

## **56.07 STREET DESIGN**

### **56.07-1 Streetscapes objectives**

To provide attractive streetscapes that contribute to the creation and enhancement of neighbourhood character and amenity.

To provide sufficient carriageway and verge widths to enable streets to perform their designated functions within the street network.

To encourage use of residential streets by pedestrians and cyclists and allow cars, buses and other users to proceed safely and without unacceptable inconvenience and delay.

To provide a safe, distinct and pleasant environment for residents and other users.

#### **Standard C22**

The design of the street reserve should:

- Create an attractive streetscape and establish a clear character and identity for the street or neighbourhood.
- Provide for appropriate street tree planting taking into account the image and role of the street, solar access requirements, soils and services.
- Encourage use of the street for walking, cycling and interaction between residents.
- Encourage informal surveillance of public open spaces from within dwellings.
- Manage the speed and behaviour of traffic in accordance with the street type to maximise safety and amenity.
- Respond to the features of the site in terms of views, vistas, existing vegetation and landmarks.
- Provide adequate space for the proposed pavement, paths, planting, drainage and services.
- Facilitate infiltration of stormwater run-off wherever practical.
- Take into account maintenance responsibilities, requirements and costs.

A streetscape plan should be prepared for all subdivisions creating new residential streets that shows, as appropriate:

- The street reserve together with typical cross sections.
- Location of carriageway pavement, parking bays, bus stops, kerbs, cross overs, footpaths, bicycle paths and speed control devices.
- Location and species of proposed street trees and other vegetation.
- Location of existing vegetation to be retained and proposed treatment to ensure its health.
- Any relevant details for the design and location of street furniture, lighting, seats, bus stops, telephone boxes and mailboxes.

## **56.07-2 Street width objectives**

To provide sufficient carriageway and verge widths to allow streets to perform their designated functions within the street network.

To encourage use of residential streets by pedestrians and cyclists and allow cars, buses and other uses to proceed safely and without unacceptable inconvenience and delay.

### **Standard C23**

The street reserve width should be sufficient to cater for:

- The safe location, construction and maintenance of required paths and public utility services (above or below ground).
- All expected functions of the street, including the safe and efficient movement of all users.
- The provision for parked vehicles.
- The provision of public utilities and landscaping.

The carriageway width together with verge width and crossover dimensions should allow for unobstructed access to individual lots. Motorists should be able to enter or reverse from a lot in a single movement.

The verge, when considered in conjunction with the horizontal alignment and likely fence and property frontage treatments, must provide appropriate sight distances taking into account expected vehicle speeds and pedestrian and cyclist movements.

The carriageway width must allow vehicles to proceed safely at the operating speed intended for that type of street in the network, with acceptable minor delays in the peak period. This should take into account the restrictions caused by parked vehicles where parking will occur on the carriageway.

Carriageways should be of sufficient width to ensure the safety of pedestrians using shared roadways.

Bus routes should have carriageways of sufficient width to allow for movement of a Design Ultra Low Floor Bus (12.5m) (Austroads Pavement Design - A Guide to Structural Design of Road Pavements, Revised 1999 (AP 17/92)) unimpeded by parked cars, and to safely accommodate cyclists.

Where required, provision should be made for vehicles to park safely generally in accordance with Australian Standard AS2890.5-1993, Parking Facilities: On-street parking.

## **56.07-3 Street alignment objective**

To provide street geometry that is consistent with the needs of the street function, physical land characteristics and safety.

### **Standard C24**

The horizontal and vertical alignments and cross fall of streets should reflect physical land characteristics and major drainage functions and should not be conducive to excessive speeds.

Cross-falls on street pavements should be between 0.025 and 0.040 metres (fall) per metre (width).

Longitudinal gradient should not exceed 20 per cent on access streets and 15 per cent on other streets.

Super elevation of curves used for speed control should not exceed 3 per cent.

**56.07-4 Street function objectives**

To provide sufficient carriageway and verge widths to allow streets to perform their designated functions within the street network.

To provide street geometry that is consistent with the needs of the street function, physical land characteristics and safety.

To accommodate public utility services and drainage systems.

**Standard C25**

The design features of each type of residential street should convey its primary function and encourage appropriate driver behaviour, including discouraging motorists speeding.

