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WESTERN AUSTRALIAN  
PLANNING COMMISSION



## I. INTRODUCTION

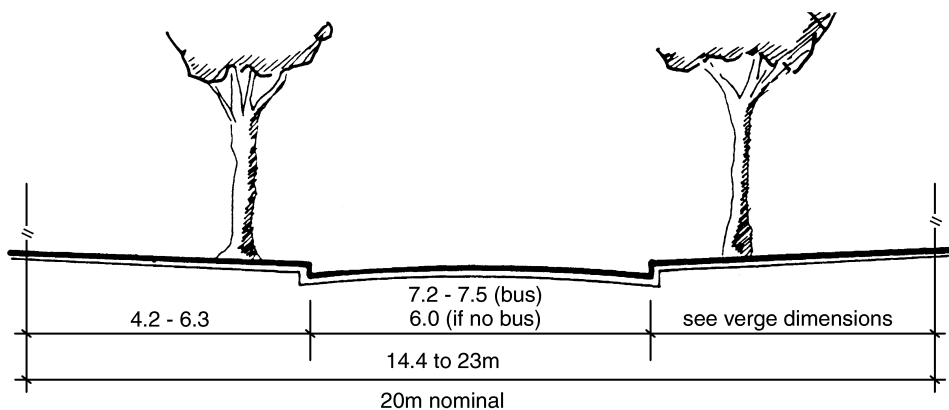
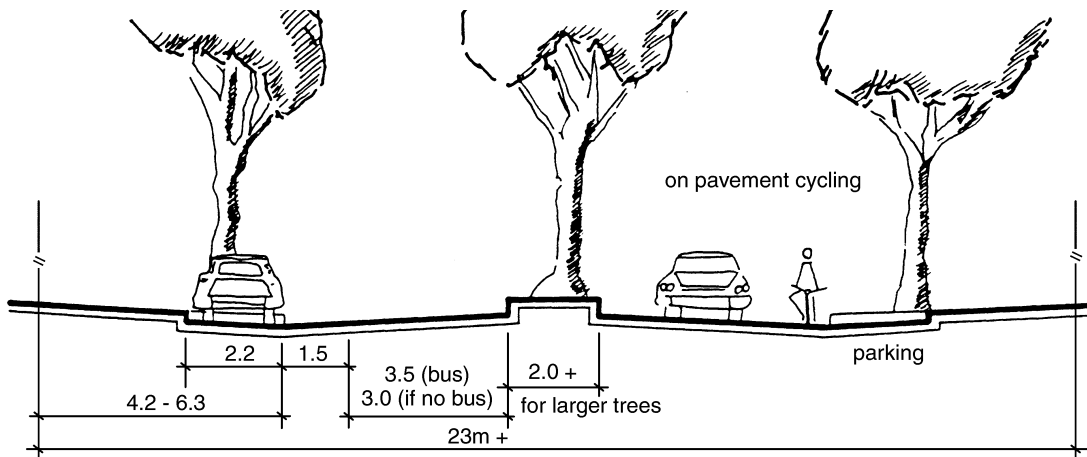
1.1 These guidelines provide suggested design criteria for each level of road in the road hierarchy and provide some simple aspects of geometric design, particularly with respect to network visibility where it influences the planning and layout of residential roads and paths. While responsibility for the approval of the detailed design will rest with the relevant local government, the Commission will be guided by the policy and these guidelines in establishing road reservations and networks through its determination of subdivision applications. Local governments are advised to favourably consider these guidelines, but also to consider any Australian standards where they exist.

## 2. CARRIAGEWAYS AND VERGES

2.1 Carriageway widths should be selected to achieve high standards of safety, amenity, level of service and access for land use. Verge widths should be the minimum necessary for the required services to be installed and to accommodate large canopied mature trees on both verges of a species specified by the local government.

2.2 For local distributors a range of 6-10m could be employed for the carriageway as shown on Figure 1.

- The minimum of 6m may result in the need to consider parking bays, should substantial on-street parking be expected;



N.B. Double sided CAPS could require 30 - 32m

Minor Trunks	Sewer or Storm Water	Trees and Poles	Water	Gas	Western Power and Telecom
up to 2100	1200	600	600	600	1200

Figure 1. Typical Cross Section - Local Distributor

- 7.4m is the standard width for a two-lane road, where higher vehicle speeds are acceptable and to accommodate bus routes in addition to parking and bus bays where necessary;
- The maximum of 10m is required to accommodate boulevard treatments with bus routes in addition to parking and bus bays where necessary.

