



Economy, Transport and Environment Department

Technical Guidance Note TG3 - Stopping Sight Distances and Visibility Splays

Revision	Date	Amendment Description	Prepared By	Approved/ owned by
0	24/7/18	Initial Publication for Comment	Steve Venton/Kathie Murray	David Devenish
1	18/5/19	Links updated	Kathie Murray	Jamie Roan
2	07/09/21	Updated to reflect DMRB, adjust when Manual for Streets can be applied and clarifications throughout	Kathie Murray	Andy Tiffen

Amendments are indicated by a bar in the left hand margin

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1. Policy / Approach

- 1.1. An important contribution to road safety is the provision of adequate visibility thereby enabling road users to see a potential hazard in time to slow down or stop comfortably before reaching it. For links, this will be provision of appropriate Stopping Sight Distances (SSDs) and, for junctions, provision of appropriate visibility splays.
- 1.2. For all traffic locations including traffic signals, DMRB visibility standards apply where the Design Speed is above 64kph. MfS criteria shall apply where the Design Speed is up to and including 60kph. Between 60kph and 64kph, SSD may be relaxed as detailed in 3.2.3. Refer to Section 3.1 for Design Speed.

2. Definitions and Abbreviations

DMRB	Design Manual for Roads and Bridges - The Stationery Office publication containing current standards, advice notes and other guidance documents relating to the design, maintenance, operation and improvement of motorways and trunk roads but also adopted by local Highway Authorities for use on the local Highway Network
Departure from Standard (Departure or DfS)	A non-compliance with a Mandatory Requirement of a Standard, as set out in HCC's Technical Guidance Notes or other policy/standard document cross-referred to from the Technical Guidance Notes.
HCC	Hampshire County Council
Immediate approaches to junctions	The area within 1.5 x SSD of a junction on both major and minor arms. This applies only where MfS criteria doesn't apply.
Links	Carriageway between immediate approaches to junctions
Mandatory Requirement	A statement in a standard that is associated with the words "shall" or "shall not"
Measured speed	In accordance with Section 3.1 and CA 185 Vehicle speed measurement (DMRB)
MfS	Manual for Streets – published 2007 by Thomas Telford Publishing
MfS2	Manual for Streets 2 – Wider Application of the Principles Published September 2010 by CIHT
SSD	Stopping Sight Distance (Refer to 3.2)

3. Technical Requirements

3.1 Design Speed

For New Roads

- 3.1.1. The Design Speed for new roads (excluding new residential estates and new roads with a proposed Speed Limit of 30mph or less) shall be selected using the procedure in CD 109 Highway Link Design (DMRB).
- 3.1.2. The Design Speed for new residential estates and new roads with a proposed Speed Limit of 30mph or less shall be determined based on the proposed Speed Limit for the new road in accordance with MfS2 Section 8. Refer also to TG1–Highway Cross Sections and TG2–Alignment Design.

For Existing Roads

- 3.1.3. For improvements to existing roads, the Design Speed shall be the 85th percentile speed derived from the measured speeds (regardless of the posted speed limit) as follows:
- 3.1.4. Speed measurements shall be taken in accordance with CA 185 using spot speeds measurements as opposed to the Journey Speed. For non-signalised junctions, the location at which the speed measurements are to be taken shall be at the approximate “Y” distance (see Figure 3.1) based on the posted Speed Limit of the major road.
- 3.1.5. The method of measurement of the spot speeds shall be in accordance with CA 185 including free flow conditions, minimum number of vehicles measured, frequency of measurement and timing.
- 3.1.6. In the absence of confirmed dry weather and road conditions, 85th percentile speeds shall be increased by 8kph for dual carriageways and 4kph for single carriageways in accordance with CA 185.
- 3.1.7. Where there is a difference in speed depending on the direction of travel, different Y distances may be used (rather than a single Y distance based on the highest speed).

