is strongly recommended. The word ‘may’ is used to indicate an option which requires consideration depending on the circumstances. Any reference to a sign diagram number is a reference to the sign type or equivalent diagram number given in the TSRGD [Ref 7].

Signs Authorisation

1.12 From time to time, circumstances arise for which no suitable signs are prescribed in TSRGD [Ref 7]. The use of any sign which is not prescribed in TSRGD [Ref 7] and its amendments is unlawful unless it has received Authorisation from the Secretary of State under Sections 64 (motorways and all-purpose trunk roads) or 65 (local road network) of the Road Traffic Regulation Act 1984 [Ref 9]. Applications for authorisations must be sought through the Overseeing Organisation. Non-prescribed signs must not be installed without prior authorisation. Applications for authorisations on the Highways England network must be sought through the Safer Roads – Design team (ptstrafficsigns@highwayengland.co.uk). Check with the Safer Roads – Design team that location specific or network wide authorisations are in place before specifying.

Departures from Standards

1.13 Although this document contains design guidance, in some cases requirements and standards are cross-referenced from other existing standards. In exceptional situations, the Overseeing Organisation might be prepared to agree to a Departure from Standard, where the standard is not achievable realistically. Design Organisations wishing to consider pursuing this course of action must discuss options proposed at an early stage in design with the Overseeing Organisation. Proposals for Departures from Standard must be submitted by the Design Organisation to the Overseeing Organisation, and formal approval received before incorporation into a design layout. Where the source of the requirement given in this document is referenced to another DMRB, MCHW or IAN document then the departure should be referenced as a departure from the source document rather than this document.
2. GENERAL PRINCIPLES

Provision of Directional Signs – At grade and Compact Grade Separated Junctions

Advance Direction Signs

2.1 Advance direction signs (ADS) perform three functions. They warn motorists of the presence of the junction ahead, give directions to selected destinations reached from all or some of the arms of the junction, and when used in map type form, give motorists information about the junction layout ahead. There are three possible arrangements for directional signs at a junction. Further guidance for their use is given in paragraphs 2.2, 2.3, 2.4 and the figures in this guidance:

- No directional signs
- Directional signs at the junction only (flag type or confirmatory direction signs, as appropriate)
- Advance direction signs (ADS) on some/all of the approaches to the junction and direction signs at the junction.

2.2 ADS should be used at all junctions between all-purpose trunk roads and routes which are classified 'B' upwards. At these junctions, map type advance direction signs should be used if there is adequate verge/footway width, except crossroads (including signalised) and T junctions (including signalised) on single carriageway roads, or if it is considered the junction layout is self explanatory. In the latter cases, stack type ADS should be provided. Stack type ADS are normally more space efficient than map type ADS, so are particularly suited to areas with limited verge or footway width.

2.3 At junctions between all-purpose trunk roads and local unnumbered roads (roads which are not A or B class), ADS should be used on the major route arm(s), where the 85th percentile approach speed is higher than 40 mph and destinations are required to be signed at the junction. ADS may be used on the minor route arm(s) if considered necessary for capacity or road safety reasons, to supplement direction signs at the junction. Where advance direction signs are omitted, the x-height of the flag type sign may be increased and specified as that of an ADS (see LTN 1/94 Appendix A columns 3 and 7 [Ref 5]), provided the x-height selected is prescribed in TSRGD [Ref 11] for the diagram number used. The potential road safety benefit of upgrading flag signs in this manner should be balanced against the potential to create undesirable environmental impact, particularly at minor road junctions in villages or built-up areas.

2.4 On single carriageway approaches where the 85th percentile approach speed is lower than 40 mph, and destinations are required to be signed at the junction, advance direction signs should be provided where they are considered necessary for capacity or safety reasons (NOTE - warning signs might more be appropriate in some cases). Where advance direction signs are omitted, the x-height of the flag type sign may be increased and specified as an ADS (see LTN 1/94 Appendix A columns 3 and 7 [Ref 5]), provided the x-height selected is prescribed in TSRGD [Ref 11] for the diagram number used. The potential road safety benefit of upgrading flag signs in this manner should be balanced against the potential to create undesirable environmental impact, particularly at minor road junctions in villages or built-up areas. Warning signs should always be provided at non-signalised roundabouts where map type advance direction signs are not provided (TSM Chapter 4 paragraph 2.13 [Ref 12]).
2.5 On the approaches to non-signalised roundabouts on high speed roads, warning signs should be provided in some cases in addition to advance direction signs (refer to TSM Chapter 4, paragraph 2.14 [Ref 12] for further details).

2.6 Dedicated lane ADS may be used to indicate the correct lane for traffic to follow at a junction to reach specific destinations to improve lane discipline and assist optimisation of junction capacity and safety. These signs may be useful at junctions with complex lane arrangements. However, where individual lanes are shared by traffic travelling in two directions (for instance left and ahead), dedicated lane type ADS should not be used. In these situations, map type advance direction signs should be provided on the approach arms to the junction, to give an indication of the junction layout and the exit required, and may be supplemented downstream by lane arrows marked on the carriageway in combination with signs to diagram 877.

Gantry Mounted Signs

2.7 Gantry signs may be required at motorway or all-purpose dual carriageway, grade separated junction slip road approaches to roundabouts (for instance, where the route has gantry mounted signal systems which include the whole approach, or where the approach enters from a lane drop and there is a dedicated left turn slip road at the roundabout), or at complex gyratory systems/roundabouts where the use of verge mounted signs is impractical or would not be effective. Guidance on the use of gantries is given in TD 18/85 (DMRB 9.1.2) [Ref 13].

2.8 It is unlikely that gantry mounted signs will be required at other types of at grade junctions.

Location of Advance Direction Signs

2.9 ADS should be sited at the correct distance from the datum point to which they relate, to allow drivers time to read the sign and comply safely with its message. The distance depends on the general speed of traffic using the road (usually the 85th percentile approach speed), the number of signs required to convey messages for the junction/ hazard ahead, road type and alignment, and the presence of other intervening obstructions. LTN 1/94 Appendix A [Ref 5] contains further details.

2.10 The size of the legend and lettering on a sign must be capable of being read from a driver’s vantage point. Lettering size is determined by several factors including traffic speed and offset of the centre of the sign from the centre of the traffic lane under consideration, and dictates the overall dimensions of a sign. Alphabets and lettering x-heights are explained in LTN 1/94 [Ref 5] and further guidance on calculating x-heights is given by the DfTs ‘x’ height calculator.

2.11 The location of an ADS is based on a distance measured upstream from the datum point(s). The location of the datum point varies depending on the type of junction layout.

Datum Points

2.12 Datum points for at grade junctions are defined in paragraphs 2.13 to 2.16. They are shown also on junction layout figures in Sections 3 to 7 of this guidance and are described in the text associated with each figure.
2.13 At priority junctions the datum points are located as follows:

- On the major arm – at the start of the radius, the point where the straight alignment ceases and the corner radius to the minor road begins; or at the start of the diverging lane in the case of a ghost island junction

- On the minor arm – at the give way line for single lane approaches and constant width approaches; at the start of the increase in lanes for approaches which flare to two or more lanes on the junction approach e.g. at the first lane mark for the two lane section

- At the start of an auxiliary lane or segregated turning lane taper.

2.14 At signalised junctions (including signalised roundabouts) the datum points are located as follows:

- Single lane approaches and multiple lane approaches where additional lanes are not developed by flaring in the approach – the datum point should be located at the signal stop markings

- Single lane flaring to two lanes – the datum point should be located at the start of the two lane length if there are seven or fewer warning marks leading up to the stop line; if there are more than seven warning marks leading up to the stop line, the designer should consult with the Overseeing Organisation and consider queue lengths, road layout, etc. to position the datum point

- Two lanes flaring to three or more lane approaches – a minimum of seven warning marks from the stop line will be required. If there are seven marks, the datum point should be located at the commencement of these marks. If there are more than seven warning marks, the Overseeing Organisation should be consulted and consideration given to other factors, including queue lengths at the location and road layout, to define the datum point.

2.15 At mini roundabouts and non-signalised roundabouts the datum points are located as follows:

- Single lane and constant width approaches - the datum point should be located at a point where a line taken from the right hand end of the give way line meets the nearside kerb perpendicularly (using the same method as that used to measure entry width of roundabouts. Refer to TD 16/07 (DMRB 6.2.3) [Ref. 8])

- Flared approaches with increasing numbers of lanes – the datum point should be located at the start of the two lane section for a two lane approach i.e. at the first lane mark for the two lane section, or at the start of the three lane section if there is a two to three lane flare i.e. at the first lane mark for the three lane section

- Roundabout with segregated left turn lane – the datum point should be located at the start of the radius for the segregated left turn lane.

2.16 All datum points, and particularly those which relate to multiple lane approaches with dedicated turning lanes, should be considered in relation to regular queuing patterns. The Overseeing Organisation should be consulted on this issue and, where practical,
the locations of advance direction signs and lane discipline signs provided should take account of this.

**Regulatory Signs, Warning Signs and Road Markings**

2.17 Each of the figures in this guidance focuses on the layout of direction signs. In some cases, selected warning and regulatory signs are shown or mentioned in the location layouts, where they have a bearing on direction sign provision. Reference should be made to TSM Chapter 3 [Ref 17] and TSM Chapter 4 [Ref 12] for guidance on the required layouts of regulatory and warning signs in these junction layouts.

2.18 Regulatory and warning sign symbols are also prescribed for use in some types of directional signs. Further guidance on their use is provided in LTN 1/94 [Ref 5]. In some cases, use of these could result in large sign sizes. The use of signs to diagrams 818.2 and 818.3 to contain the regulatory and warning sign symbols may be used to supplement the directional signs, enabling the information to be omitted from the directional signs.

2.19 All road marking layouts shown in the figures in this guidance are indicative. Reference should be made to TSM Chapter 5 [Ref 18] for guidance on the use of road markings in these junction layouts.

**Supplementary and Tourist Directional Signs**

2.20 Unless otherwise stated, up to two verge mounted supplementary or tourist advance direction signs may be provided (where justified in accordance with prevailing standards) on each approach to the junction in the layouts shown in this guidance. An example is shown in Figure 3.2. If there is space for only one sign on an approach, the supplementary and tourist ADS may be co-located at one location downstream of the ADS. The provision of “for x follow y” signs may be considered also, as an alternative (further guidance on “for x follow y” signs is given in LTN 1/94 [Ref 5]. Separate signs are preferred for tourist attractions and park and ride sites rather than combining the information in panels within the main ADS. This will result in a more economical size of ADS, and may also avoid potential cost or maintenance implications of modifying large ADS if destinations close or change names within the lifetime of the ADS.

2.21 Criteria and requirements for the provision of tourist signs on trunk roads in England are given in TD 52/04 (DMRB 8.2.4) [Ref 19].