Local distributors require verges between 4.2 and 6.3m.

- 6.3m is necessary where trunk services are required;
- 4.2m is necessary without trunk services with trees and power poles not closer than 1.5m to the carriageway edge with care given to protect visibility at driveways and intersections;
- Less than 4m may be acceptable where there are no sewers in the verge,

underground power is provided and there is sufficient space to accommodate large canopied mature trees on both verges of a species specified by the local government. A reduced verge width may also be acceptable where common trenching is used.

2.3 For access ways a range of 5.5-6m could be employed for the carriageway as shown on Figure 2.

Mountable kerbs are preferred, and sharp bends and other speed reduction features such as humps and small roundabouts should be incorporated into the carriageway design.

Verge widths should be the minimum necessary to accommodate services and large canopied mature trees of a species specified by the local government, and will normally be no more than 4.5m where both sewer and stormwater services are required. Where sewers are laid at the rear of lots and/or where

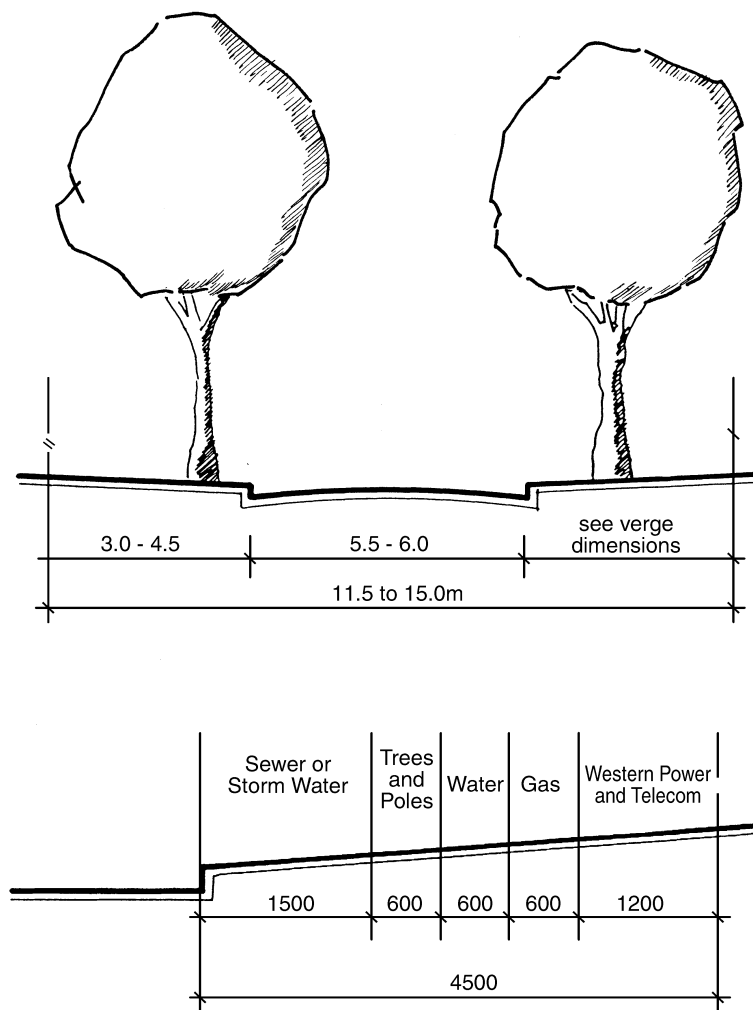


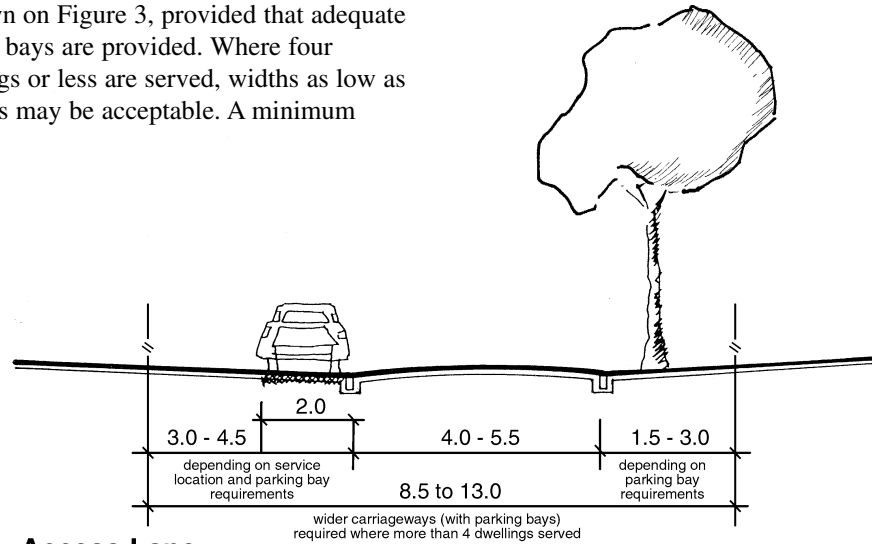
Figure 2. **Typical Cross Section - Access Ways**