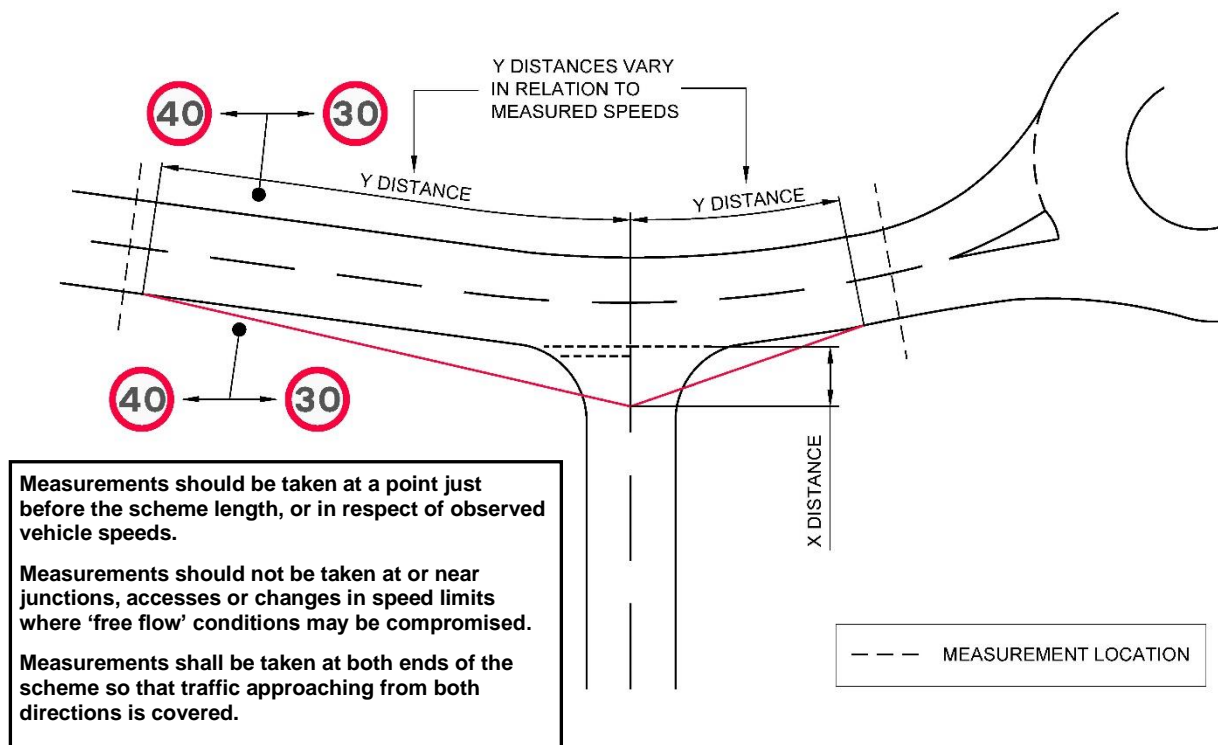


Figure 3.1 – Indicative Measurement Locations

3.2 Stopping Sight Distance

- 3.2.1 SSD's shall be based on the Design Speed in accordance with Table 2.10 in CD 109 or Table 7.1 in MfS as appropriate. The minimum Design Speed for SSD shall be 20mph. Where the Design Speed falls between the tabulated values in CD 109 or MfS, the higher value shall be used. Alternatively, the SSD may be calculated from first principles. HCC has developed a SSD calculator which is available at <https://www.hants.gov.uk/transport/developers/technical-guidance>
- 3.2.2 DMRB allows relaxations in certain circumstances; however the SSD shall not be relaxed on the "immediate approaches" to junctions. Within links the SSD can be relaxed based on the Design Speed, and in accordance with CD 109.
- 3.2.3 For Design Speeds between 60 and 64kph and the characteristics of the road align with paragraph 1.3.6. of MfS2, the following may be used in the calculator to establish the SSD:
- Reaction time of 2.0 seconds
 - Absolute Minimum deceleration rate of 0.375g
- 3.2.4 For S278 and S38 Design Audit Submissions, any relaxations included within the design shall be detailed and the mitigating circumstances

explained. This shall also be provided to the Road Safety Auditor within the Safety Audit Brief (Refer to TG17 – Departures from Standard and TG18 – Road Safety Audits).