2.22 The locations and minimum clear visibility distances of supplementary and tourist directional signs should comply with LTN 1/94 [Ref 5]. Guidance on volumes of destinations for direction signs (including supplementary and tourist signs) is given in LTN 1/94 [Ref 5]. If more than two supplementary or tourist signs are required, the designer should seek advice from the Overseeing Organisation. For further guidance on the provision of supplementary and tourist direction signs see relevant layout figures in this document, LTN 1/94 [Ref 5], IAN 144/15 Figures 3.6a, 3.6b, 3.7 and 3.8 [Ref 3].

**Sign Face Layouts**

2.23 The sign face layouts shown in the Figures in this guidance are indicative. Reference should be made to TSM Chapter 7 [Ref 2] and Department for Transport Working Drawings for Traffic Signs [Ref 21] for detailed guidance on sign face design.
3. AT GRADE PRIORITY AND SIGNALISED CROSSROADS JUNCTIONS

General

3.1 Part 3 of this document contains guidance for directional signing for a range of types of all-purpose at grade priority and signalised junction layouts, as follows:

- Simple priority junction (Figure 3.1 and 3.2)
- Priority junctions with ghost island and single lane dualling (Figure 3.3 and 3.4)
- Simple crossroads (Figure 3.5)
- Signalised crossroads (Figure 3.6)
- Signalised crossroads with a right turn approach lane (Figure 3.7)
- Simple right/left staggered junction (Figures 3.8 and 3.9)
- Staggered junction on a braided route (Figure 3.10)
- Left/right staggered junction with central reservation (Figure 3.11)
- Simple priority skew junction (Figure 3.12)
- Wide priority skew junction (Figure 3.13)
- Signalised junction with a left hand diverging lane loop for right turn (Figure 3.14)
- Priority junction with nearside auxiliary taper (Figure 3.15)
- Priority junction with a nearside auxiliary taper on a dual carriageway (Figure 3.16).

3.2 Figure 3.5 shows all of the directional signs as an example of standard provision. The remaining figures provide an example of some of the signs which could be provided at the junctions. Usually, only one major and one minor arm of each layout has been signed for illustration. Where repetition would occur, signs have been omitted generally, for reasons of clarity. However, the same principles would apply to the other unsigned arms.

3.3 Reference should be made to paragraphs 2.1 to 2.5 of this document and LTN 1/94 [Ref 5] to assist in determining the need for directional signs.

Simple Priority Junction (Figures 3.1 and 3.2)

3.4 Figure 3.1 shows directional signs on both major and minor road approaches to a simple priority junction. Figure 3.2 shows the minor road approach to the junction with additional supplementary/tourist signs. Both layouts are based on the junction layout shown in Figure 1/1 – TD 42/95 (DMRB 6.2.6) [Ref 6].

3.5 Where directional signs are required (see paragraphs 2.1 to 2.4), at least one verge mounted ADS should be provided on each approach to the junction. Two ADS may be provided if there are too many destinations for one sign. Guidance on volumes of destinations for directional signs is given in LTN 1/94 [Ref 5]. Either map or stack type signs may be provided depending on the verge width available.

3.6 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. On the major arm the datum point is located at the start of the first corner radius to the minor arm. On the minor arm the datum point is located at the give way markings for a single lane or constant width approach. If the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11. The ADS should be located at the distances specified in LTN 1/94 Appendix A [Ref 5], measured from the datum points.
3.7 Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.8 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.9 Obstruction of visibility splays with signs should be avoided, and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting flag signs side by side, at a relatively low mounting height, can improve driver awareness on the approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction could block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges.

3.10 For further guidance on the locations of direction signs, see LTN 1/94 [Ref 5].
Refer to paragraph 2.1 and 2.3 to determine the need for direction signs and advance direction signs.
Sign 2111 could be substituted with sign 2110 (map-type) if considered necessary, and space is available (see figure 3.2).
Signs in southbound direction are not shown for clarity.
All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Refer to TSM Chapter 7 for full details.
Refer to paragraph 2.3 for guidance on the need for direction and advance direction signs. Map type sign (2110) or stack type sign (2111) are alternative layouts. Signs 2503 and 2202 may be co-located. Sign 2202 could display symbols only if a sign with words and symbols has been shown upstream. Signs on the main road not shown for clarity. All sign layouts are diagrammatic. Refer to TSM Chapter 7 for full details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Priority Junction with Ghost Island and Single Lane Dualling (Figures 3.3 and 3.4)

3.11 A ghost island layout is shown in Figure 3.3 and a single lane dualling junction is shown in Figure 3.4. These are based respectively on standard junction layouts shown in Figures 1/2 and 1/3 – TD 42/95 (DMRB 6.2.6) [Ref 6].

3.12 Where directional signs are required (see paragraphs 2.1 to 2.4), one verge mounted ADS should be provided on each approach to the junction as required. Two ADS may be provided if there are too many destinations for one sign. Guidance on acceptable volumes of destinations for directional signs is given in LTN 1/94 [Ref 5]. Either map or stack type signs may be provided depending on the verge width available.

3.13 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. The datum points in these layouts are measured for each approach as follows:

- On the major arm with right-turning traffic into the minor arm - the datum point is located at the start of the taper for the right turn lane
- On the major arm with left-turning traffic into the minor arm - the datum point is located at the start of the corner radius to the minor arm
- On the minor arm the datum point is located at the give way markings for a one lane or constant width approach or at the start of the two lane section if the arm flares to two lanes on the approach, as shown in Figure 3.11. Refer also to paragraph 2.14.

3.14 Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.15 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction, and should remain in view until the point of turning (for instance on the central reservation of a single lane dualling). The visibility of a flag type direction sign should be available over the appropriate distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.16 Obstruction of visibility splays with signs should be avoided, and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting at a relatively low mounting height can improve driver awareness on the approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction could block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges.

3.17 For further guidance on the location of directional signs, see LTN 1/94 [Ref 5].
Refer to paragraph 2.1 and 2.3 to determine the need for direction and advance direction signs. Signs 2005 and 2111 may be substituted with map-type signs if appropriate. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Signs 2005 and 2111 may be substituted with map-type signs if appropriate. Refer to paragraphs 2.1 and 2.3 for guidance on the need for direction and advance direction signs.

All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

**FIGURE 3.4**

**PRIORITY JUNCTION WITH SINGLE LANE**

**DUALLING AND CENTRAL RESERVATION**
Simple Crossroads (Figure 3.5)

3.18 Crossroads junction layouts in new or improved junction provision are controlled normally by traffic signals or roundabouts. However, existing junctions could be uncontrolled. A layout is shown in Figure 1/4 - TD 42/95 (DMRB 6.2.6) [Ref 6].

3.19 Where directional signs are required (see paragraphs 2.1 to 2.4), at least one verge mounted ADS should be provided on each approach to the junction. Two ADS may be provided if there are too many destinations for one sign. Guidance on volumes of destinations for directional signs is given in LTN 1/94 [Ref 5]. Either map or stack type signs may be provided depending on the verge width available.

3.20 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. On the major arm the datum point is located at the start of the first corner radius to the minor arm. On the minor arm the datum point is located at the give way markings for a single lane or constant width approach. If the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11. The ADS should be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

3.21 Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.22 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. In Figure 3.5, it is difficult to provide direction signs at the junction to face traffic approaching on the side roads, and the signs are mounted vertically, one above the other, for both directions along the major route in this example. This is to improve visual impact, but equally, the signs may be located on the left corner (left turn sign) and right corner (right turn signs), dependent on the particular location being considered. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction, and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.23 Obstruction of visibility splays with signs should be avoided, and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting at a relatively low height can improve driver awareness on the approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction may block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges.

3.24 For further guidance on the location of directional signs, see LTN 1/94 [Ref 5].
Refer to paragraph 2.1 and 2.3 to determine need for direction signs and advance direction signs.

This layout shows all direction signs required. Signs 2004 and 2110 may be substituted with stack-type signs.

All sign layouts are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts are diagrammatic. Refer to TSM Chapter 5 for full details.

**FIGURE 3.5**

SIMPLE CROSSROADS
Signalised Crossroads (Figure 3.6)

3.25 Layouts at crossroads are controlled sometimes by traffic signals. Design standards for signalised junctions are given in TD 50/04 (DMRB 6.2.3) [Ref 15].

3.26 Where directional signs are required (see paragraphs 2.1 to 2.4), at least one verge mounted ADS should be provided on each approach to the junction. Two ADS may be provided if there are too many destinations for one sign. Guidance on acceptable volumes of destinations for directional signs is given in LTN 1/94 [Ref 5]. Either map or stack type signs may be provided depending on the verge width available.

3.27 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. At signalised junctions the datum points are located as follows:

- Single lane and constant width approaches – the datum point will be located at the signal stop line markings. If the approach is constant width with more than one lane and signs to diagram 877 are provided, the datum point may be amended based on the location of the diagram 877 signs, the location of which will need to take account of the queuing length.
- Single lane flaring to two lanes – the datum point will be located at the start of the two lane length if there are seven or fewer warning marks leading up to the stop line. If there are more than seven warning marks leading up to the stop line, the designer should consult with the Overseeing Organisation and consider queue lengths and road layout to position the datum point.
- Two lanes flaring to three or more lane approaches – an absolute minimum of seven warning marks from the stop line will be required for a two-lane approach. If there are seven marks, the datum point will be located at the commencement of these marks. If there are more than seven warning marks, the Overseeing Organisation should be consulted as above.

3.28 ADS shall be located at the distances specified in LTN 1/94 Appendix A, measured from the datum points. Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.29 On approaches with more than one lane, a sign to diagram 877 may be provided to augment the road markings, and to encourage appropriate use of all lanes. This is particularly important when a lane or more than one lane is dedicated to, or shared by, individual turning movements and its use could create a capacity and/or road safety benefit. The layout of the sign should match exactly the road layout at the sign location. Note that destinations should not be marked on the carriageway, and dedicated lane ADS to diagram 2019 should not be used if any lane in the approach is shared by more than one turning manoeuvre (for example, ahead and left turn).

3.30 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location. The signs should not obscure signal heads or obstruct pedestrian desire lines or crossing locations.
3.31 On some approaches ADS may not be required (see paragraphs 2.1 to 2.4 for further guidance). Flag type direction signs may be sufficient, supplemented by warning signs where appropriate (see TSM Chapter 4 for guidance on use of warning signs at signalised junctions [Ref 12]).

3.32 For further guidance on the location of directional signs, see LTN 1/94 Appendix A [Ref 5].

Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. Map type sign 2004 and stack type sign 2005 are alternatives, dependent on junction layout and approaches. Signs in southbound direction are not shown for clarity. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

FIGURE 3.6

SIGNALISED CROSSROADS
Signalised Crossroads with a Right Turn Approach Lane (Figure 3.7)

3.33 Layouts at crossroads are controlled sometimes by traffic signals. In this example there is a dedicated right turn lane on one approach. Design standards for signalised junctions are given in TD 50/04 (DMRB 6.2.3) [Ref 15].

