Our ref: STH17/00226/02
Contact: Rachel Carocci 4221 2423
Your ref: SSD8980

14 September 2018

Teresa Gizzi
Department of Planning & Environment
BY EMAIL: Teresa.Gizzi@planning.nsw.gov.au
CC: information@planning.nsw.gov.au

STATE SIGNIFICANT DEVELOPMENT 8980 – LOT 4 DP 858938, 97-103 BOWRAL ST, BOWRAL - BOWRAL AND DISTRICT HOSPITAL REDEVELOPMENT

Dear Teresa,

Roads and Maritime Services (RMS) refers to your correspondence dated 28 August 2018 regarding the subject development application.

RMS has completed an assessment of the development, based on the information provided and focussing on the impact to the State Road Network. For this development, the key state road is Bowral Street.

RMS notes the development proposes access to Bowral Street. RMS concurrence under Section 138 of the Roads Act, 1993 is required for new driveways and modifications to existing driveways.

The application does not provide enough information to assess the development. RMS requires the following issues to be addressed:

- RMS notes a new access is proposed on Bowral Street. A scaled plan is required showing the existing and proposed access, parking and pedestrian arrangements.
- A scaled plan demonstrating sight distance is available at the proposed access to Bowral Street (refer to safe intersection sight distance information in the attached extract from Austroads Guide to Road Design). Where landscaping and/or fencing is proposed along the property boundary, the plan must demonstrate the landscaping and/or fencing will not compromise sight distance.
- Vehicles must be able to enter and exit the development in a forward direction. A swept path analysis is required in accordance with Austroads turning templates to demonstrate that the largest vehicle likely to utilise the access can enter and exit the driveway in a forward direction.
- RMS also notes that and an existing bus stop is to be relocated to allow for the proposed access on Bowral Street. RMS requires a plan to demonstrate the existing and proposed location of the bus stop.

If you have any questions please contact Rachel Carocci on 4221 2423.

Please ensure that any further email correspondence is sent to development.southern@rms.nsw.gov.au.

Yours faithfully

Chris Millet
Manager Land Use
Southern Region

3. Sight Distance

3.1 General

It is fundamental to the safety of intersections that drivers approaching in all traffic streams are able to:

- recognise the presence of an intersection in time to slow down or stop in a controlled and comfortable manner
- see vehicles approaching in conflicting traffic streams and give way where required by law or avoid a crash in the event of a potential conflict.

Intersection safety performance is therefore largely dependent upon adequate sight distance in relation to both horizontal and vertical geometry for all drivers approaching and entering the intersection. Consequently, sight distance is a key consideration in the location and design of intersections.

A feature of intersections is that sight lines are often required at large angles to the user's normal view point and the driver of a vehicle may have to look through the side windows. In addition, the paths travelled are often curved, which means that drivers may find it more difficult to view other vehicles and estimate distances.

Large angles can be a significant issue for older drivers, particularly those who may have difficulty in turning their head and neck to detect the presence of conflicting vehicles (Austroads 2000). For new at-grade intersections where right of way is not restricted, the roadway should meet at a 90º angle to provide the best sight lines. For re-design of existing at-grade intersections where right of way is restricted, the roadway should meet at an angle of not less than 70º.

The type and extent of sight distance available will significantly influence the design and location of an intersection. Both horizontal and vertical sight lines must be checked to ensure that they are not disrupted by natural objects such as trees, and structures such as fences, buildings and safety barriers.

Adequate sight distance at proposed intersections and remodelled intersections must be achieved when developing the horizontal and vertical alignments of new and upgraded roads, and should be checked as the design proceeds through various iterations.

It is equally important that sight distance requirements are achieved at all pedestrian, cyclist and rail crossings.

3.2 Sight Distance Requirements for Vehicles at Intersections

The types of sight distance that must be provided in the design of all intersections include:

- approach sight distance (ASD)
- safe intersection sight distance (SISD)
- minimum gap sight distance (MGSD).

In addition to the above specific intersection sight distance requirements, stopping sight distance (SSD) in accordance with *AGRD Part 3* (Austroads 2016b) must be available at all locations through the intersection. This Part provides reaction times, longitudinal deceleration rates, vertical height parameters (e.g. driver eye height) for sight distance requirements for road design in general. Specific sight distance values for intersections are provided in the following sections.

3.2.1 Approach Sight Distance (ASD)

Provision of ASD for cars

ASD is:

- the minimum level of sight distance which must be available on the minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection
- also desirable on the major road approaches so that drivers can see the pavement and markings within the intersection and should be achieved where practicable.
  However, the provision of ASD on the major road may have implications (e.g. cost; impact on adjacent land and features) in which case SSD is the minimum sight distance that should be achieved on the major road approaches to the intersection and within the intersection.
- measured from a driver's eye height (1.1 m) to 0.0 m, which ensures that a driver is able to see any line marking and kerbing at the intersection.