- 3.2.5 When assessing **forward visibility**, the vertical visibility envelope shall be as stated in MfS/CD 109 respectively with an object height of **between 0.6m and 2.00m where MfS applies and between 0.26m and 2.00m where DMRB applies (ie above 60kph)**. Where the forward visibility line passes over any soft landscaping areas (eg where the alignment is on a horizontal curve), 600mm vertical clearance shall be achieved above the soft landscaping/grass to allow for vegetation growth. Where 600mm clearance is not achievable, hard landscaping should be considered. Horizontally, visibility splays shall not be obstructed by vegetation. Proposed planting or trees shall be set back sufficiently so as not to impede the visibility splay once fully mature. Refer also to TG15 – Trees, Landscape and Ecology.

3.3 Y distances for vehicles

- 3.3.1 The Y distance is the Stopping Sight Distance.
- 3.3.2 The point to which the Y distance to the left is measured may be relaxed by measuring to the major road centreline, where there is:
- A refuge island with high level keep left signs within the Y distance or
 - Double white line road markings exist for the length of the Y distance
- Refer to Figure 3.2.

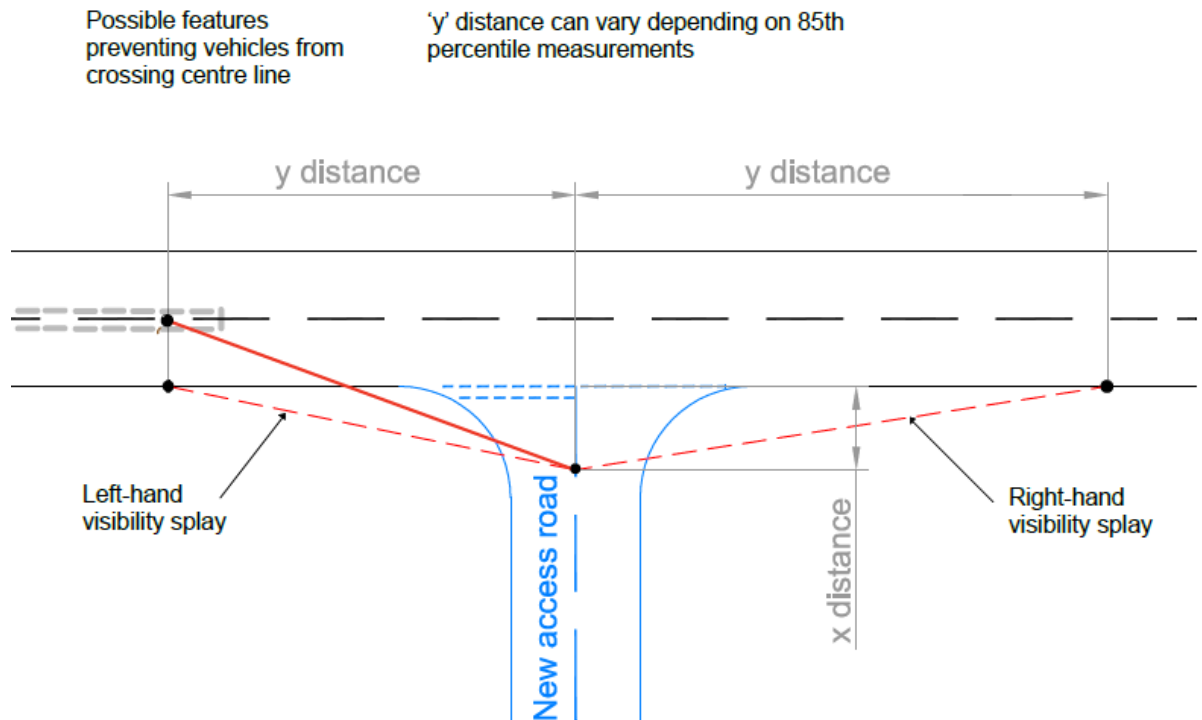


Figure 3.2 – Measurement of Y Distances

- 3.3.3 The point to which the Y distance is measured should be to the channel line as shown in Figure 3.2. This may be relaxed to the wheel track (a maximum of 300mm from the channel) if required, with the wheel track being measured either from the face or the kerb or edge line, if one exists, otherwise from the edge of the surface course. However, this shall not be permitted where the Y distance to the left has already been relaxed as in 3.3.2.
- 3.3.4 Where there is a difference in speed depending on the direction of travel, different Y distances may be used (rather than a single Y distance based on the highest speed).