3.34 At least one verge mounted ADS shall be provided, if needed, on each approach to the junction (see paragraphs 2.1 to 2.4). Two ADS may be provided if there are too many destinations for one sign. Either map or stack type signs can be provided depending on the junction and the verge width available.

3.35 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. At signalised crossroads the datum points are located as described in paragraph 3.27. However, on the approach with localised widening for a dedicated right-turn lane, the datum point is located at the start of the taper for the right turn lane. ADS shall be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

3.36 Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.37 On approaches with more than one lane, a sign to diagram 877 may be provided to augment the road markings, and to encourage appropriate use of all lanes. This is particularly important when one lane (or more) is dedicated to, or shared by, individual turning movements and its use could create a capacity and/or road safety benefit. The layout of the sign should match exactly the road layout at the sign location. Note that destinations should not be marked on the carriageway, and lane destination signs to diagram 2019 should not be used if any lane in the approach is shared by more than one turning manoeuvre (for example, ahead and left turn).

3.38 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction and should remain in view until the point of turning.

3.39 The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location. The signs should not obscure signal heads or obstruct pedestrian desire lines or crossing locations.

3.40 On some approaches ADS may not be required (see paragraphs 2.1 to 2.4 for further guidance). Flag type direction signs may be sufficient, supplemented by warning signs where appropriate (see TSM Chapter 4 for guidance on use of warning signs at signalised junctions [Ref 12]).

3.41 For further guidance on the location of directional signs, see LTN 1/94 Appendix A [Ref 5].
Sign 2006 may be substituted with a stack-type sign if considered appropriate.
Sign 2202 and 2504 can be co-located.
Northbound signs only shown, for clarity.
Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance
direction signs.
All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full details.
All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Simple Right/Left Staggered Junction - (Figures 3.8 and 3.9)

3.42 Staggered junctions occur where the major road is continuous through the junction and the minor roads connect with the major road to form two laterally displaced T-junctions. A standard layout for a staggered junction is shown in Figure 1/6 - TD 42/95 (DMRB 6.2.6) [Ref 6]. Two layouts have been prepared for signing simple staggered junctions. One layout has sufficient distance to provide ADS between the side roads and the junctions, and thus are signed on the approaches as two separate junctions (Figure 3.8 Option A). In the second layout the stagger is too short to provide signs between the side roads, and the junctions are treated as one junction (Figure 3.9 Option B). The figures show right/left staggered junctions. The signing layouts would be the same with right/left staggered arrangements.

3.43 One verge mounted ADS should be provided on each approach to the junction where directional signs are required (see paragraphs 2.1 to 2.4). Two ADS may be provided if there are too many destinations for one sign. Alternatively, a “for x follow y” sign may be considered for the layout in Figure 3.8 Option A. Either map or stack type signs may be provided, depending on the complexity of the junction and the verge width available.

3.44 Where there is sufficient distance between the junctions to provide ADS on the major route between the side road junctions, as in the example shown in Figure 3.8 Option A, each junction may be signed as a separate priority junction, using a stack type or map type ADS on each junction approach. The minimum distance required to sign the junctions is the sum of the minimum distances shown for the appropriate approach speed in LTN 1/94 [Ref 5], plus 35 metres (to allow for a motorist to read the sign after emerging from the minor road arm). The ADS sign should not be placed closer than 35 metres from the tangent point of the radius of the entry arm of the previous side road junction, as shown in Figure 3.8 Option A. Where ADS are required (see paragraphs 2.1 to 2.4), and the junctions are not signed with separate ADS, or there is insufficient distance to place a ADS between the junctions as shown in Figure 3.9 Option B, the junction should be signed as a single junction with map type signs showing the staggered arrangement on each approach to the junction. Where directional signs are not required, the warning sign 507.1 may be provided, if the location meets the requirements for a staggered junction warning sign (see TSM Chapter 4 paragraph 2.4 [Ref 12]).

3.45 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. On the major arm the datum point is located at the start of the first corner radius to the minor arm. On the minor arm the datum point is located at the give way markings for a single lane or constant width approach. If the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11. The ADS should be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

3.46 Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.47 If there is no space for supplementary signs, “for x follow y” signs may be used as shown in Figure 3.10. See LTN 1/94 [Ref 5], for information on “for x follow y” signs.
3.48 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction, and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location. The signs should not obscure signal heads or obstruct pedestrian desire lines or crossing locations.

3.49 Note that in the example in Figure 3.8 Option A, the flag sign facing the side road entry, and directing traffic to follow the main road to reach the continuation of the side road route, has the route number in brackets, whereas in Figure 3.9 Option B, which is signed as one junction using map type staggered junction ADS, the same route number is not bracketed.

3.50 For further guidance on the location of directional signs, see LTN 1/94 Appendix A [Ref 5].
Directional Signs on Motorway and All-Purpose Trunk Roads
At Grade and Compact Grade Separated Junctions

FIGURE 3.8

*See paragraph 3.44 for details of minimum spacing between sign and junction.
Bracketed route numbers are used on AD and flag signs for side road traffic following the B1234 signed routes through the junction, where the junction is signed as two separate junctions. For alternative locations of flag-type signs see figure 3.5. Signs in southbound direction not shown for clarity. Refer to paragraphs 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Refer to paragraphs 2.1 and 2.3 for guidance on the need for direction and advance direction signs. Bracketed route numbers are NOT used on flag signs facing the side road arm for side road traffic following the B1234 signed route through the junction on the A1 (right to left in this figure), unless the junction is signed as one staggered junction, and map-type ADS and sign/shape on all arms. If the minor route was primary status also, two separate flagtype signs would be provided facing the side road in that layout. A selection of signs are shown only. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Staggered Junction on a Braided Route (Figure 3.10)

3.51 A braided route is one where two routes join at a junction and run along together for some distance before separating at a subsequent junction. In Figure 3.10, route A659 joins A58 and the two are signed with A659 in brackets and A58 as the main route until the junction where the routes separate. The standard layout of direction signs for a staggered junction on a braided route is the same as the layout for a simple staggered junction and is shown in Figure 1/6 - TD 42/95 (DMRB 6.2.6) [Ref 6]. The difference between a braided route and a simple staggered junction is that there are other junctions located between the minor route arms, and in some cases, the routes may continue in braided form for some distance (an example is A12 and A14 near Ipswich). It is vital at a junction on a braided route that destination and route number continuity should be maintained. Both primary and secondary route target destinations should be shown throughout.

3.52 A least one verge mounted stack type ADS should be provided on each approach to the junction where directional signs are required (see paragraphs 2.1 to 2.4). Two ADS may be provided if there are too many destinations for one sign. Either map or stack type signs may be provided, depending on the complexity of the junction and the verge width available.

3.53 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. On the major arm the datum point is located at the start of the first corner radius to the minor arm. On the minor arm the datum point is located at the give way markings for a single lane or constant width approach. If the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11. The ADS should be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

3.54 Up to two verge mounted supplementary ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.55 If there is no space for supplementary signs, “for x follow y” signs may be used as shown in Figure 3.10. See LTN 1/94 Appendix A [Ref 5], for information on “for x follow y” signs.

3.56 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction, and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.57 Obstruction of visibility splays with signs should be avoided and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting at a relatively low height can improve driver awareness on the approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction could block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges. For further guidance on the location of directional signs, see LTN 1/94 Appendix A [Ref 5].
Diagram 2005 and 2103 may be substituted with map-type signs if appropriate. In this layout there is sufficient distance to provide advance direction signs between the side roads. Signs not shown for eastbound A659, B6123 or southbound A58 approaches for clarity.

**Refer to paragraph 3.44 for details of minimum spacing between sign and junction. Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs.

All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Left/Right Staggered Junction with Central Reservation (Figure 3.11)

3.58 Staggered junctions occur where the major road is continuous through the junction and the minor roads connect with the major road to form two laterally displaced T-junctions. In this example the staggered junction occurs on a dual carriageway i.e. with a central reservation. A standard junction layout is shown in Figure 8/3 - TD 42/95 (DMRB 6.2.6) [Ref 6].

3.59 On this particular layout there is insufficient distance between the side roads to provide an ADS (see paragraph 3.44 for further guidance on this point). Where directional signs are required (see paragraphs 2.1 to 2.4), verge mounted map type ADS should therefore be provided on each approach to the junction. In this example the junction is signed as one junction (with no bracketed route numbers). Junctions with adequate distance between side roads for the provision of ADS should be signed using the same principles as the signing layout shown in Figure 3.8.

3.60 A ½ mile ADS may be provided where the road is subject to the national speed limit. A 1 mile ADS may be provided if the road has more than two lanes, or if the designer feels it is necessary for other reasons such as volume of traffic or safety.

3.61 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. On the major arm the datum points are located at the start of the corner radii to the minor arms. On the minor arms the datum points are located at the give way markings for a single lane or constant width approach. If the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11. The ADS should be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

3.62 Up to two supplementary/tourist ADS may be provided on the approaches to the junction depending on the speed limit of the road. For guidance on layouts and locations of supplementary signs where there are ½, ¾, ⅔ or 1 mile ADS, refer to Figures 3.7 and 3.8 of IAN 144/15 [Ref 3]. Where ADS are provided on the immediate approach to the junction only, supplementary/tourist signs should be used as shown in Figure 3.11. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.63 If there is no space for supplementary or tourist ADS, “for x follow y” signs may be used as shown in Figure 3.10. See LTN 1/94 [Ref 5], for information on “for x follow y” signs.

3.64 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.65 For further guidance on the location of directional signs, see LTN 1/94 [Ref 5].
In this layout there is insufficient distance to provide advance direction signs between the side roads. Signs not shown on A1 northbound or B1234 eastbound approaches for clarity. Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

**FIGURE 3.11**

**LEFT/RIGHT STAGGERED JUNCTION WITH CENTRAL RESERVATION**
Simple Priority Skew Junction (Figure 3.12)

3.66 A priority skew junction occurs where the minor road approach is at an angle other than 90° to the major road. A simple skew junction is one where the distance between the centre lines of the two minor roads is 50m or less (measured at the point where the minor arms meet the major arms). A standard junction layout is shown in Figure 7/15 - TD 42/95 (DMRB 6.2.6) [Ref 6].

3.67 One verge mounted ADS should be provided on each approach to the junction where directional signs are required (see paragraphs 2.1 to 2.4). Two ADS may be provided if there are too many destinations for one sign. Either map or stack type signs may be provided on the major road approach depending on the complexity of the junction and the verge width available. On the minor road approach, a map type sign is beneficial to show the layout of the junction. It can be supplemented by the use of diagram 616 no entry signs at the end of the link road, facing the minor route, to improve comprehension of the layout and avoid motorists overshooting the junction. A Traffic Regulation Order will be required to place diagram 616 signs.