Carriageway widths, verge widths and parking provision within the street reserve should be designed in accordance with the requirements specified in Table C6.

Verge widths should be increased where necessary to allow space for larger scale landscaping, indented parking, future carriageway widening, retaining walls, bicycle paths or swale drains.

The drainage function of the carriageway and/or street reserve should be satisfied by the cross section profile of the total street reserve.

Streets designated as bus routes should comply with the requirements of the Public Transport Corporation and should have the maximum carriageway widths as specified in Table C6.

Street kerbs, footpaths and bicycle paths should be designed in accordance with the requirements specified in Table C7.

**Table C6 Street widths and parking**

<b>STREET TYPE</b>	<b>CARRIAGEWAY WIDTH <sup>1</sup></b>	<b>PARKING PROVISION WITHIN STREET RESERVE</b>	<b>VERGE WIDTH <sup>5</sup></b>
<b>Access Lane</b>	3-8m <sup>2</sup>	None	None
<b>Access Place</b>	3.5m <sup>3</sup> or 5m	1 hard standing verge space per 2 lots with scope for additional spaces	Total width 7m For services 3.5m, on one side, 2.5m on the other
<b>Access Street</b>	5 - 5.5m 5 - 5.5m or 7 - 7.5m <sup>4</sup>	Carriageway Carriageway	4m minimum each side 4.5m minimum each side

**Table C6 Street widths and parking (continued)**

STREET TYPE	CARRIAGEWAY WIDTH <sup>1</sup>	PARKING PROVISION WITHIN STREET RESERVE	VERGE WIDTH <sup>5</sup>
<b>Collector Street</b>	6 - 6.5m or 7 - 7.5m	Indented to leave 6m minimum clear carriageway	4.5m minimum each side with adequate road reserve width for widening for future bus route if required.
	At bus stops avoid vehicles overtaking a bus when passengers are alighting.	Carriageway	
<b>Trunk collector street</b>	2 x 3.5m or 2 x 5 - 5.5m  Dual carriageway plus median. Bus bays to be indented	Parking not permitted on minimum width carriageways  If required parking should be provided on a 5.5m carriageway in parking locations that allow cars to exist in a forward direction and includes parallel parking.	6m minimum each side

<sup>1</sup> The maximum width within the range should be used when bus use is anticipated or when upright kerbs are used.

Width is measured from kerb invert to invert. Widening may be required at bends to allow for wider vehicle paths (using Australian Standard AS2890.5-1993, Parking Facilities: On-street parking and Australian Standard AS2890.2-2002, Parking Facilities: Off-street parking - Commercial vehicle facilities), but should not negate the function of bends serving as slow points.

<sup>2</sup> Width will be determined by requirements for access to off street parking.

<sup>3</sup> Requires parking provision and provision for widening to 5m if necessary in the future; 5m width required within 7m of junction with collector street; passing bay if more than 15 dwellings are served.

Typical verge widths of 3.5m each side, with indented parking to within 1.5m of a boundary. Add width on one side for future widening of carriageway to 5m if necessary.

<sup>4</sup> 7 - 7.5m width should be used when parking is required on both sides.

<sup>5</sup> Verge width includes footpaths. Additional width may be required to accommodate a bicycle path.

**Table C7 Street kerbs, footpath and bicycle path provision**

<b>STREET TYPE</b>	<b>KERBING <sup>1</sup></b>	<b>FOOTPATH PROVISION</b>	<b>BICYCLEPATH PROVISION</b>
<b>Access Lane</b>		Not required if serving 5 dwellings or less  1.2m wide footpath required if serving more than 5 dwellings	Not required
<b>Access Place</b>	layback/ flush and swale	Not required if serving 5 dwellings or less  1.2m wide footpaths required if more than 5 dwellings are being served	Not required
<b>Access Street</b>	layback/ flush and swale	1.2m wide footpaths <sup>2</sup>  Footpath should be widened to 1.4m in vicinity of an education centre, shop or other activity centre	Not required
<b>Collector Street</b>	layback/ upright	1.2m wide footpath on both sides of the street  Footpath should be widened to 1.4m in vicinity of an education centre, shop or other activity centre	Footpath should be widened to 2m in vicinity of an education centre to allow for shared use by cyclists.
<b>Trunk collector street</b>	layback/ upright	1.2m wide footpath or part of 2m wide bicycle path desirably offset 1m from abutting residential frontages, on both sides of the street  Footpath should be widened to 1.4m in vicinity of an education centre, shop or other activity centre	Footpath should be widened to 2m in vicinity of an education centre to allow for shared use by cyclists.  If required, 2m bicycle path one side only in the verge or two 1 - 1.5m wide bicycle lanes marked on carriageway but only where there is no carriageway parking

<sup>6</sup> Where drainage is not required a flush pavement edge treatment can be used.