- 3.3.5 The visibility splay shall not enter an adjacent junction minor arm such that a vehicle waiting to exit the adjacent junction would then obscure the visibility splay (i.e. for a junction to the right the visibility splay shall not cross the tangent point of the bellmouth with the mainline, for a junction to the left the visibility splay shall not cross the centreline of the adjacent junction). Where the adjacent junction to the right is a merge, the visibility splay shall not enter the merge taper.
- 3.3.6 The visibility splay shall not enter an adjacent crossover where there are 10 or more residential units or any commercial units.
- 3.3.7 The vertical visibility envelope when assessing visibility along the Y distance shall have an object height of between **0.6m and 2.0m**. Horizontally, visibility splays shall not be obstructed by vegetation. Proposed planting or

trees shall be set back sufficiently so as not to impede the visibility splay once fully mature. Refer also to TG15 – Trees, Landscape and Ecology.

3.4 X distances for vehicles at priority junctions

3.4.1 The X distance for priority junctions shall be as detailed in the table below.

Type of Priority Junction	X Distance
All priority junctions where the major road is less than 40mph	2.4m
Simple priority junctions (as defined by CD 123) where the major road is 40mph or more	2.4m
All other priority junctions where the major road is 40mph or more	4.5m

3.5 Mini-Roundabouts

3.5.1 Mini-roundabouts shall only be located on streets where MfS criteria apply and shall be designed in accordance with CD 116 (DMRB). Mini-roundabouts shall only be used on roads with a **speed limit** of 30mph or less and where the 85th percentile speed of traffic is less than 35mph within a distance of 70 metres from the proposed give way line **on all approaches** (see 2.8 CD 116).

3.5.2 The following table replaces the values for E in Table 5.22 in CD 116. See also Figure 3.3. For D and F refer to CD116.

- “D” is the Visibility Distance from one arm to the approach of the adjacent arm.
- “E” is the Stopping Sight Distance to the give-way line on the approach to the junction.
- “F” is the set-back position from which “D” is measured.

85 th percentile speed of arm to the right (mph)	SSD (MfS) "E"
35	60m
30	50m
25	40m
20	30m