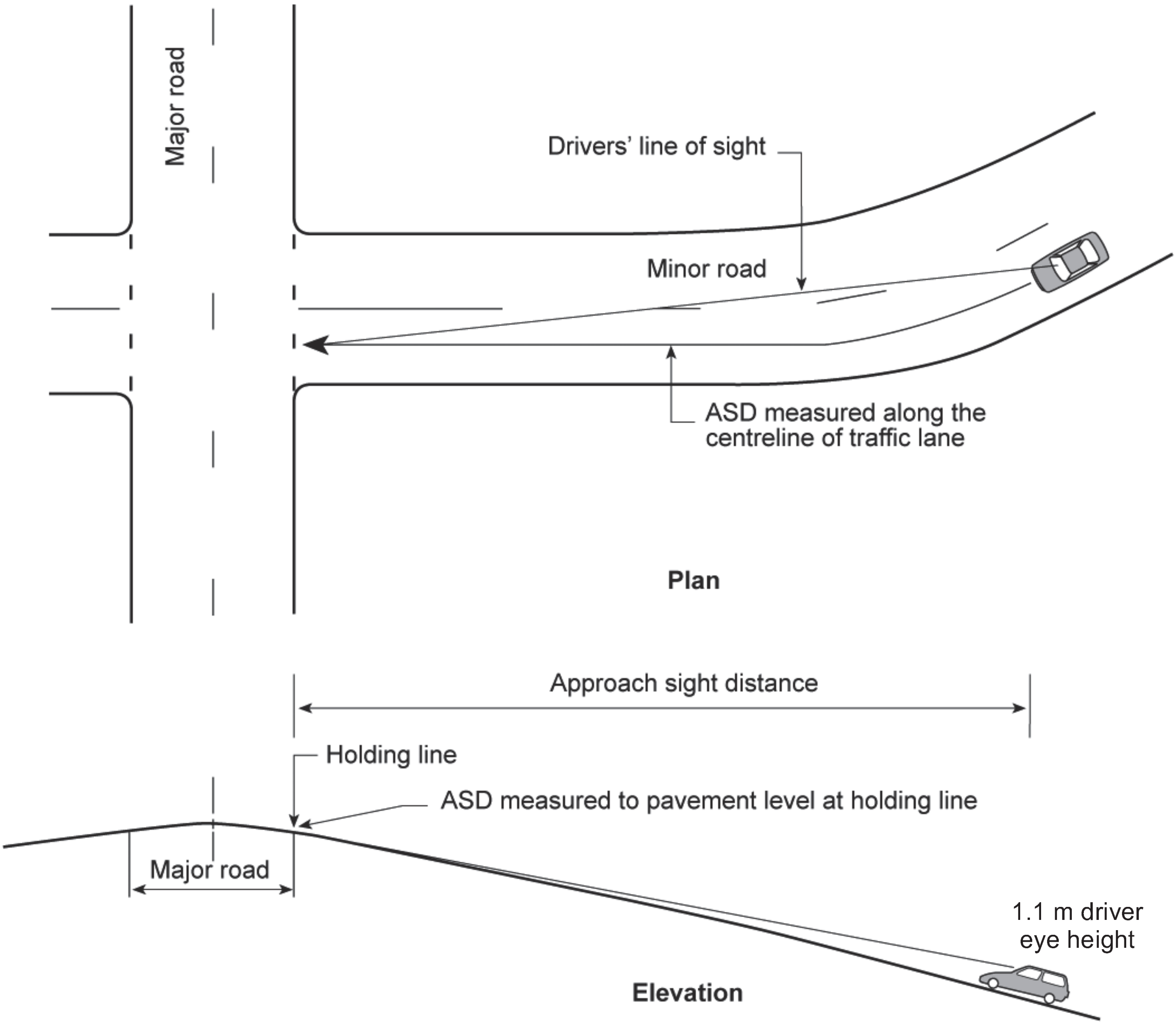
Equation 1 provides the formula for ASD and Figure 3.1 illustrates the application of ASD:

$$ASD = \frac{R_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)} \qquad 1$$

where

ASD	=	approach sight distance (m)
R_T	=	reaction time (sec), refer to *AGRD Part 3* (Austroads 2016b) for guidance on values
V	=	operating (85th percentile) speed (km/h)
d	=	coefficient of deceleration, refer to Table 3.3 and *AGRD Part 3* for values
a	=	a longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade)

Figure 3.1: Application of approach sight distance (ASD)



Values for ASD are provided in Table 3.1 and correction factors for gradient are provided in Table 3.4.

Provision of ASD for trucks

The various sight distance requirements discussed above apply to cars. ASD for trucks should be provided at intersections to ensure that trucks approaching the intersection, at the 85^{th} percentile operating speed of trucks, are able to stop safely. ASD for trucks on intersection approaches should be measured from truck driver eye height (2.4 m) to pavement level at the stop or holding line (0.0 m). Approach sight distances for trucks are numerically the same as the SSD values for trucks provided in *AGRD Part 3* (Austroads 2016b).

Table 3.1: Approach sight distance (ASD) and corresponding minimum crest vertical curve size for sealed roads (S < L)

Design speed (km/h)	Based on approach sight distance for a car(1) h_1 = 1.1, h_2 = 0, d = 0.36(2)					
	R_T = 1.5 sec(3)		R_T = 2.0 sec		R_T = 2.5 sec	
	ASD (m)	*K*	ASD (m)	*K*	ASD (m)	*K*
40	34	5.3	40	7.2	–	–
50	48	10.5	55	13.8	–	–
60	64	18.8	73	24.0	–	–
70	83	31.1	92	38.9	–	–
80	103	48.5	114	59.5	–	–
90	126	72.3	139	87.3	151	104
100	151	104	165	124	179	146
110	–	–	193	171	209	198
120	–	–	224	229	241	264
130	–	–	257	301	275	344
Truck stopping capability provided by the minimum crest curve size(4)	h_1 = 2.4 m, h_2 = 0 m, d = 0.22					

1 *If the average grade over the braking length is not zero, calculate the approach sight distance (ASD) values using the correction factors in Table 3.4 (or use Equation 1) by applying the average grade over the braking length.*

2 *In constrained locations (typically lower volume roads, less important roads, mountainous roads, lower speed urban roads and tunnels), a coefficient of deceleration of 0.46 may be used. For any horizontal curve with a side friction factor greater than the desirable maximum value for cars (in constrained locations), use a coefficient of deceleration of 0.41. The resultant crest curve size can then be calculated using the relevant equations in AGRD Part 3 (Austroads 2016b).*

3 *A 1.5 sec reaction time is only to be used in constrained situations where drivers will be alert. Typical situations are given in Table 5.2 of AGRD Part 3. The general minimum reaction time is 2 sec.*

4 *This check case assumes the same combination of design speed and reaction time as those listed in the table, except that the 120 km/h and 130 km/h speeds are not used.*

Notes:

K is the length of vertical curve in metres for a 1% grade change.

Main Roads Western Australia has adopted a desirable minimum reaction time of 2.5 sec and an absolute minimum reaction time of 2.0 sec. A reaction time of 1.5 sec is not to be used in Western Australia.

Combinations of design speed and reaction times not shown in this table are generally not used.

Refer to AGRD Part 3 to determine the ASD for trucks around horizontal curves.