3.68 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. On the major arm the datum point is located at the start of the first corner radius to the minor arm. On the minor arm the datum point is located at the give way markings for a single lane or constant width approach. If the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11. The ADS should be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

3.69 Up to two verge mounted supplementary ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.70 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. Where the side road does not leave the major road at a sharp angle, a confirmatory direction sign in the form of a rectangular direction sign may be used in place of a flag type direction sign (see Figure 3.12). A flag type direction sign should always be provided where the destination has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.71 Obstruction of visibility splays with signs should be avoided, and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting at a relatively low height can improve driver awareness on the approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction could block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges.

3.72 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
No entry signs may only be provided if there is a genuine risk.
Requires Overseeing Organisation approval if no Traffic Regulation Order is provided.
Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 6 for full details.

* Ensure direction sign does not obscure visibility for emerging traffic.

Datum point at give way line
Datum point at start of corner radius
No Entry Sign *
(616)
Wide Priority Skew Junction (Figure 3.13)

3.73 A priority skew junction occurs where the minor road approach is at an angle other than 90° to the major road. A wide skew junction is one at which the distance between the centre lines of the two minor roads is greater than 50m (measured at the point where the minor arms meet the major arms). A standard junction layout is shown in Figure 7/15 – TD 42/95 (DMRB 6.2.6) [Ref 6].

3.74 One verge mounted ADS should be provided on each approach to the junction where directional signs are required (see paragraphs 2.1 to 2.4). Two ADS may be provided if there are too many destinations for one sign. In this layout there is insufficient distance to provide an ADS between the side roads and main road. Map type signs illustrating the junction layout would, therefore, provide the best visual information to drivers.

3.75 ADS location is measured from the appropriate datum point and offset, where necessary, to accommodate expected levels of queuing traffic. On the major arm the datum point is located at the start of the first corner radius to the minor arm. On the minor arm the datum point is located at the start of the corner radius to the first link road to the major road (see Figure 3.13 – side road arm). The ADS should be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

3.76 Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.77 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction, and should remain in view until the point of turning.

3.78 The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.79 Obstruction of visibility splays with signs should be avoided and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting at a relatively low height can improve driver awareness on the approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction may block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges.

3.80 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
FIGURE 3.13

Shows signs for northbound and north-westbound approaches only for clarity. Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Signalised Junction with a Left Hand Diverging Lane Loop for Right Turn (Figure 3.14)

3.81 A left hand diverging lane loop may be provided when right turn flows into the minor arm of a signalised junction inhibit through flow or create a hazard but are not great enough to justify the provision of a right turn lane. A standard priority junction layout is shown in Figure 2/4, **TD 42/95 (DMRB 6.2.6)** [Ref 6].

3.82 Where directional signs are required (see paragraphs 2.1 to 2.4); one verge mounted ADS should be provided on each approach to the junction. If there are too many destinations for one sign, a “for x follow y” sign should be used. The variant diagram 2010.1, a map type sign, should be positioned on both major road approaches to advise drivers of the junction layout ahead. On the minor arm approach either a map or stack type sign may be provided, depending on the verge width available.

3.83 ADS locations should always be measured from the junction datum points. The datum points on this layout are measured for each approach as follows:

- On the major arm with right-turning traffic into the minor arm - the datum point is located at the start of the taper for the right turn lane
- The other datum points are as shown in paragraph 3.25.

3.84 The ADS should be located at the distances specified in **LTN 1/94** [Ref 5], measured from the datum points.

3.85 Up to two verge mounted supplementary ADS may be provided on each approach to the junction as shown in Figure 3.2. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.86 If there is no space for supplementary signs, “for x follow y” signs may be used as shown in Figure 3.10. See **LTN 1/94** [Ref 5], for information on “for x follow y” signs.

3.87 Confirmatory direction signs (rectangular) should normally be provided on the nose at the taper and at the junction itself pointing along the route shown on the sign (flag type direction signs should be used if the junction diverges at a sharp angle). The signs should be positioned where drivers can see them clearly, on the approach to the junction.

3.88 At this layout it will be necessary to provide:

- ‘No right-turn’ signs to diagram 612 both at the junction and as a roundel on the ADS, and
- ‘No entry’ signs to diagram 616 on the lane loop arm of the ‘cross road’ junction.

3.89 Obstruction of visibility splays with signs should be avoided and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting at a relatively low height can improve driver awareness on the approach to the junction, but this should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian usage, or whether stationary vehicles at the junction could block the view of the sign for motorists approaching.

3.90 For further guidance on the locations of directional signs, see **LTN 1/94** [Ref 5].
Overseeing authority approval is required to place an arrow above the destination.

** No entry signs require Traffic Regulation Order. In this layout, the diagram 612 sign requires a Traffic Regulation Order. Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Priority junction with Nearside Auxiliary Taper (Figure 3.15)

3.91 A nearside auxiliary taper may be provided on the approach to a priority junction on a single carriageway road to accommodate the decelerating left turn traffic into the minor arm of the junction. A standard junction layout is shown in Figure 8/1, **TD 42/95 (DMRB 6.2.6)** [Ref 6].

3.92 Where directional signs are required (see paragraphs 2.1 to 2.4), verge mounted ADS should be provided on each approach to the junction. Stack or map type ADS may be used, dependent on suitability at the location to be signed.

3.93 ADS locations are always measured from the junction datum points. The datum points on this layout are measured for each approach as follows:

- On the major arm with left-turning traffic into the minor arm - the datum point is located at the start of the taper
- On the major arm with right-turning traffic into the minor arm - the datum point is located at the start of the corner radius of the minor arm
- On the minor arm the datum point is located at the give way markings for a single lane or constant width approach; if the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11.

3.94 ADS should be located at the distances specified in **LTN 1/94** [Ref 5], measured from the datum points (unless specified above).

3.95 Up to two supplementary/tourist ADS may be provided on the approaches to the junction depending on the speed limit of the road. They should be used as shown in Figure 3.2 or Figure 3.8, dependent on whether the destination is to be signed on the minor or major route arm(s). For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.96 Flag type chevron-ended direction signs, where required, should be provided at the junction itself, pointing along the route shown on the sign. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in **LTN 1/94** Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

3.97 Obstruction of visibility splays with signs should be avoided and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights designed to take account of this. For flag type signs facing traffic approaching on the minor road arm, mounting at a relatively low height can improve driver awareness on the approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction could block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges.

3.98 For further guidance on the locations of directional signs, see **LTN 1/94** [Ref 5].
Signs shown for northbound direction only.
Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 2 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

PRIORITY JUNCTION WITH NEAR SIDE AUXILIARY TAPER
FIGURE 3.15
Priority Junction with Nearside Auxiliary Taper on a Dual Carriageway
(Figure 3.16)

3.99 A nearside auxiliary taper may be provided on the approach to a priority junction on a
dual carriageway road to accommodate the decelerating left turn traffic into the minor arm of
the junction. A standard layout is shown in Figure 8/1, TD 42/95 (DMRB 6.2.6) [Ref 6]. In
Figure 3.16 it is assumed that directional signs are required (see paragraphs 2.1 to 2.4), and
the location requires a 1 mile ADS owing to volume of traffic or road safety reasons (not
required normally for a dual carriageway with fewer than 3 lanes). See also Figure 7.1 for
compact grade separated junction layouts with merge and diverge tapers.

3.100 Up to three verge mounted ADS should be provided on the major arm approach to
the junction. Two ADS (⅓ or ½ mile and final) should be provided if the road has a national
speed limit. A ⅔ or 1 mile sign may also be provided where the road has more than two
lanes, or the designer feels it is necessary for other reasons such as volume of traffic or
safety. Guidance on the use of ⅓ or 1 mile, and ½ or ⅔ mile ADS, and location tolerances is
given in IAN 144/15 [Ref 3]. Up to two ADS may be provided on the minor arm. However, as
there is no choice of direction, these signs would be for road safety reasons (inclusion of the
no entry symbol, for example), or to maintain destination continuity from previous junctions
within the minor route.

3.101 ADS locations should be measured from the junction datum points. The datum points
on this layout are measured for each approach as follows:

- On the major arm with left-turning traffic into the minor arm, the datum point is
  located at the start of the taper
- On the minor arm the datum point is located at the give way markings for a single
  lane or constant width approach; if the minor arm flares to two (or more) lanes on the
  approach, the datum point will be located at the start of the two lane section as
  shown in Figure 3.11.

3.102 ADS should be located at the distances specified in paragraph 3.103, measured from
the datum points (unless specified above).

3.103 Up to two supplementary/tourist ADS may be provided on the approaches to the
junction depending on the speed limit of the road. For guidance on layouts and siting
distances of supplementary ADS on higher speed roads where there are ⅓, ½, ⅔ or 1 mile
ADS, refer to Figures 3.6 to 3.8 of IAN 144/15 [Ref 3]. For other roads, supplementary/tourist
ADS should be used as shown in Figure 3.2 and Figure 3.8. For further guidance on
supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

3.104 Flag type chevron-ended direction signs, where required, should be provided at the
junction itself, pointing along the route shown on the sign. A flag type direction sign should
always be provided where the direction has been displayed to traffic on the advance
direction sign for that arm of the junction – failure to do so could result in motorists either
missing the turning or braking sharply on the approach. The signs should be positioned
where they can be seen clearly by drivers approaching the junction, and should remain in
view until the point of turning. The visibility of a flag type direction sign should be available
over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th
percentile speed of traffic on the approach arm to the sign location.

3.105 Obstruction of visibility splays with signs should be avoided and mounting heights
should be designed accordingly. Additionally, potential for obstruction of the visibility of the
sign by vehicles waiting at the junction should be considered, and locations and mounting
heights designed to take account of this. For flag type signs facing traffic approaching on the
minor road arm, mounting at a relatively low height can improve driver awareness on the
approach to the junction. However, mounting heights should be considered against other parameters such as passive safety of sign posts, whether the location has pedestrian or cycle usage, whether stationary vehicles at the junction could block the view of the sign for motorists approaching, and the interface of the sign with the locations and heights of adjoining property walls, windows or hedges.

3.106 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
4. MINI ROUNDABOUTS

Mini Roundabout with and without Physical Islands (Figures 4.1 and 4.2)

4.1 A mini roundabout is one that has a flush or domed, circular, solid, white road marking between 1 and 4 metres in diameter. Figure 4.1 shows recommended signing for a mini roundabout with physical islands, while Figure 4.2 shows signing for a mini roundabout without physical islands. Standard junction layouts are shown in TD 54/07 (DMRB 6.2.2) [Ref 7].