Layback kerbs are preferred for safety reasons. Upright kerbs may be considered for drainage purposes or in locations where on-street parking should be clearly defined and parking within the verge is not desired.

<sup>7</sup> Footpaths should be provided on both sides of the street unless the requirements of Standard C14 in relation to the provision of only one side of the street can be met.

### 56.07-5 Emergency vehicle access objective

To provide appropriate emergency vehicle access.

#### Standard C26

Street carriageways must be designed to accommodate the passage of emergency vehicles.

Emergency vehicles should have easy access to all dwellings in a residential area.

Street carriageways abutting areas of high bush fire hazard comprising the long term urban edge or conservation areas should be designed to the requirements of the relevant fire authority to provide adequate access to fire emergency vehicles under conditions of poor visibility.

### 56.07-6 Intersections and turning objective

To ensure that intersections are designed to provide safe and convenient vehicle movements.

#### Standard C27

Roundabouts should be designed according to the Austroads Guide to Traffic Engineering Practice, Part 6: Roundabouts, 1993 (AP 11.6-93/HB 69.13-1993).

Kerb radii at intersections should be kept to a minimum, subject to satisfying required turning templates, to keep pedestrian crossing distances to a minimum and to control turning vehicle speeds.

The design of intersections or junctions should allow all desired movements to occur safely without undue delay. If the intersection or junction is part of a designated bus route, the design should allow for the movement of a Design Ultra Low Floor Bus (12.5m) (Austroads Design Vehicles and Turning Path Templates, 1995 (AP 34-95/HB 72-1995)). Projected traffic volumes should be used in designing all intersections or junctions on traffic routes.

Stopping sight distances and junction or intersection sight distances should be based on the intended speeds for each street type.

The sight distances for stopping purposes should be greater than the distances specified in Table C8.

**Table C8 Minimum stopping distances**

STREET TYPE	TARGET SPEED	MINIMUM STOPPING SIGHT DISTANCE (Y)
Access Place	15 km/hr	5 m
Access Street	30 km/hr	20 m
	40 km/hr	30 m
Collector Street	50 km/hr	40 m
Trunk Collector Street	60 km/h	55 m

At intersections, turning vehicles should be accommodated using Australian Standard AS2890.2-2002, Parking Facilities: Off-street parking - Commercial vehicle facilities to enable turns to be made in a single forward movement as follows:

- For turns between a trunk collector and traffic routes, collector streets or access streets, the 'design articulated vehicle' (turning path radius of at least 11 metres), using any part of the pavement (Figure B5 in Australian Standard AS2890.2-2002, Parking Facilities: Off-street parking - Commercial vehicle facilities).
- For turns between collector streets and access places, access streets or collector streets the 'design heavy rigid vehicle' (turning path radius 11 metres) using any part of the pavement (Figure B4 in Australian Standard AS2890.2-2002, Parking Facilities: Off-street parking - Commercial vehicle facilities).
- For turns between access streets and access streets or access places, the B99 'design car' (turning path radius 7.5m), using the correct side of the pavement only (Figure B1 in Australian Standard AS2890.2-2002, Parking Facilities: Off-street parking - Commercial vehicle facilities).

Adequate provision should be made at the end of any no-through street for those vehicles that frequently use these streets to turn around. For turning movements at cul-de-sac heads, sufficient area should be provided for a Design Medium Rigid Vehicle (10.5m) to make a three point turn. Where driveway entrances are to be used for turning movements, the required area should be able to withstand the relevant loads (Figure B3 in Australian Standard AS2890.2-2002, Parking Facilities: Off-street parking - Commercial vehicle facilities).

Kerb radii should not exceed 6 metres, except if required to accommodate turning vehicles in accordance with this standard.

Driveways and direct vehicle access to trunk collector streets should be designed to allow forward entry and exit of vehicles from properties.