3.2.2 Safe Intersection Sight Distance (SISD)

SISD is the minimum sight distance which should be provided on the major road at any intersection. Designers should note that the object height for the application of SISD has been increased to 1.25 m (previously driver eye height was used i.e. 1.1 m) based on research by the Department of Main Roads (Lennie et al. 2008). The basis of the 1.25 m object height for cars is that this height is 0.2 m less than the 15th percentile height of passenger cars (1.45 m) as determined by the study.

Equation 2 provides the formula for SISD:

$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)} \quad 2$$

where

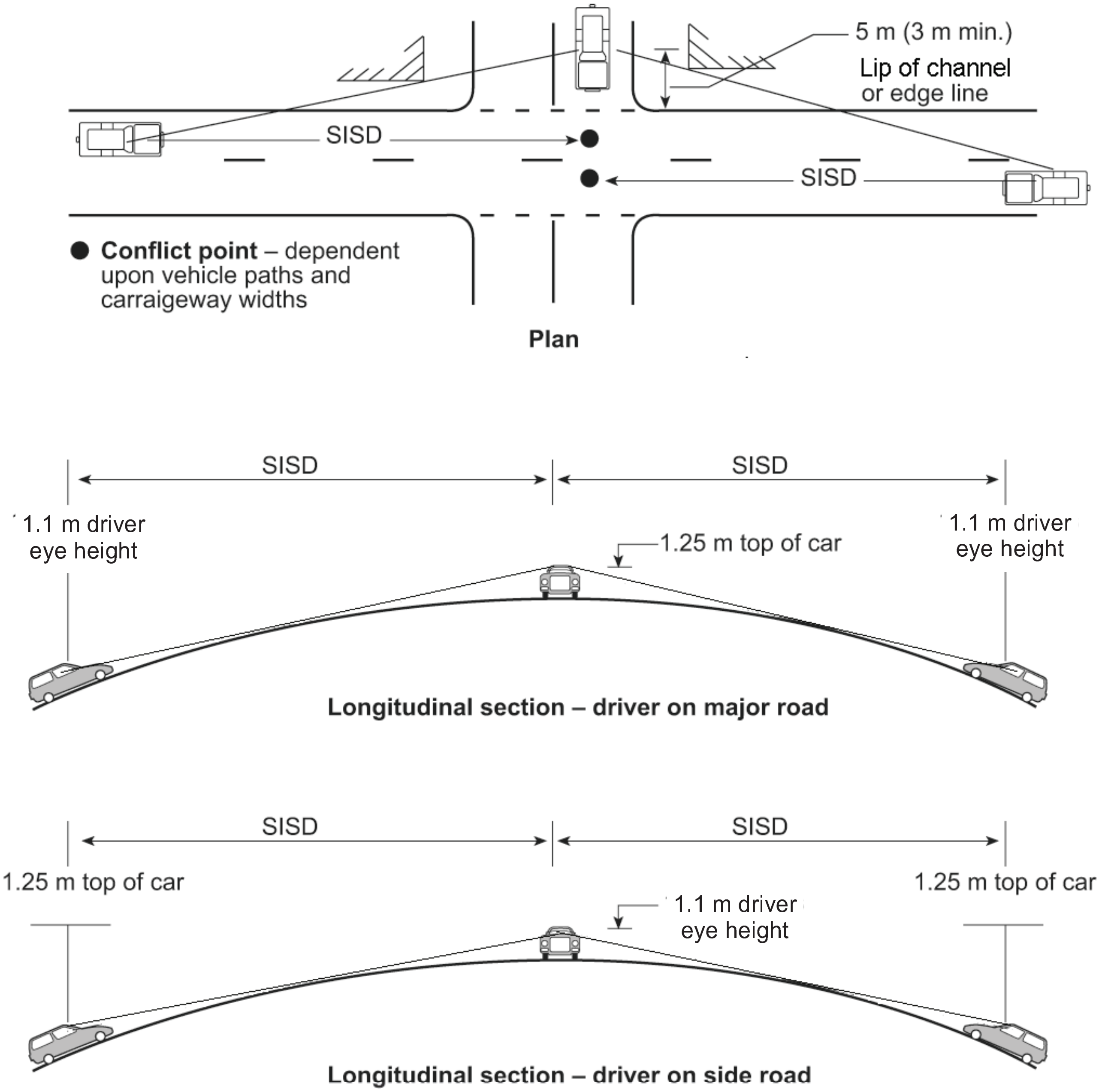
SISD	=	safe intersection sight distance (m)
D_T	=	decision time (sec) = observation time (3 sec) + reaction time (sec) – refer to *AGRD Part 3* (Austroads 2016b) for a guide to values
V	=	operating (85th percentile) speed (km/h)
d	=	coefficient of deceleration – refer to Table 3.3 and *AGRD Part 3* for a guide to values
a	=	longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade)

Designers should note that SISD:

- is measured along the carriageway from the approaching vehicle to the conflict point; the line of sight having to be clear to a point 7.0 m (5.0 m minimum) back along the side road from the conflict point
- provides sufficient distance for a driver of a vehicle on the major road to observe a vehicle on a minor road approach moving into a collision situation (e.g. in the worst case, stalling across the traffic lanes), and to decelerate to a stop before reaching the collision point
- is viewed between two points to provide inter-visibility between drivers and vehicles on the major road and minor road approaches
  It is measured from a driver eye height of 1.1 m above the road to points 1.25 m above the road, which represents drivers seeing the upper part of cars. Figure 3.2 illustrates the longitudinal section for the two cases representing inter-visibility; one for drivers on the major road and the second for a driver waiting in the minor road for an opportunity to enter the major road.
- assumes the driver on the minor road is situated at a distance of 7.0 m (minimum of 5.0 m) from the conflict point on the major road
  SISD allows for a 3 sec observation time for a driver on the priority legs of the intersection to detect a problem ahead (e.g. car from minor road stalling in through lane), plus the SSD.
- provides sufficient distance for a vehicle to cross the non-terminating movement on two-lane two-way roads, or undertake two-stage crossings of dual carriageways, including those with design speeds of 80 km/h or more
- should also be provided for drivers of vehicles stored in the centre of the road when undertaking a crossing or right-turning movement
- enables approaching drivers to see an articulated vehicle, which has properly commenced a manoeuvre from a leg without priority, but its length creates an obstruction.