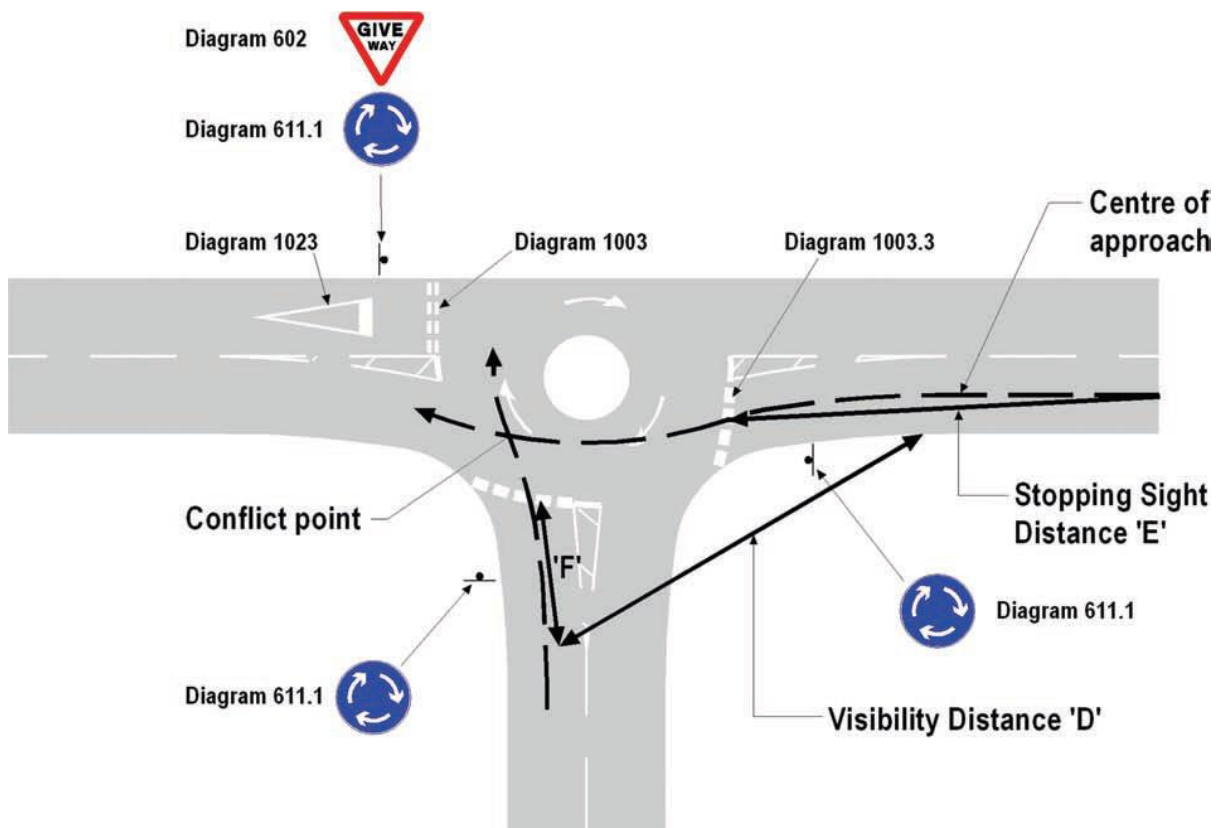


Figure 3.3 – Mini-Roundabout Visibility (as CD 116 Figure 5.20)

3.6 Walking, Cycling and Horse Riding

- 3.6.1 Requirements for walking, cycling and horse riding shall be considered as appropriate, in accordance with the relevant national design standards including DMRB, MfS, Traffic Sign Manual Chp 6, [Local Transport Note 1/20](#) and [Traffic Advisory Leaflets such as 03/05, 04/05, 05/05, 03/03](#) etc (published by the Department for Transport).

- 3.6.2 Each crossing location with a carriageway shall be assessed in terms of visibility splay and stopping sight distance in accordance with CD 143 and CD 195 (DMRB) and utilising MfS SSD's only where MfS applies.
- 3.6.3 Set-back x-distances shall be 1.5, 2.4 & 3m respectively for pedestrians / cyclists / equestrians. The y-distances for equestrians shall be as detailed in CD 143.

3.7 Visibility Requirements at Vehicle Crossovers

- 3.7.1 For vehicle crossovers (ie dropped kerb accesses rather than full bellmouth construction), the x and y-distance(s) can either be based on the Design Speed or as detailed in the table below where speed data isn't required by the Highway Authority. See also Figure 3.4.

Speed Limit (mph)	20	30	40	50	60
X Distance	2.0m	2.0m	2.4m	2.4m	2.4m
Y Distance	25m	43m	96m	160m	215m