4.2 Where directional signs are required (see paragraphs 2.1 to 2.4), verge mounted, map type ADS should be provided on the approaches to a mini roundabout. The number of arms, and shape and size of the route (roundabout) symbols should show graphically the layout of the junction ahead (refer to Figures 5-27 to 5-30 TSM Chapter 7 [Ref. 2]). Where directional signs are not provided, and there is inadequate visibility distance to the mini roundabout roundel (diagram 611.1a), a warning sign to diagram 510 should be provided. Refer to paragraph 2.16 TSM Chapter 4 [Ref 12] for additional advice.

4.3 ADS locations are always measured from the datum point. For single lane and constant width approaches, the datum point will be located at a point where a line taken from the right hand end of the give way line meets the nearside kerb perpendicularly (using the same method as that used to measure entry width of roundabouts). Refer to TD 54/07 (DMRB 6.2.2) [Ref. 7]. Refer to paragraph 5.4 for the location of datum points for wider approaches. The ADS should be located at the distances specified in LTN 1/94 [Ref 5], measured from the datum points.

4.4 One verge mounted supplementary ADS may be provided on each approach to the mini roundabout. Supplementary and tourist ADS should be map type unless space constraints prevent this. If there is no space for supplementary signs, panels may be added to the ADS. However, it is preferable to provide separate signs for tourist attractions and park and ride sites, in case they close or change names within the lifetime of the ADS. Siting distances and the minimum clear visibility between signs must comply with the distances specified in LTN 1/94 [Ref 5]. For further advice on supplementary signs see paragraph 2.20 to 2.22.

4.5 If there is no space for supplementary and tourist ADS, “for x follow y” signs may be used as shown in Figure 3.10. See LTN 1/94 [Ref 5], for information on “for x follow y” signs.

4.6 Flag type chevron-ended direction signs pointing along the route shown on the sign should normally be provided on the physical refuges at the exits from the junction, as shown in Figure 4.1. Where there are no physical refuges, the signs need to be located on the verge or footway as shown in Figure 4.2. A flag type direction sign should always be provided where the direction has been displayed to traffic on the advance direction sign for that arm of the junction – failure to do so could result in motorists either missing the turning or braking sharply on the approach. The signs should be positioned where they can be seen clearly by drivers approaching the junction and should remain in view until the point of turning. The visibility of a flag type direction sign should be available over the appropriate visibility distance given in LTN 1/94 Appendix A [Ref 5], for the 85th percentile speed of traffic on the approach arm to the sign location.

4.7 Obstruction of visibility splays with signs should be avoided and mounting heights should be designed accordingly. Additionally, potential for obstruction of the visibility of the sign by vehicles waiting at the junction should be considered, and locations and mounting heights should be designed to take account of this. Mounting heights of flag type should be
considered against other parameters such as passive safety of sign posts, whether the location has pedestrian usage, whether stationary vehicles at the junction could block the view of the sign for motorists approaching, and locations/heights of adjoining property walls. In some cases, mounting on pedestrian guardrail may be appropriate.

4.8 For further guidance on the location of directional signs, see LTN 1/94 [Ref 5].
Map-type sign to diagram 2216 could be substituted with a wall-type sign. In this instance, "signs shown for northbound arm only for clarity. Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 9 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 2 for full details.

MINI ROUNDBOUTH WITHOUT PHYSICAL ISLANDS

FIGURE 4.2
Double Mini Roundabout with Physical Islands (Figure 4.3)

4.9 Figure 4.3 shows the directional signing layout required for a double mini roundabout. The principles are similar to those referred to in paragraphs 4.1 to 4.8, but a special route symbol is shown (diagram 2120), and datum points are measured from the first give way line to be traversed.

4.10 Flag type direction signs are required at each of the two mini roundabouts, pointing along the routes shown on the signs.
5. ROUNDABOUTS

Normal Roundabout (Figure 5.1)

5.1 A normal roundabout has a kerbed central island at least 4 metres in diameter. Its approaches may be dual or single carriageway roads. A standard junction layout is shown in TD 16/07 (DMRB 6.2.3) [Ref 8].

5.2 Where directional signs are required (see paragraphs 2.1 to 2.4), verge mounted map type ADS should be provided on the approaches to a roundabout. The number of arms, shape and size of the route, and roundabout symbols should show graphically the layout of the junction ahead (refer also to TSM Chapter 7 [Ref 2]). Where two ADS are provided on a junction approach, they should be of the same type (e.g. map type) unless space constraints prevent this. At roundabouts the first sign, at least, should be of map type – for example, diagram 2022.

5.3 Where a map type ADS is not provided (for instance, a local un-numbered road arm), a warning sign to diagram 510 should be provided. Refer to TSM Chapter 4 [Ref 12] for additional guidance.

5.4 ADS locations are always measured from the datum point at the distances specified in LTN 1/94 [Ref 5]. The datum points for normal roundabout approaches are as follows:

- Single lane and constant width approaches - the datum point will be located at a point where a line taken from the right hand end of the give way line meets the nearside kerb perpendicularly (using the same method as that used to measure entry width of roundabouts. Refer to TD 16/07 (DMRB 6.2.3) [Ref. 8]).
- Flared approaches with increasing numbers of lanes on approaches – the datum point will be located at the start of the two lane section for a two lane approach i.e. at the first lane mark for the two lane section, or at the start of the three lane section if there is a two to three lane flare i.e. at the first lane mark for the three lane section.

5.5 Up to two verge mounted supplementary/tourist ADS may be provided on each approach to the roundabout as shown in Figure 5.1. Supplementary signs should be map type unless space constraints prevent this. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

5.6 If there is no space for supplementary ADS, “for x follow y” signs may be used as shown in Figure 3.10. See LTN 1/94 [Ref 5], for information on “for x follow y” signs.

5.7 Flag type chevron-ended direction signs should be provided on the physical islands at the exits from a roundabout, pointing along the route shown on the sign. Where there are no physical islands, the signs need to be located on the verge. The signs should be positioned where drivers can see them clearly on the approach to the exit, over the minimum visibility distance stated in LTN 1/94 Appendix A [Ref 5]. The signs should not obstruct pedestrian routes.

5.8 In most circumstances, flag signs at each exit from the roundabout will suffice. However, in exceptional circumstances, and particularly at roundabouts with more than four arms, at those where the major route does not proceed straight ahead, or where the roundabout has a very large diameter, right turn flag type direction signs directing traffic around the circulatory carriageway to its chosen exit may be provided. The example in Figure 5.1 shows this. Once introduced, these signs should be provided at every subsequent exit arm until the destination exit is reached. The volume of additional information, and the
additional visual intrusion which will be created by including these signs, should be considered carefully and balanced against any benefits which would be achieved before a decision is taken to introduce right turn flag signs at a roundabout.

5.9 At junctions with both ADS and flag type (or nose) direction signs, destinations on the direction signs should correspond with those on the ADS. New destinations should not be introduced normally for the first time on flag or nose type direction signs.

5.10 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
Roundabout on a High Speed Dual Carriageway (Figure 5.2)

5.11 Roundabouts on dual carriageways have kerbed central islands. Standard junction layouts are shown in TD 16/07 (DMRB 6.2.3) [Ref 8]. They require careful signing to ensure drivers slow down sufficiently on the approaches to accord appropriate priority to motorists on the circulatory carriageway and to negotiate the roundabout.

5.12 Either verge or gantry mounted ADS should be provided in advance of the roundabout as shown in Options 1 and 2 of Figure 5.2. Supplementary/tourist signs may not be gantry mounted. Gantry mounted signs should be used where the location meets the criteria in TD 18/85 (DMRB 9.1.2) (Ref 13). See also LTN 1/94 paragraph 3.1.5 [Ref 5].

5.13 Verge mounted ADS should be of the same type (e.g. map type) unless space constraints prevent this. At roundabouts the first sign, at least, should be of the map type. The number of arms, shape, and size of the route (roundabout) symbols on the map type signs should show graphically the layout of the junction ahead. Refer to TSM Chapter 7 Figures 5-13 to 5-16 [Ref 2].

5.14 ADS locations are always measured from the datum point. For a dual carriageway approach to a roundabout, the datum points are as follows:

- Single lane and constant width approaches - the datum point will be located at a point where a line taken from the right hand end of the give way line meets the nearside kerb perpendicularly (using the same method as that used to measure entry width of roundabouts. Refer to TD 16/07 (DMRB 6.2.3) [Ref. 8]).
- Flared approaches with increasing numbers of lanes on approaches – the datum point will be located at the start of the additional lane section. For example, if there is a two to three lane flare the datum point will be at the first lane mark for the three lane section.

5.15 The number of ADS and requirement for roundabout warning signs to diagram 510 depends on the speed limit and width of the approaching dual carriageway as follows:

- Dual 3 (50, 60 or 70mph) - 1 mile, ½ mile ADS and final direction sign and warning signs to diagram 510 (refer to paragraph 2.14 TSM Chapter 4 [Ref 12])
- Dual 2 (60 or 70mph) – 1 mile ADS (optional – site specific road safety issue/high traffic volume), ½ mile ADS and final direction sign and warning signs to diagram 510 (refer to paragraph 2.14 TSM Chapter 4 [Ref 12])
- Any dual carriageway (lower than 50mph) - final direction sign and, if considered necessary, one pair of warning signs to diagram 510.

Where the roundabout approach is signalised, diagram 510 should be not be used. Diagram 543 should be used instead (see also TSM Chapter 4 paragraph 8.3 [Ref 12]).

5.16 Roundabout warning signs to diagram 510 and “REDUCE SPEED NOW” signs to diagram 511 should be provided on high speed approaches to the roundabout. These are located on both nearside and offside approaches in accordance with paragraph 2.15 TSM Chapter 4 [Ref 12]. Where the roundabout is signalised, diagram 543 is used, and diagram 511 is omitted (these signs are not prescribed in this combination in TSRGD [Ref 11]).
5.17 One pair of supplementary/tourist ADS may be provided on the approaches to the junction depending on the speed limit of the road. For guidance on layouts and siting distances of supplementary and tourist ADS on higher speed roads (50mph or over), where there are \(\frac{1}{3}, \frac{1}{2}, \frac{2}{3}\) or 1 mile ADS, refer to Figures 3.6 to 3.8 of IAN 144/15 [Ref 3]. For roads with a speed limit of less than 50 mph, supplementary signs should be used as shown in Figure 5.2. For further guidance on supplementary and tourist ADS, see paragraph 2.20 to 2.22.

5.18 If there is no space for supplementary ADS, “for x follow y” signs may be used as shown in Figure 3.10. See LTN 1/94 [Ref 5], for information on “for x follow y” signs.

5.19 Verge mounted countdown marker signs to diagrams 823 to 825 may be provided on both nearside and offside approaches to a roundabout on a high speed road. For further guidance, refer to TSM Chapter 4 paragraph 2.18 [Ref 12]. Countdown marker signs should not be used if the roundabout is signalised.