Where practicable, designers should provide a larger sight distance than SISD. Values for SISD are given in Table 3.2 and corrections for grade are given in Table 3.4. Refer also to Table 3.3 for SISD check cases.

Figure 3.2: Safe intersection sight distance (SISD)



Source: Based on Department of Main Roads (2006[6]).

6 Department of Main Roads (2006) has been superseded and Figure 3.2 has not been carried forward into Queensland Department of Transport and Main Roads (2016).

Table 3.2: Safe intersection sight distance (SISD) and corresponding minimum crest vertical curve size for sealed roads (S < L)

Design speed (km/h)	Based on safe intersection sight distance for cars[1] h_1 = 1.1; h_2 = 1.25, d = 0.36[2]; Observation time = 3 sec					
	R_T = 1.5 sec[3]		R_T = 2.0 sec		R_T = 2.5 sec	
	SISD (m)	*K*	SISD (m)	*K*	SISD (m)	*K*
40	67	4.9	73	6	–	–
50	90	8.6	97	10	–	–
60	114	14	123	16	–	–
70	141	22	151	25	–	–
80	170	31	181	35	–	–
90	201	43	214	49	226	55
100	234	59	248	66	262	74
110	–	–	285	87	300	97
120	–	–	324	112	341	124
130	–	–	365	143	383	157

1 *If the average grade over the braking length is not zero, calculate the safe intersection sight distance (SISD) values using the correction factors in Table 3.4 (or use Equation 2) by applying the average grade over the braking length.*
2 *A coefficient of deceleration of greater than 0.36 is not provided in this table. The provision of SISD requires more conservative values than for other sight distance models (e.g. the stopping sight distance model allows values up to 0.46 in constrained situations). This is because there is a much higher likelihood of colliding with hazards at intersections (that is, other vehicles). Comparatively, there is a relatively low risk of hitting a small object on the road (the stopping sight distance model).*
3 *A 1.5 sec reaction time is only to be used in constrained situations where drivers will be alert. Typical situations are given in Table 4.2 of AGRD Part 3 (Austroads 2016b). The general minimum reaction time is 2 sec.*

Notes:
K is the length of vertical curve for a 1% change in grade.
To determine SISD for trucks around horizontal curves, use Equation 2 with an observation time of 2.5 sec.
Main Roads Western Australia have adopted a desirable minimum reaction time of 2.5 sec and an absolute minimum reaction time of 2.0 sec. A reaction time of 1.5 sec is not to be used in Western Australia.
Combinations of design speed and reaction times not shown in this table are generally not used.

Table 3.3: Safe intersection sight distances check cases

Minimum SISD capability provided by the crest vertical curve size[1]	Car at night[2]	d = 0.46, h_1 = 0.65 m, h_2 = 1.25 m, observation time = 2.6 sec (car headlight to top of car) d = 0.46, h_1 = 1.1 m, h_2 = 0.8 m, observation time = 2.5 sec (car driver eye height to car taillight)
	Truck	d = 0.24, h_1 = 2.4 m, h_2 = 1.25 m, observation time = 3.0 sec (truck driver height to top of car)
	Truck at night[2]	d = 0.29, h_1 = 1.05 m, h_2 = 1.25 m, observation time = 1.8 sec (commercial vehicle headlight to top of car) d = 0.29, h_1 = 2.4 m, h_2 = 0.8 m, observation time = 3.0 sec (truck driver eye height to car taillight)

1 *These check cases assume the same combination of design speed and reaction time as those listed in the table, except that the 120 km/h and 130 km/h speeds are not used for the truck cases.*
2 *Many of the sight distances corresponding to the minimum crest size are greater than the range of most headlights (that is, 120–150 m). In addition, tighter horizontal curvature will cause the light beam to shine off the pavement (assuming 3º lateral spread each way).*

Note: Designers should also refer to AGRD Part 3 for further information on the vertical height parameters.

Table 3.4: Grade corrections to ASD and SISD (cars)

Design speed (major road) (km/h)	Correction (m)							
	Upgrade				Downgrade			
	2%	4%	6%	8%	2%	4%	6%	8%
40	–1	–2	–2	–3	1	2	3	5
50	–1	–3	–4	–5	2	3	5	8
60	–2	–4	–6	–7	2	5	8	11
70	–3	–5	–8	–10	3	7	11	15
80	–4	–7	–10	–13	4	9	14	20
90	–5	–9	–13	–16	5	11	18	25
100	–6	–11	–16	–20	6	14	22	31
110	–7	–13	–19	–24	8	17	26	38
120	–8	–16	–22	–29	9	20	31	45
130	–10	–18	–26	–34	11	23	37	53

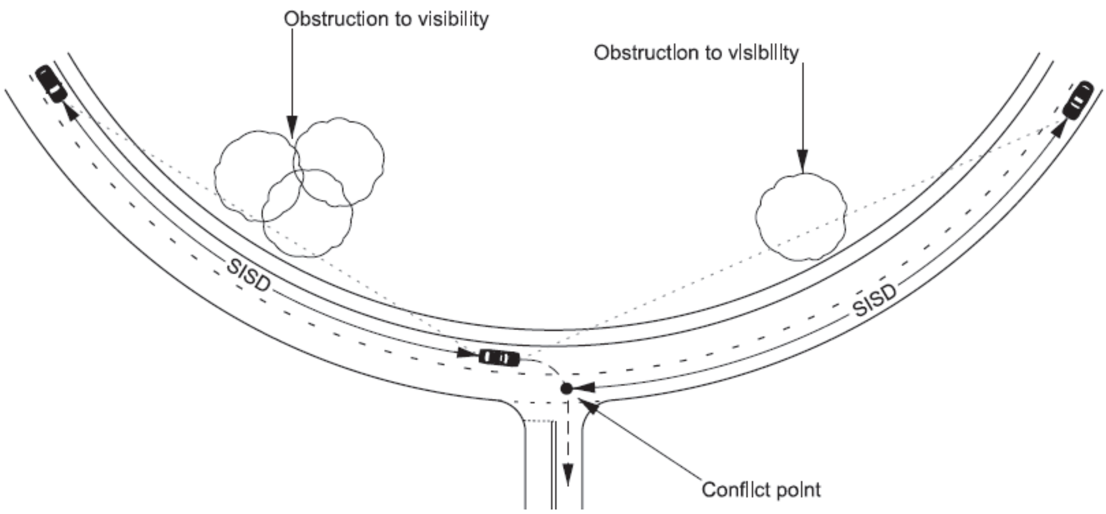
Note: This table to be used in conjunction with Table 3.2.