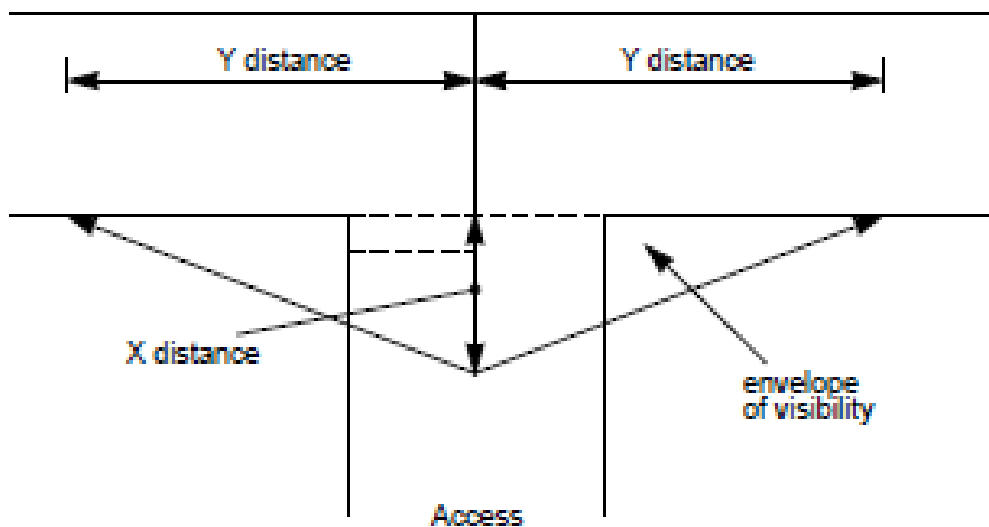


Figure 3.4 – Vehicle Crossover Visibility

- 3.7.2 Where the proposed access crosses a footway/cycleway then inter-visibility from between the driver and any footway/cycleway users shall be provided. This shall be measured as 2m x 2m from the back of the footway/verge and be kept clear of any obstruction greater than 600mm in height. See Figure 3.5.

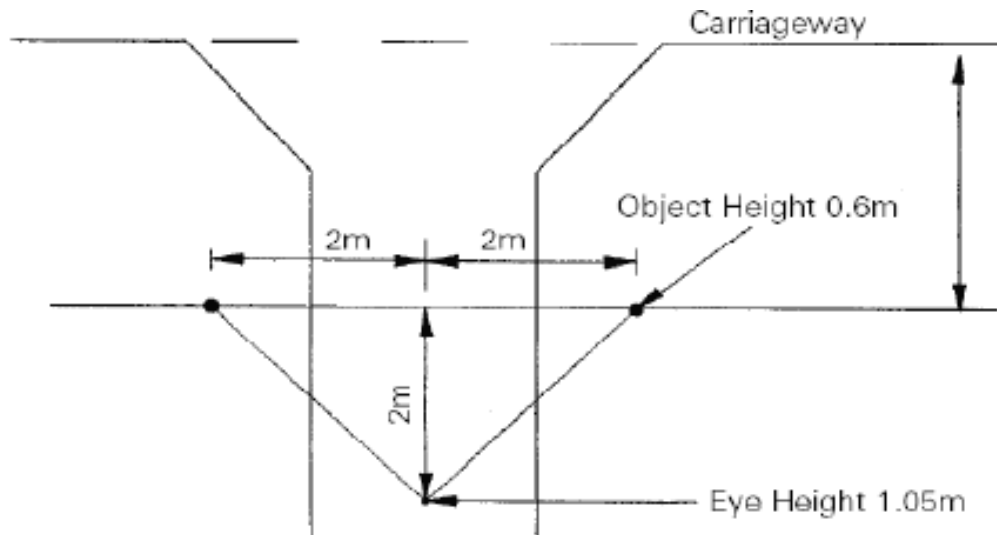


Figure 3.5 – Pedestrian/Vehicle Inter-visibility at Vehicle Crossovers.

4 Further Support

4.1 Should you have a specific query or feedback about any of the content of this Technical Guidance Note, please send an email to Technical.Guidance@hants.gov.uk with the start of the email title as "TG3 – [subject of email]".

4.2 Should you have a query about applying this to your particular project, please contact:

- the Design Audit Engineer dealing with your S278 or S38 application (if you are a Developer or Developer's Consultant)
- the Technical Guidance Note Specialist(s) (if you are a working within Hampshire County Council)

4.3 Associated Technical Guidance Notes:

TG1 – Highway Cross-Sections

TG2 – Alignment Design

TG4 – Intelligent Transport Systems

TG17 – Departures from Standard

TG18 – Road Safety Audit