5.20 Guidance on the provision of flag type chevron-ended direction signs and right pointing flag type direction signs is the same as for a normal roundabout and explained in paragraph 5.8.

5.21 For further guidance on the locations of directional signs see LTN 1/94 [Ref 5].
Directional Signs on Motorway and All-Purpose Trunk Roads
At Grade and Compact Grade Separated Junctions

### OPTION 1
**VERGE-MOUNTED SIGNS**

- **Final Direction Sign**
  - (2022)

- **1/2 mile Advance Direction Sign**
  - (2022)*

- **1 mile Advance Direction Sign**
  - (2022)*

### OPTION 2
**PORTAL GANTRY-MOUNTED SIGNS**

- **Final Gantry**
  - (2021)

- **1/2 mile Gantry**
  - (2021)

- **1 mile Gantry**
  - (2021)

### SIGNS COMMON TO BOTH OPTIONS

- **Flag Type Direction Sign (2026)**
- **Flag Type Direction Sign (2028)**
- **Flag Type Direction Sign (2024)**
- **Flag Type Direction Sign (2022)**

*Authorisation is required to add distance to junction.

**Diagram 510/511 signs are not required when 1/4 mile or 1/2 mile and 1 mile map-type ADS are used.

****Right turn flag type direction sign are required when gantry mounted ADS used on approach.

All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
Roundabout with Segregated Left Turn Lane (Figures 5.3 and 5.4)

5.22 A segregated left turn lane at a roundabout is one which allows a left turn movement without needing to enter the roundabout. Standard junction layouts are given in Figure 2/1 – TD 51/03 (DMRB 6.3.5) [Ref 16]. Figure 5.3 shows signing for a segregated left turn approach as a lane drop from a dual carriageway. Figure 5.4 shows a segregated left turn lane as a diverge from the main carriageway of a dual carriageway.

5.23 Verge mounted map type ADS should be provided on the approaches to the roundabout. The number of arms, and shape and size of the route (roundabout) symbol should show graphically the layout ahead, including the segregated lane. Refer to Figures 5-18 to 5-21 TSM Chapter 7 [Ref 2]. Where two ADS are provided on a junction approach they should be of the same type (e.g. map type) unless space constraints prevent this. On roundabout arms with a segregated left turn lane layout, the first sign at least should be of the map type, for example to diagram 2022. Gantry mounted ADS (not supplementary/tourist ADS) may be provided where the criteria are met (TD 18/85 (DMRB 9.1.2) [Ref 13].

5.24 ADS locations are always measured from the datum point. The datum point for a roundabout arm with a segregated left turn lane is located at the start of the radius for the left turn lane. Datum points for other approach arms are described in paragraph 5.4. ADS should be located at the distances specified in LTN 1/94 [Ref 5] measured from the datum points.

5.25 A dedicated lane ADS to diagram 2019 may be used where there is a lane drop on the approach to the junction.

5.26 One pair of supplementary and tourist ADS may be provided on the approaches to the junction. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22.

5.27 If there is no space for supplementary signs, “for x follow y” signs may be used as shown in Figure 3.10. See LTN 1/94 [Ref 5], for information on “for x follow y” signs.

5.28 Verge mounted countdown marker signs to diagrams 823 to 825 may be provided on both nearside and offside approaches to a roundabout on a high speed road, provided it is not signalised, and provided there is not a lane drop to a segregated left turn lane (they are not shown on the approach to the dedicated slip lane in Figure 5.3 because it has a lane drop). For further guidance, refer to TSM Chapter 4, paragraph 2.18 [Ref 12].

5.29 Flag type, chevron-ended or nose direction signs should be provided at the junction pointing along the route shown on the sign. The signs should be positioned where drivers can clearly see them on the approach to the junction or while waiting to turn, for example on a physical island. On the approach to a segregated lane, a rectangular direction sign to diagram 2028 may be provided as an alternative to a flag type direction sign, where the diverging lane does not turn sharply at the end of the taper.

5.30 Guidance on the provision of flag type chevron-ended direction signs and right pointing flag type direction signs is the same as for a normal roundabout and explained in paragraph 5.8.

5.31 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
Signs shown for northbound direction only, for clarity.
Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic.
Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
 signs shown for northbound direction only, for clarity. Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

FIGURE 5.4
Motorway Slip Roads Terminating at Roundabouts – Non Signalised and Signalised Variants (Figures 5.5 and 5.6)

5.32 A slip road is the connector road within a motorway junction, linking the mainline carriageway of the route with another route at a grade separated junction. Standard layouts are shown in TD 22/06 (DMRB 6.2.1) [Ref 4]. Many motorway slip roads terminate at a grade-separated roundabout junction with an all-purpose trunk road or a local road. A grade-separated roundabout has at least one approach coming from a road at a different level. Design guidance is given in TD 16/07 (DMRB 6.2.3) [Ref 8] (non-signalised roundabouts), and TD 50/04 (DMRB 6.2.3) [Ref 15] (signalised roundabouts). Standard signing arrangements for the termination of a motorway slip road at a roundabout are shown in Figures 5.5 (non-signalised junction) and 5.6 (signalised junction).

5.33 Verge mounted ADS should be provided on the same location basis as an approach to a normal roundabout (paragraphs 5.1 to 5.9), but using the route symbol shown in Figure 5.24 of TSM Chapter 7 [Ref 2]. Existing slip road lengths vary significantly, so care will be needed in choosing the number of signs.

5.34 ADS locations are always measured from the datum point as follows:

- Non signalised roundabout – for single lane and constant width approaches, the datum point will be located at a point where a line taken from the right hand end of the give way line meets the nearside kerb perpendicularly, using the same method as that used to measure entry width of roundabouts (refer to TD 16/07 (DMRB 6.2.3) [Ref. 8] and paragraph 5.4). For flared approaches with increasing numbers of lanes on approaches, the datum point will be located at the start of the additional lane section. For example, if there is a two to three lane flare, the datum point will be at the first lane mark for the three lane section.
- Signalised roundabout - as described in paragraphs 3.25 and 3.33.

5.35 There is some flexibility on the positioning of signs. For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5]. Note that there should be at least 30 metres between the confirmatory direction sign from the main carriageway, and the first sign on the slip road.

5.36 Verge mounted ADS should be map type unless space constraints prevent this. At motorway slip road roundabouts the first sign at least should be of the map type.

5.37 Roundabout warning signs to diagram 510 may be provided on the approach to the roundabout, upstream of the ADS. These are located on both nearside and offside approaches in accordance with TSM Chapter 4, paragraph 2.15 [Ref 12]. In the case of a signalised roundabout, as shown in Figure 5.6, a diagram 543 sign, with distance plate, should be provided in accordance with TSM Chapter 4, paragraph 8.4 [Ref 12]. These signs should be provided on both sides of the carriageway on dual carriageway approaches.

5.38 Diversion route symbols may be shown within the ADS, as indicated on Figures 5.5 and 5.6. Supplementary and tourist ADS may be provided also, at the locations shown on Figures 5.5 and 5.6. Alternatively, if space is not available, tourist destinations, lorry routes, park and ride sites, and MoD establishment destinations may be included as a panel on the ADS, but refer to paragraph 2.20 for additional guidance. A “for x follow y” sign to diagram 2915 or 2927.1 (“for x follow y”), may be provided in place of a supplementary or tourist ADS or panel on the ADS. See LTN 1/94 [Ref 5]. Supplementary, tourist and “for x follow y” signs must be verge mounted. For further guidance on supplementary and tourist ADS, see paragraph 2.20 and Figures 3.6 to 3.8 of IAN 144/15 [Ref 3].
5.39 Signs to Diagram 2931 (End of Motorway Regulations) should be located at the point where the Motorway Regulations end and the local Traffic Regulation Orders for parking/clearway and speed limit commence. The point must correspond with the Traffic Regulation Order descriptions. The ‘End of Motorway’ signs should be co-located with clearway and speed limit signs on the same sign assembly.

5.40 Verge mounted countdown marker signs to diagram 823 to 825 may be provided on both nearside and offside approaches to the roundabout, provided it is not signalised, and there is not a lane drop to a segregated left turn lane (see Figure 5.3). The signs mounted on the offside should be reversed with the bars inclining downwards to the left.

5.41 Guidance on the use of chevron-ended (i.e. flag type) directional signs at roundabouts is given in paragraphs 5.7 to 5.9 and illustrated in Figure 5.1.

5.42 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].

5.43 Guidance for directional signing on the major route approaches to grade separated junctions is given in IAN 144/15 [Ref 3].
Refer to paragraph 2.1 and 2.3 to determine need for direction signs and advance direction signs.
All sign layouts are diagrammatic. Refer to TSM Chapter 7 for full details. All road marking layouts are diagrammatic. Refer to TSM Chapter 5 for full details.
*Appropriate speed limit signs to be shown, based on the location.*
Refer to paragraph 2.1 and 2.3 to determine need for direction signs and advance direction signs.

All sign layouts are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts are diagrammatic.

*Appropriate speed limit signs to be shown, based on the location.

FIGURE 5.6
Refer to paragraph 2.1 and 2.3 to determine need for direction signs and advance direction signs.
All sign layouts are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts are diagrammatic.
Refer to TSM Chapter 5 for full details.
*Appropriate speed limit signs to be shown, based on location.
Main Carriageway of a Motorway Terminating at a Roundabout (Figure 5.7)

5.44 A motorway may terminate at a roundabout. The roundabout type may be a normal roundabout or a grade-separated roundabout. A normal roundabout has a kerbed central area at least 4 metres in diameter, and a grade-separated roundabout has at least one approach coming from a road at a different level. Design guidance is given in TD 16/07 (DMRB 6.2.3) [Ref 8].

5.45 On a two lane approach, verge mounted ADS should be provided. However, if the verge width is inadequate, the roundabout ADS may be mounted on gantries (see also TD 18/85 (DMRB 9.1.2) [Ref 13]).

5.46 ADS locations are always measured from the datum point. For single lane and constant width approaches, the datum point will be located at a point where a line taken from the right hand end of the give way line meets the nearside kerb perpendicularly, using the same method as that used to measure entry width of roundabouts (refer to TD 16/07 (DMRB 6.2.3) [Ref. 8] and paragraph 5.4). For flared approaches with increasing numbers of lanes on approaches, the datum point will be located at the start of the additional lane section. For example, if there is a two to three lane flare the datum point will be at the first lane mark for the three lane section. The ADS should be located as follows:

- At a point 1610m from the datum point (1 mile ADS)
- At a point 805m from the datum point (½ mile ADS)
- At a point 300yds from the datum point (Final direction sign).

5.47 There is some flexibility on the positioning of signs. For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].

5.48 Verge mounted ADS should be of the same type (i.e. map type) unless space constraints prevent this. At roundabouts the first sign at least should be of the map type.