The SISD model should also be applied to the following cases to ensure that adequate visibility is provided between:

- vehicles approaching on the major road and vehicles turning right from the major road for basic right-turn (BAR) treatments (i.e. no right-turn lane provided)
  This is a similar requirement to the line of sight required between approaching major road vehicles and a stalled vehicle turning right from the minor road at all types of right-turn treatments.
- vehicles turning right from the major road and oncoming major road vehicles at all types of right-turn treatments, including those on divided roads.

The ability to achieve SISD in these cases could be influenced by the horizontal alignment, the vertical alignment, or a combined horizontal and vertical alignment. Figure 3.3 shows the application of the SISD model to an intersection on the outside of a horizontal curve.

Figure 3.3: Application of the SISD model for minor roads intersecting on the outside of horizontal curves



Source: Department of Main Roads (2006)[7].

7 Department of Main Roads (2006) has been superseded and Figure 3.3 has not been carried forward into Queensland Department of Transport and Main Roads (2016).

3.2.3 Minimum Gap Sight Distance

General

Minimum gap sight distance (MGSD)[8] is based on distances corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a crossing or turning manoeuvre at intersections. Typical traffic movements are shown in Figure 3.4 and Figure 3.5. Information on gap acceptance theory in relation to intersection capacity is provided in the *Guide to Traffic Management Part 3: Traffic Studies and Analysis* (Austroads 2013e).

MGSD is:

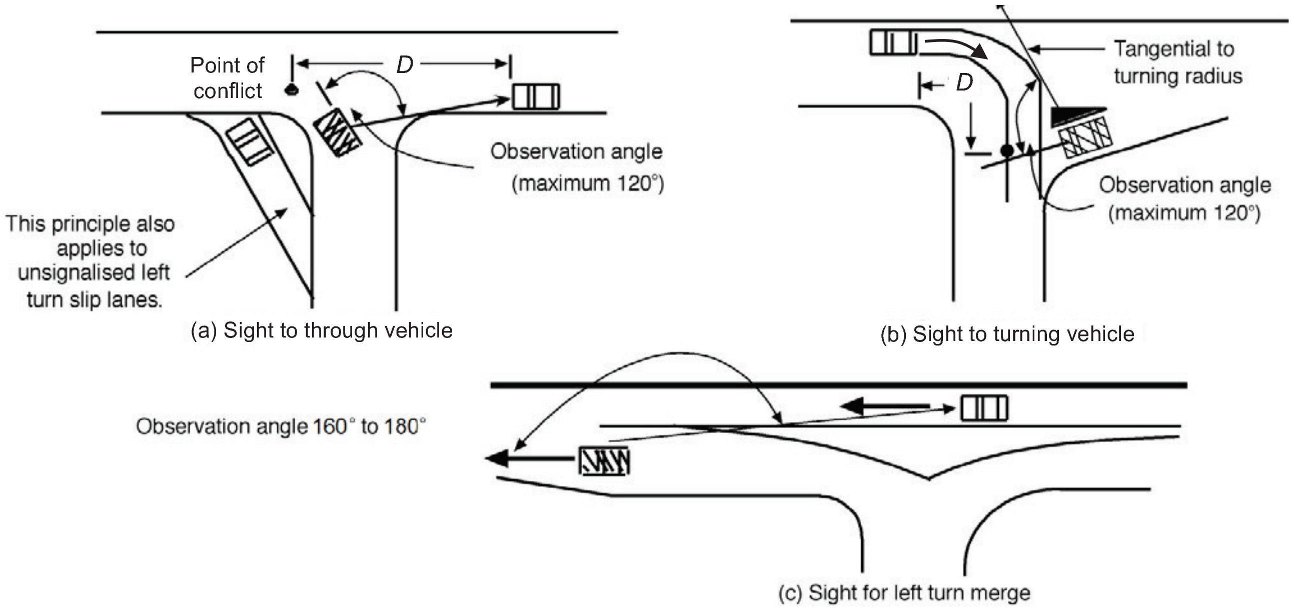
- shown as '*D*' in Figure 3.4 and Figure 3.5
- measured from the point of conflict (between approaching and entering vehicles) back along the centre of the travel lane of the approaching vehicle
- measured from a point 1.1 m (driver's eye height) to a point 0.65 m (object height – typically a vehicle indicator light) above the travelled way.

The MGSD required for the driver of an entering vehicle to see a vehicle in the conflicting streams in order to safely commence the desired manoeuvre is dependent upon the:

- length of the gap being sought (critical acceptance gap time t_a)
- observation angle to approaching traffic.

Figure 3.4 illustrates that for left turns the sighting angle is restricted to a maximum of 120º for a give way situation and 160º to 180º for a free flow left turn. The sighting angles are restricted to a maximum of 110º for right turns, and 170º to 180º for right-turn merges (Figure 3.5).

Figure 3.4: Sight distance requirements and angles for traffic turning left



Note: D is the minimum gap sight distance (MGSD).

Source: Department of Main Roads (2006)[9].