common trenching is used the verge can be reduced. Underground power is highly desirable for both aesthetic and safety reasons, and if this is used and there is sufficient space for large canopied mature trees, the verge can be reduced to 3m. Trees should not be located within 1.5m of the edge of the carriageway to ensure visibility.

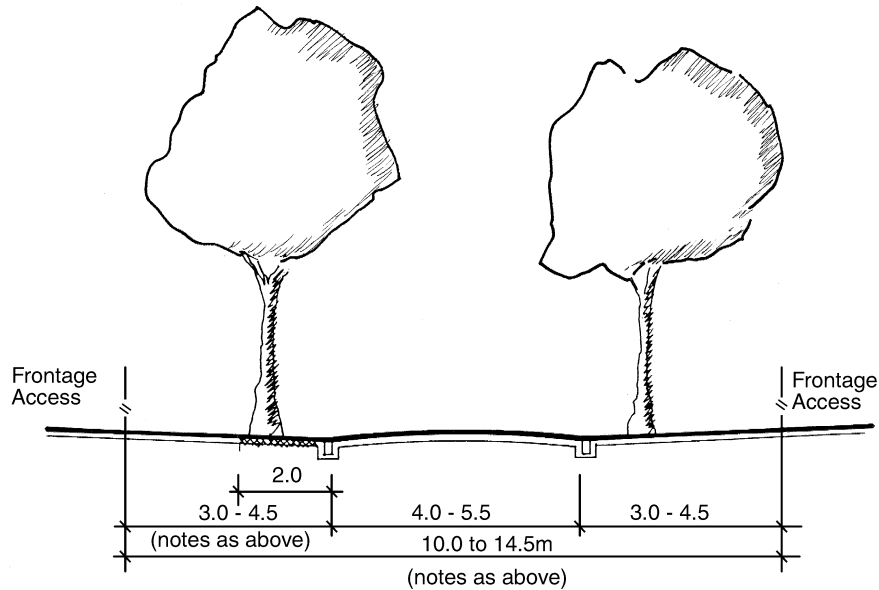
carriageway width of 6m is required for rear laneways.

For access lanes the carriageway treatment is distinguished by features which give the appearance of an extension to the abutting domestic driveways. This may include the use of surface treatments such as brick paving, raised levels or meandering alignments.

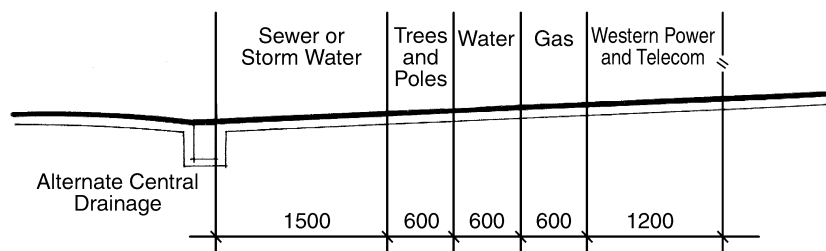
2.4 For access places and access lanes a range of 4-5.5m may be employed for the carriageway, as shown on Figure 3, provided that adequate parking bays are provided. Where four dwellings or less are served, widths as low as 3 metres may be acceptable. A minimum



**Access Lane**



**Access Place**



**Figure 3. Typical Cross Section - Access Lane and Access Place**

Verge widths of 4.5m would be the maximum required, where sewer/stormwater services and overhead power needs to be accommodated. Where sewers are at the rear of lots and underground power is installed, verges could be reduced to 3m providing there is sufficient space to accommodate parking bays, services and large canopied mature trees to the specification of the local government. Verge widths may be reduced to 1.5m where there is no frontage, or to zero where bollard protection is employed (e.g. in rear laneways).