5.49 Roundabout warning signs to diagram 510 should be provided on the approach to the roundabout. These are located on both nearside and offside approaches at the positions shown in Figure 5.7 and in accordance with paragraph 2.15 of TSM Chapter 4 [Ref 12]. The signs should be mounted with “REDUCE SPEED NOW” signs to diagram 511.

5.50 Supplementary and tourist ADS may also be provided at the locations shown on Figure 5.7. A sign to diagram 2915 or 2927.1 (“for x follow y”) may be provided in place of a supplementary sign or panel on the ADS. Alternatively, if space is not available, tourist destinations, lorry routes, park and ride sites, and MoD establishment destinations may be included as a panel on the ADS, but refer to paragraph 2.20 for additional guidance. See LTN 1/94 [Ref 5]. Supplementary and “for x follow y” signs shall be verge mounted. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22 and Figures 3.6 to 3.8 of IAN 144/15 [Ref 3].

5.51 A verge mounted “End of Motorway” sign to diagram 2931 shall be provided as shown on the Figure 5.7, located at the point where the Motorway Regulations end. This point must correspond with the Traffic Regulation Order. The “End of Motorway” sign may be co-located with clearway and speed limit signs on the same sign assembly.

5.52 Verge mounted countdown marker signs to diagram 823 to 825 may be provided on both nearside and offside approaches to the roundabout. The signs mounted on the offside should be reversed with the bars inclining downwards to the left.

5.53 Guidance on signing at the roundabout with regard to chevron-ended (i.e. flag type) directional signs is given in paragraphs 5.7 to 5.9 and illustrated in Figure 5.1. For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
Diagram 642 required only where a Traffic Regulation Order is in place.

Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

* For roundabout signs refer to Figure 5.1

For roundabout signs refer to Figure 5.1

MOTORWAY TERMINATING AT A ROUNDBOAUTH FIGURE 5.7

* Clearway (642) End of Motorway (2931)

Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

* Diagram 642 required only where a Traffic Regulation Order is in place.

Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

* Clearway (642) End of Motorway (2931)
Main Carriageway of a Motorway Terminating at a Signalised Roundabout / Gyratory System (Figure 5.8)

5.55 A motorway may terminate at a roundabout controlled by traffic signals or at a more complex gyratory system. The roundabout may be a normal roundabout with a kerbed central area at least four metres in diameter or a grade-separated roundabout with at least one approach coming from a road at a different level. Design guidance is given in TD 50/04 (DMRB 6.2.3) [Ref 15].

5.56 Verge mounted map type ADS should be provided to give warning of the junction layout ahead. However, if the verge width is inadequate, gantries may be provided (see also TD 18/85 (DMRB 9.1.2) [Ref 13]), but the layout of the signs should be based on dedicated lanes, as in Figure 5.8. The ADS, final ADS and confirmation sign should be gantry mounted normally (the first ADS and confirmation ADS may be verge mounted). Where gantry mounted dedicated lane signs are used, right turn flag type direction signs should be provided at the roundabout, as referred to in paragraph 5.8.

5.57 ADS locations are always measured from the datum point. This is located at the signal stop-line on the approach arm for constant width approaches. Refer to paragraphs 3.25 and 3.33 for the precise method for determining the datum point on flared approaches. The ADS shall be located as follows:

- At a point 1610m from the datum point (1 mile ADS)
- At a point 805m from the datum point (½ mile ADS)
- At a point 300yds from the datum point (final direction sign).

5.58 There is some flexibility on the positioning of signs. For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].

5.59 Verge mounted ADS should be of the same type (i.e. map type) unless space constraints prevent this. At roundabouts and gyratory systems the first ADS on an approach should be map type. Gantry mounted signs should be a variant of diagram 2909 with a horizontal line and arrows within the white sign border. The signs have a national Authorisation for use on Trunk Roads (see paragraph 1.12).

5.60 "Traffic signals ahead" signs to diagram 543 should be provided on the approach to the roundabout/gyratory. These are located on both nearside and offside approaches at the positions shown in Figure 5.8. Each pair of signs should be mounted with appropriate distance sign plates to diagram 572.

5.61 Supplementary ADS may also be provided at the locations shown on Figure 5.8. Alternatively, if space is not available, tourist destinations, lorry routes, park and ride sites, and MoD establishment destinations may be included as a panel on the ADS, but refer to paragraph 2.20 for additional guidance. A sign to diagram 2915 or 2927.1 ("for x follow y") may be provided in place of a supplementary sign or panel on the ADS. See LTN 1/94 [Ref 5]. Supplementary and "for x follow y" signs shall be verge mounted. For further guidance on supplementary and tourist ADS, see paragraphs 2.20 to 2.22 and Figures 3.6 to 3.8 of IAN 144/15 [Ref 3].

5.62 Signs to diagram 2931 shall be located at the point where the motorway regulations end. This point must correspond with the Traffic Regulation Order. The 'End of Motorway' signs should be co-located with clearway and speed limit signs on the same sign assembly.

5.63 Further guidance on the provision of chevron-ended (i.e. flag type) directional signs at the roundabout is given in paragraphs 5.7 to 5.9 and illustrated in Figure 5.1. See also paragraphs 6.17 and 6.18 for advice on signing within the signalised roundabout. For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
Final Roundabout Direction Sign (2914)

1/2 mile Roundabout Advance Direction Sign (2914)

1 mile Roundabout Advance Direction Sign (2914)

For roundabout signs refer to Figure 5.1.

* Clearway (642)
End of Motorway (2931)

Diagram 642 required only where a Traffic Regulation Order is in place.

Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.
One Bridge and Two Roundabouts (Dumb-Bell) Grade-Separated Roundabout
(Figures 5.9 and 5.10)

5.65 A one-bridge, grade separated (dumb-bell) roundabout is an alternative design to the
conventional two-bridge layout. A standard junction layout is shown in TD 22/06 (DMRB
6.2.1) [Ref 4]. The layout in Figure 5.9 has inadequate road length for positioning signs
between roundabouts. It is necessary therefore to show the complete junction layout on map
type signs on the external junction approaches, whereas the layout in Figure 5.10 has
sufficient space between the roundabouts to accommodate ADS. The minimum distance
required to sign the junctions separately should be calculated from the minimum distances
shown for the appropriate approach speed in LTN 1/94 Appendix A columns 4 and 5 [Ref 5].

5.66 Verge mounted, map type ADS should be provided on the approaches to the
roundabouts. The layout in Figure 5.9 requires all junction exits to be shown on map type
signs on the junction approaches. Refer to Figure 5-17 TSM Chapter 7 [Ref 2]
for guidance.

5.67 Where two ADS are provided on a junction approach they should be of the same
type (e.g. map type), unless space constraints prevent this. At roundabouts, the first sign, at
least, should be of the map type, for example, diagram 2118. Where the route approaching
the roundabout is minor or there is insufficient space to provide an ADS, a warning sign to
diagram 510 should be provided. Refer to TSM Chapter 4 [Ref 12] for additional advice.

5.68 ADS locations are always measured from the datum point. For single lane and
constant width approaches, the datum point will be located at a point where a line taken from
the right hand end of the give way line meets the nearside kerb perpendicularly, using the
same method as that used to measure entry width of roundabouts (refer to TD 16/07
(DMRB 6.2.3) [Ref. 8] and paragraph 5.4). For flared approaches with increasing numbers of
lanes on approaches, the datum point will be located at the start of the additional lane
section. For example, if there is a two to three lane flare the datum point will be at the first
lane mark for the three lane section. ADS shall be located at the distances specified in
LTN 1/94 [Ref 5] measured from the datum points. Note that there should be at least 30
metres between the confirmatory direction sign from the main carriageway (shown in grey on
Figures 5.9 and 5.10), and the first sign on the slip road (see IAN 144/15 [Ref 3] for further
guidance).

5.69 Supplementary and tourist ADS may be provided at the locations shown on
Figure 5.5. Alternatively, if space is not available, tourist destinations, lorry routes, park and
ride sites, and MoD establishment destinations may be included as a panel on the ADS, but
refer to paragraph 2.20 for additional guidance. A “for x follow y” sign may be provided in
place of a supplementary or tourist ADS, or panel on the ADS. See LTN 1/94 [Ref 5].
Supplementary, tourist and “for x follow y” signs must be verge mounted. For further
guidance on supplementary and tourist ADS, see paragraph 2.20 to 2.22.

5.70 Guidance on the provision of flag type chevron-ended direction signs and right
pointing flag type direction signs is the same as for a normal roundabout and explained in
paragraph 5.8.

5.71 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
Refer to paragraph 2.1 and 2.3 for guidance on the need for directional and advance direction signs. All sign layouts shown are diagrammatic.

Verbal RDM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to RDM Chapter 8 for full details.

FIGURE 5.9

ONE BRIDGE AND TWO ROUNDABOUT (DEWBURY BELL) 
GRADE SEPARATED LAYOUT. INADEQUATE SPACE FOR INTERMEDIATE ADS BETWEEN ROUNDABOUTS
Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

FIGURE 5.10

ONE BRIDGE AND TWO ROUNDABOUTS ("DUMB BELL")
GRADE SEPARATED LAYOUT.
6. COMPLEX JUNCTIONS

Through-About (Hamburger) Junction (Figure 6.1)

6.1 A through-about (Hamburger) junction, shown in Figure 6.1, is one which allows a straight ahead traffic stream to bypass the circulating roundabout carriageway by crossing through the central island at grade. This is achieved under signal control. A standard junction layout is shown in TA 86/03 (DMRB 6.2.8) [Ref 10]. There are a number of forms of this layout, including half through-about and double through-about.

6.2 Verge mounted map type ADS should be provided on the approaches to the junction showing all exits. The number of arms, shape and size of the route, and junction symbols should provide a clear indication of the layout ahead. Examples are shown in Figure 6.1 - the Overseeing Organisation should be contacted for advice on the route symbol layout on a site specific basis. Refer also to Figure 5-31 TSM Chapter 7 [Ref 2] for guidance. Gantry mounted ADS (not supplementary/tourist ADS) may be provided where the criteria are met (TD 18/85 (DMRB 9.1.2) [Ref 13].

6.3 ADS locations are always measured from the datum points. These are:

- For signalised approaches - as described in paragraphs 3.25 and 3.33
- For approaches with left slip lanes/drops – at the start of the radius to the slip lane
- For approaches within the junction layout which operate with standard priorities, as a roundabout - as described in paragraph 5.4.

ADS should be located at the distances specified in LTN 1/94 [Ref 5] measured from the datum points.

6.4 Supplementary and tourist ADS may be provided on each approach to the roundabout as shown in Figure 5.1. However, any destinations included should be signed consistently throughout the junction to the appropriate exits, so ability to provide supplementary and tourist ADS may be limited because destination overload could be created at locations within the junction. Where this problem occurs, and it is not possible to reduce the number of destinations, “for x follow y” signs, for instance to diagram 2034, 2217 or 2806.1 should be used. See LTN 1/94 [Ref 5] for further information. For further guidance on supplementary/tourist signs, see paragraphs 2.20 to 2.22.