8 Minimum gap sight distance not used in Western Australia.

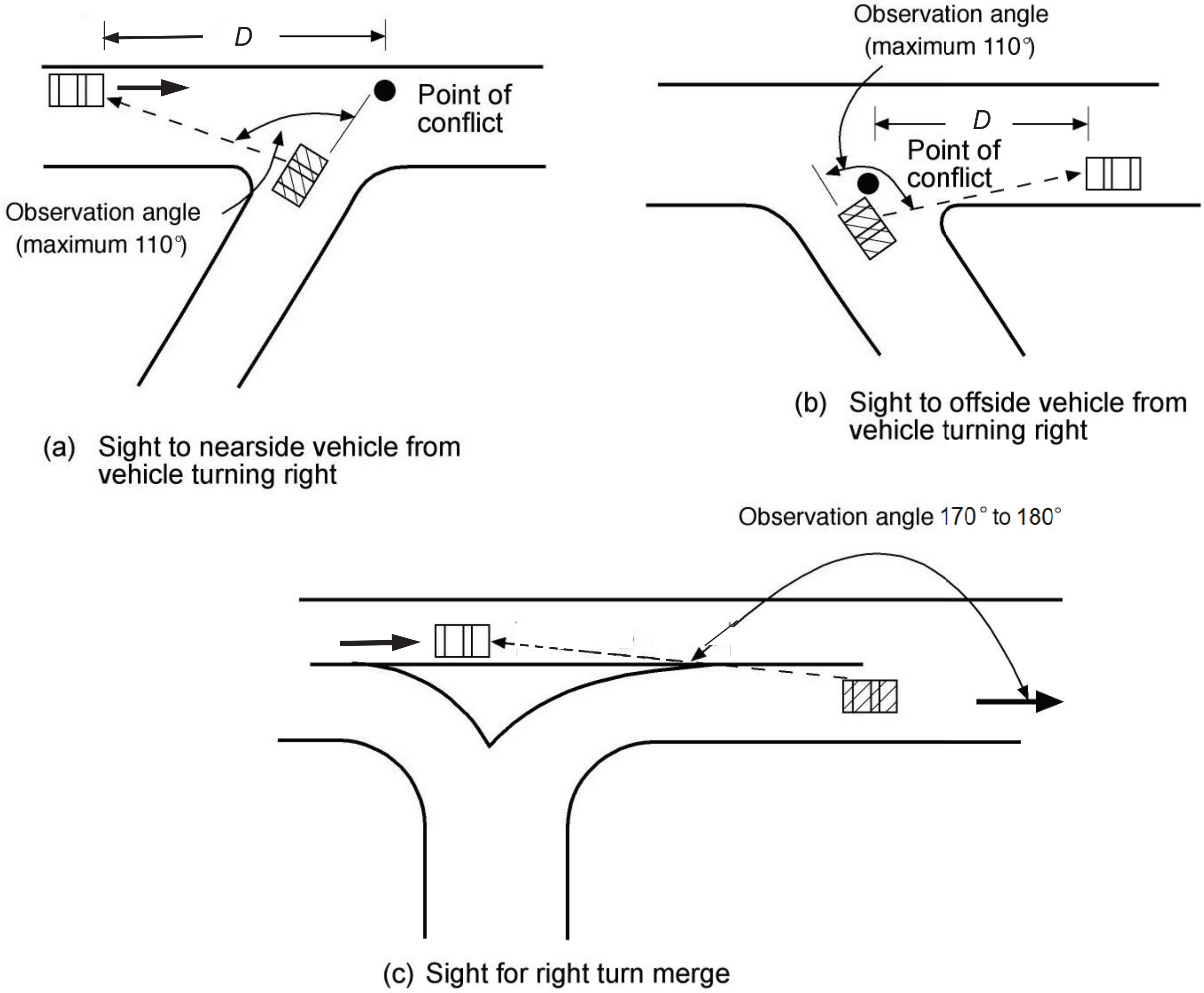
9 Department of Main Roads (2006) has been superseded and Figure 3.4 has not been carried forward into Queensland Department of Transport and Main Roads (2016).

Critical acceptance gaps and follow-up headways

The critical acceptance gap time varies according to:

- the type of manoeuvre – left-turn/right-turn/crossing
- the width of carriageway – increased time required for greater widths
- whether the major road has a one-way or two-way traffic flow – increased time required to look both ways.

Figure 3.5: Sight distance requirements and angles for traffic turning right



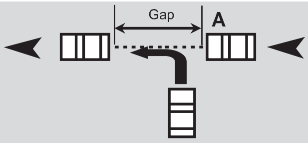
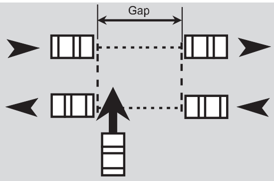
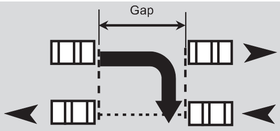
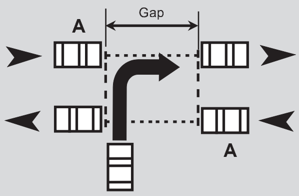
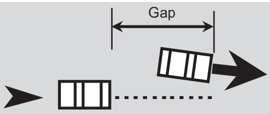
Note: D is the minimum gap sight distance (MGSD).

Source: Department of Main Roads (2006)[10].

Table 3.5 shows critical acceptance gap times for various manoeuvres into, from and across various through carriageway widths for both one-way and two-way traffic. The corresponding distances are given in Table 3.6.

10 Department of Main Roads (2006) has been superseded and Figure 3.5 has not been carried forward into Queensland Department of Transport and Main Roads (2016).

Table 3.5: Critical acceptance gaps and follow-up headways

Movement	Diagram	Description	t_a (1) (sec)	t_f (2) (sec)
Left turn		Not interfering with A Requiring A to slow	14–40 5	2–3 2–3
Crossing		Two lane/one way Three lane/one way Four lane/one way Two lane/two way Four lane/two way Six lane/two way	4 6 8 5 8 8	2 3 4 3 5 5
Right turn from major road		Across one lane Across two lanes Across three lanes	4 5 6	2 3 4
Right turn from minor road		Not interfering with A One way Two lane/two way Four lane/two way Six lane/two way	14–40 3 5 8 8	3 3 3 5 5
Merge		Acceleration lane	3	2

1 t_a = *critical acceptance gap (sec).*
2 t_f = *follow-up headway (sec).*

Note: For a description of the follow-up headway and its uses, refer to Guide to Traffic Management Part 3: Traffic Studies and Analysis (Austroads 2013e).

Source: Department of Main Roads (2006)[11].

Table 3.6: Table of minimum gap sight distances (‘*D*’ metres) for various speeds

Critical gap acceptance time (t_a) (secs)	85th percentile speed of approaching vehicle (km/h)										
	10	20	30	40	50	60	70	80	90	100	110
4	11	22	33	44	55	67	78	89	100	111	122
5	14	28	42	55	69	83	97	111	125	139	153
6	17	33	50	67	83	100	117	133	150	167	183
7	19	39	58	78	97	117	136	155	175	194	214
8	22	44	67	89	111	133	155	178	200	222	244
9	25	50	75	100	125	150	175	200	225	250	275
10	28	56	83	111	139	167	194	222	250	278	305

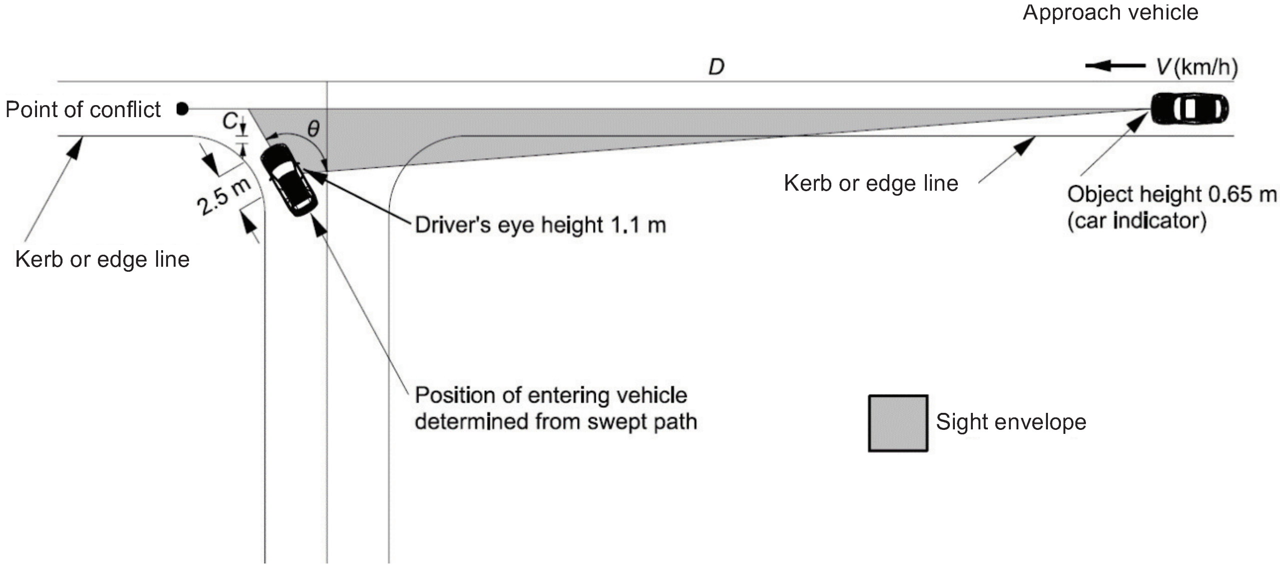
11 Department of Main roads (2006) has been superseded and Table 3.5 has not been carried forward into Queensland Department of Transport and Main Roads (2016).

Detailed sight distance requirements for left-turning drivers

Figure 3.6 illustrates the sight distance to a through vehicle from a vehicle turning left. Sight requirements for left turns depend on the direction of approaching traffic and right-of-way regulations. For drivers of vehicles entering a priority road, sight lines should be considered to:

- through vehicles approaching from the left and right
- turning vehicles on other approaches.

Figure 3.6: Sight distance to a through vehicle from a vehicle turning left



Notes:
Sight envelope:
- *Assess sight distance both horizontally and vertically within this envelope.*
- *For rural areas – there should be no obstructions to sight lines in this area.*
- *For urban areas – fixed objects should not cause entering vehicles to lose sight of approaching vehicles.*

ϴ observation angle for new or reconstructed work maximum 120º.
C 0.5 m from kerb or edgeline projection or
1.0 m from stop or give way line.
D minimum distance travelled by approaching vehicle in 5 seconds at design speed (V km/h).
Minimum distance travelled by approaching vehicle in 5 seconds based on ta for left-turn from Table 3.5.

Source: Department of Main Roads (2006)[12].

The acceptable maximum observation angle of 120º is based on the visibility requirements from vehicles provided in Commentary 1.

[see Commentary 1]

12 Department of Main Roads (2006) has been superseded and Figure 3.6 has not been carried forward into Queensland Department of Transport and Main Roads (2016).

3.3 Pedestrian Sight Distance Requirements

At intersections, pedestrian crossing facilities should be located where there is a clear view between approaching drivers and pedestrians on the crossing or waiting to cross a roadway (Figure 3.7).

This requires that:

- ASD should be provided between approaching vehicles (1.1 m eye height) and the surface of the roadway (0 m) at the crossing.
- Crossing sight distance (CSD) should be provided between approaching vehicles (1.1 m eye height) and a pedestrian waiting to cross the road. The pedestrian eye height should be taken as 1.07 m which represents the lower bound of the range applicable to a person in an A80 wheelchair.

CSD is:

- necessary to ensure that the pedestrian can see approaching traffic in sufficient time to judge a safe gap and cross the roadway
- calculated from the critical safe gap (in the traffic stream) and the speed of approaching traffic
- given by Equation 3:

$$CSD = t_c \times \frac{V}{3.6} \tag{3}$$

where

CSD	=	sight distance required for a pedestrian to safely cross the roadway
t_c	=	critical safe gap (sec) = (crossing length/walking speed)
V	=	85^{th} percentile approach speed (km/h).

Note: Average walking speed is 1.2 m/s, however there are pedestrians who may walk at different rates and designers need to consider the types of pedestrians and their likely walking speeds.

It is important that the line of sight is not obstructed. Provision of ASD (1.1 m to 0.0 m) ensures that even if there is no pedestrian actually on the crossing, the driver should be aware of the crossing by seeing the associated pavement markings and other cues, and therefore be alerted to take the appropriate action if a pedestrian steps onto the crossing. Provision of ASD should be used for crossings where the pedestrian has the priority.