6.5 Dedicated lane or stack type ADS (e.g. see diagrams 2017, 2018, 2114, 2115 or 2115.1) may be provided on the circulating carriageway of the junction on the approach to individual exits. Dedicated lane ADS are not appropriate where carriageway lanes have a shared use, for instance, for ahead and turning traffic. In these instances, map or stack type signs supplemented by signs placed downstream to diagram 877, and arrows to indicate permitted lane manoeuvres should be provided. Provision of these signs will depend on the complexity of the junction, the lengths of road within the junction, the verge or footway width available, and the volume of destination information shown.

6.6 Flag type, chevron-ended direction signs should be provided on the physical islands at the exits to a roundabout, pointing along the route shown on the sign. Guidance on the provision of flag type chevron-ended direction signs and right pointing flag type direction signs is the same as for a normal roundabout and explained in paragraph 5.8.

6.7 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
* Map type ADS with modified route symbol will need discussing with Overseer Organisation and Authorities (see paragraph 1.12).
Refer to paragraph 2.1 and 3.3 respecting the need for direction and advance direction signs. All sign layouts included are diagrams, refer to TSM Chapter 7 for full details. All road marking layouts shown are diagrams. Refer to TSM Chapter 6 for full details.

FIGURE 6.1

THROUGH-ABOUT ROUNDBOUD
("HAMBURGER JUNCTION")
Interim Advice Note 145/16
Directional Signs on Motorway and All-Purpose Trunk Roads
At Grade and Compact Grade Separated Junctions

Signalised Roundabout or Gyratory System (Figure 6.2)

6.8 Gyratory systems are road systems which consist of one-way links connected together, so as to make it possible for traffic from several approaches to enter and circulate along one or more links before exiting. Different types of junction control may be used, but each entry could be signalised. Standard junction layouts are given in TD 50/04 (DMRB 6.2.3) [Ref 15]. Alternatively, gyratory systems, particularly in urban areas, make use of existing routes converted to one way working, to form the circulatory carriageway.

6.9 Where directional signs are required (see paragraphs 2.1 to 2.4), verge mounted map type ADS should be provided on the approaches to a complex signalised roundabout. The number of arms, and shape and size of the route symbol should show graphically the layout of the junction ahead, including all exits from the junction. Refer to Figure 5-31 TSM Chapter 7 [Ref 2]. Where two ADS are provided on an approach to the junction they should be of the same type (e.g. map type) unless space constraints prevent this. At gyratory systems, the first sign, at least, should be of the map type, for example, diagram 2009. Lane discipline signs to diagram 877 may be provided on the external approaches to complex junctions.

6.10 Owing to the complexity of junctions of this type, the number of destinations shown for each arm on ADS should be considered carefully to avoid overloading the motorist with information.

6.11 Where a route approaching a signalised roundabout is minor or there is insufficient space to provide an ADS, a warning sign to diagram 543 should be provided, if justified (refer to TSM Chapter 4 paragraph 8.3 [Ref 12]).

6.12 For large gyratory systems in built up areas, particularly if the gyratory system makes use of existing roads converted to one way working, it might be simpler to sign the entry arms as for an entry to a one way street (refer to paragraph 4.3 TSM Chapter 3 [Ref 17]), with the addition of simple map or stack type directional signs indicating a generic destinations such as ‘all routes’ or ‘all traffic’. Use of a map type sign, if space permits, would enable a diagram 616 no entry symbol to be shown for the right turn, emphasising the one way working on the gyratory system. ADS should be provided on the gyratory system approach to each egress route, showing destinations on the exit and also those reached by continuing around the gyratory to subsequent exits. Destination continuity should be maintained. If major routes traverse the gyratory system, destination continuity should be a first priority for these, and the provision of other destinations either reduced or allowed for by the use of “for x follow y” signs.

6.13 ADS locations are always measured from the datum points. These are:

- For signalised approaches - as described in paragraphs 3.25 and 3.33
- For approaches with left slip lanes/drops – at the start of the radius to the slip lane
- For approaches within the junction layout which operate with standard priorities, as a roundabout - as described in paragraph 5.4
- For approaches within the junction layout which operate as a simple priority junction with a one-way road, the datum point is located at the give way markings for a single lane or constant width approach. If the minor arm flares to two (or more) lanes on the approach, the datum point will be located at the start of the two lane section as shown in Figure 3.11.

ADS should be located at the distances specified in LTN 1/94 [Ref 5] measured from the datum points.
6.14 Supplementary and tourist ADS may be provided on each approach to the roundabout as shown in Figure 5.1, but any destinations included should be signed consistently throughout the junction to the appropriate exits, so ability to provide supplementary and tourist ADS may be limited because destination overload could be created at locations within the junction. Where this problem occurs, and it is not possible to reduce the number of destinations, “for x follow y” signs, for instance to diagram 2034, 2217 or 2806.1 should be used. See LTN 1/94 [Ref 5] for further information. For further guidance on supplementary signs, see paragraphs 2.20 to 2.22.

6.15 On approaches with more than one lane, consideration should be given to providing a lane discipline sign(s) to diagram 877 to augment the road markings, and to encourage appropriate use of all lanes. This is particularly important when one or more lanes is dedicated to or shared by individual turning movements. The layout of the sign should match exactly the road layout at the sign location, and its location should take account of regular queue lengths.

6.16 Dedicated lane or stack type ADS (e.g. see diagrams 2017, 2018, 2114, 2115 or 2115.1) may be provided on the entry arms of a signalised roundabout, or on the circulating carriageway of the junction on the approach to individual exits. Dedicated lane ADS are not appropriate where carriageway lanes have a shared use, for instance for ahead and turning traffic. In these instances, map or stack type signs supplemented by lane discipline signs to diagram 877 placed downstream, and carriageway markings may be provided. Provision of these signs will depend on the complexity of the junction, the lengths of road within the junction, the verge width available, and the volume of destination information shown. Consideration should be given to duplicating lane discipline signs on the offside if there is a likelihood of the view of nearside signs being obstructed by large vehicles, for instance queuing from a stop line. Dedicated lane ADS should be used at lane drop exits, as shown by the use of diagram 2114 in Figure 6.2.

6.17 Flag type chevron-ended direction signs should be provided at exits from the roundabout or gyratory system, pointing along the route shown on the sign. The signs should be positioned where drivers can clearly see them on the approach to the junction or while waiting to turn, for example, by locating them on a physical island.

6.18 Guidance on the provision of flag type chevron-ended direction signs and right pointing flag type direction signs on signalised roundabouts is the same as for a normal roundabout and explained in paragraph 5.8. Right pointing flag type chevron ended signs (or rectangular direction signs with a vertical arrow, dependent on the junction layout) may be used where the circulatory carriageway has a junction with an exit arm.

6.19 For further guidance on the locations of directional signs, see LTN 1/94 [Ref 5].
Signs are shown northbound only, for clarity.
Refer to Overseeing Organisation if approach road has 3 lanes.
Refer to paragraph 2.1 and 2.3 for guidance on the need for direction and advance direction signs. All sign layouts shown are diagrammatic. Refer to TSM Chapter 7 for full design details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

**FIGURE 6.2**

**SIGNALISED ROUNDBOUGHT OR GYRATORY**
7. COMPACT GRADE SEPARATED JUNCTIONS

Four Arm Compact Grade Separated Junction with Merge and Diverge Tapers (Figure 7.1)

7.1 Figure 7.1 shows a typical layout of directional signing required at a compact grade separated junction layout from TD 40/94 (DMRB 6.2.5) [Ref 9]. The layout used is based on Figure 7/1 of TD 40/94 (DMRB 6.2.5) [Ref 9], a compact grade separation for a four arm junction, with merge and diverge tapers.

7.2 Further guidance is given in Sections 3 to 5 and associated figures in this document in respect of the minor road components of the layout. Guidance on signing the major road components is given in Figure 3.16 and paragraphs 3.99 to 3.106 of this guidance.

7.3 Signing guidance for grade separated junctions based on the layouts in TD 22/06 (DMRB 6.2.1) [Ref 4] is provided in IAN 144/15 [Ref 3], and gives additional guidance relative to major route approaches.

7.4 The map type ADS shown in Figure 7.1 are based on diagram 2014, but with horizontal route arms for the compact connector road (which links the major to minor roads) owing to the angle at which it diverges. This is a prescribed variant of diagram 2014. In this example, a 1 mile ADS is provided based on road safety and traffic volume factors (a 1 mile sign is normally provided where the dual carriageway has 3 lanes or more).

7.5 The directional sign used at the confirmatory location in Figure 7.1 takes the form of a flag type sign showing the route number only. This is specified instead of the normal form of verge mounted confirmatory direction sign (a rectangular direction sign), because the angle of entry to the compact connector road is sharp.
*The 1 mile sign is optional on dual carriageways with 3 lanes or less. Sign 2111 could be substituted by sign 2102 (map-type) if considered necessary, and space is available (see figure 3.2). Signs in southbound and eastbound direction are not shown for clarity. Refer to paragraph 2.1 and 2.3 to determine the need for direction and advance direction signs. Signs 2005 and 2111 may be substituted with map-type signs if appropriate. All sign layouts shown are diagrammatic.

Refer to TSM Chapter 7 for full details. All road marking layouts shown are diagrammatic. Refer to TSM Chapter 5 for full details.

COMPACT GRADE SEPARATED JUNCTION (4 ARM JUNCTION WITH MERGE AND DIVERSE TAPERS)

FIGURE 7.1
8. CONTACTS

If you have any questions regarding the use or content of this document, please contact:-

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9. REFERENCES

3. IAN 144/15 Directional Signs on Motorways and All-Purpose Trunk Roads –Grade Separated Junctions – 2015.
4. TD 22/06 (DMRB 6.2.1) – Layout of Grade Separated Junctions – 2006.
7. TD 54/07 (DMRB 6.2.2) – Design of Mini Roundabouts – 2007.
10. TA 86/03 (DMRB 6.2.8) - Layout of Large Signal Controlled Junctions – 2003.
15. TD 50/04 (DMRB 6.2.3) - The Geometric Layout of Signal-Controlled Junctions and Signalised Roundabouts – 2004.
16. TD 51/03 (DMRB 6.3.5) - Segregated Left Turn Lanes and Subsidiary Deflection Islands at Roundabouts – 2003.
19. TD 52/04 (DMRB 8.2.4) - Traffic Signs to Tourist Attractions in England: Tourist Signing – Trunk Roads.

* please note that internet links to document may be subject to change – however, these documents can be found generally by entering the Department for Transport web site and searching on the term ‘traffic signs’.