It is important that the line of sight for CSD is not impeded by any object such as:

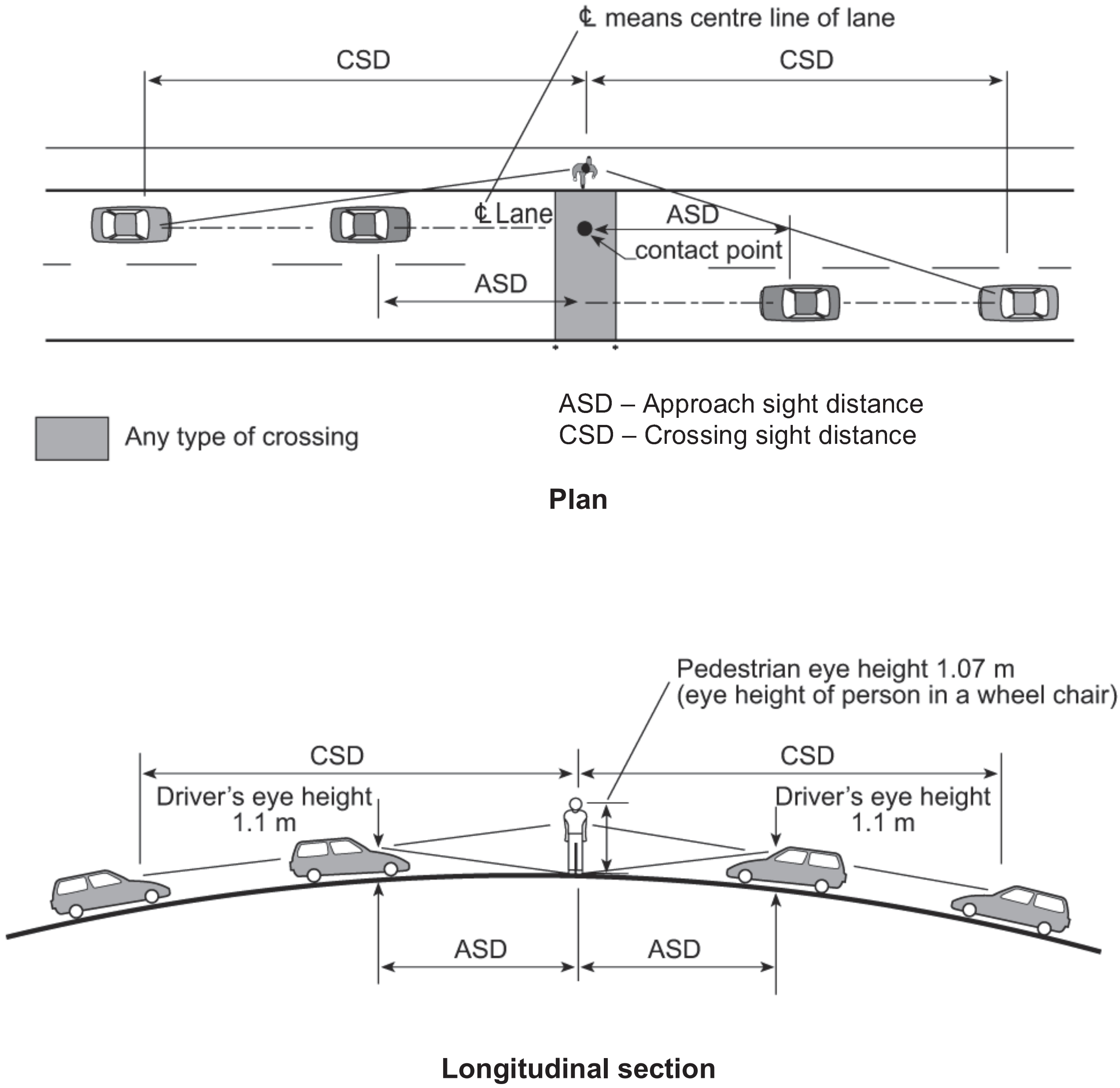
- street furniture (e.g. poles, mailboxes, telephone booths, trees, decorative planters)
- parked vehicles.

CSD should be provided at crossings where the pedestrian does not have the priority, to allow sufficient time to cross the road, clear of any approaching traffic.

Parked vehicles can cause visual obstructions, especially for children, wheelchair occupants, or individuals of small stature. This may require banning parking for some distance on each side of the crossing, the distance being determined for each case to ensure that parked vehicles will not obscure the required sight lines. At locations where there is a strong requirement by adjoining land uses to retain legal on-street parking, consideration should be given to extending the width of the footpath to improve the visibility of pedestrians.

Minor obstructions, such as posts, poles and tree trunks less than 200 mm diameter within the sight line may be ignored.

Figure 3.7: Sight distance at pedestrian crossings



Note: The pedestrian offset from the edge of the pavement or kerb line is 1.6 m for determination of the sight triangle.

Source: Department of Main Roads (2006)[13].

3.4 Sight Distance at Property Entrances

AGRD Part 4 (Austroads 2017) provides guidelines that relate to property access in general. It also provides reference to a New Zealand planning policy manual that covers integrated planning and development of state highways including accessway standards and guidelines (NZ Transport Agency 2007).

Desirably, sight distances at accesses should comply with the sight distance requirements for intersections, i.e. that approach sight distance (ASD), safe intersection sight distance (SISD), and minimum gap sight distance (MGSD) are achieved.

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13 Department of Main Roads (2006) has been superseded and Figure 3.7 has not been carried forward into Queensland Department of Transport and Main Roads (2016).

The criteria above often cannot be obtained at accesses on roadways with tighter horizontal and vertical alignments, or vegetation. For new roads comprising such geometry, minimum sight distances at accesses should comply with the following:

- minimum gap sight distance in Section 3.2.3
- safe intersection sight distance using values given under the extended design domain (EDD) criteria for sight distance at intersections (Table A 9 to Table A 14).

Obtaining ASD at domestic accesses is preferable but may not always be necessary due to the familiarity with their location of the users. At other than domestic accesses, ASD will need to be provided only if adequate perception of the access is not provided through other means.

Care should be taken to ensure that the minimum sight distances are not restricted by the location and height of roadside furniture and vegetation.