### 3. PARKING

- 3.1 Car parking along local distributors should be provided off the carriageway where necessary as shown in alternative A on Figure 4. It is likely that the demand will occur only with uses such as schools and shops.
- 3.2 On access ways car parking will be required for occasional visitors to dwellings and for service vehicles, and should be accommodated on private driveways, the road carriageway, or the verge. Any non-residential use such as public open space that may access from the access way should be provided with localised parking bays within the road reserve as shown on Figure 4.

3.3 In access places and access lanes car parking will be required only for occasional visitors and service vehicles, and should be accommodated on private driveways, the carriageway of the road, or the verge. Within the carriageway, short-term spaces may be created by localised widening and clearly delineated by contrasting pavement colour or surface texture as shown in Figure 4.

### 4. DESIGN OF ACCESS PLACES AND ACCESS LANES

4.1 Access places and access lanes should be designed as shared pedestrian and vehicular spaces. The following design features could be incorporated, as shown on Figure 5.

- An entry statement to signify the change in road status.
- Changed pavement surface from the adjacent access way.
- Flush kerbs are required, and kerbs need not be parallel. The pavement surface should be either brick paved or coloured asphalt, which has some advantage in

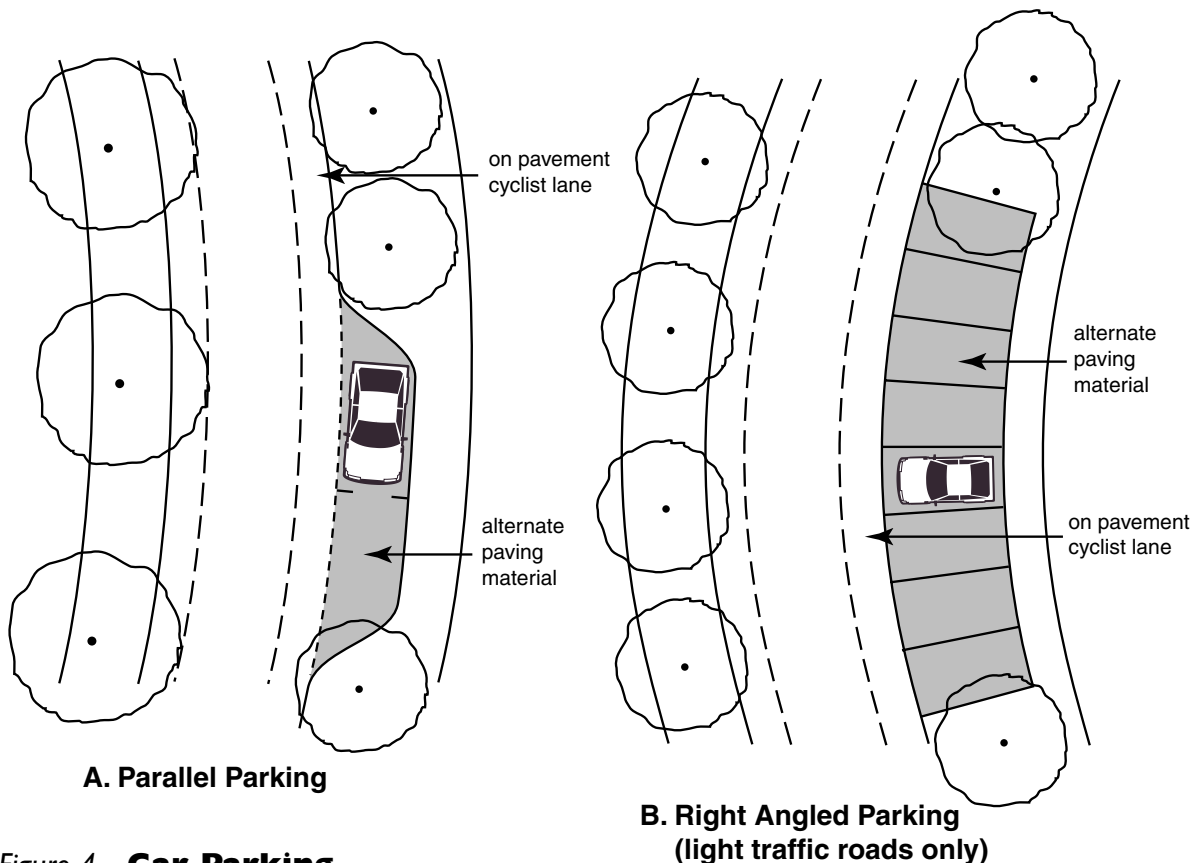
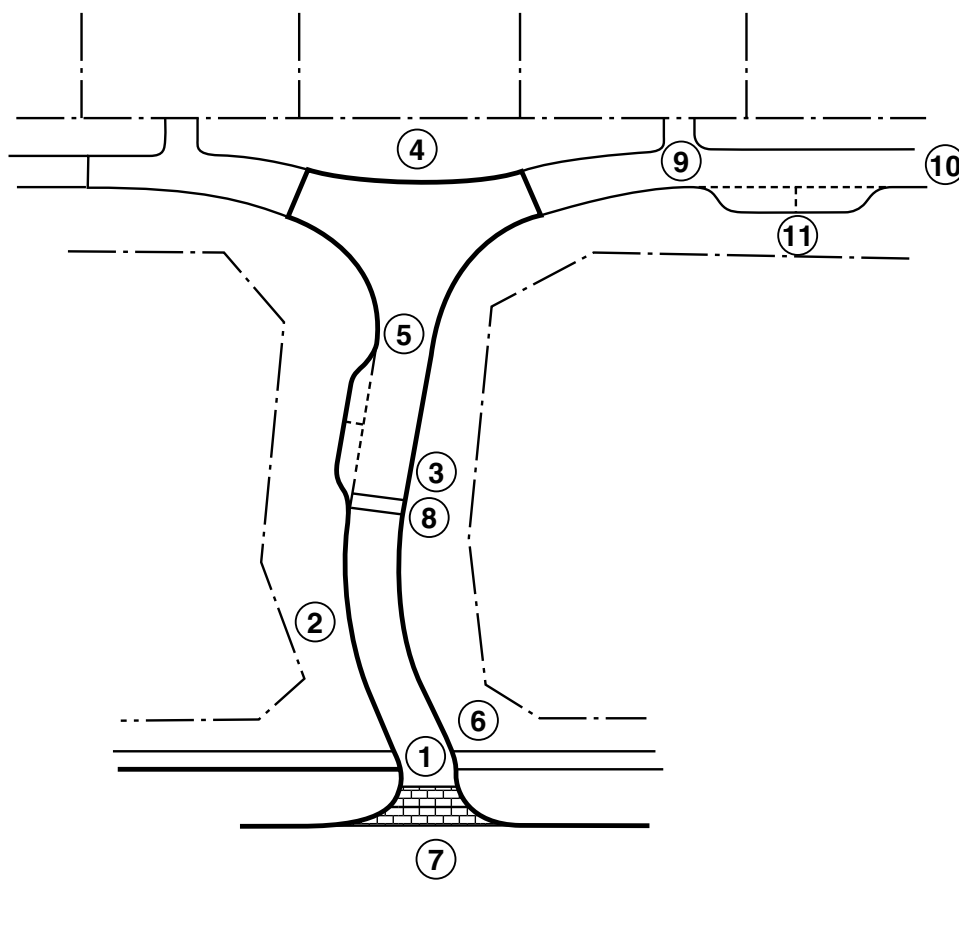


Figure 4. Car Parking



### Characteristics of an Access Place/Access Lane

1. Shared use pedestrian / vehicle surface indicated by change of colour or surface texture that contrasts with other roads.
2. No prominent kerbs. Flush carriageway edge signals that pavement is communal territory (shared) and not exclusively to cars.
3. Verges do not show strong demarcation between carriageway and property boundaries.
4. Economical turning spaces with irregularly shaped rounded outlines.
5. Centre drainage preferred to avoid the need of prominent kerbs.
6. Access place has no separate footpath.
7. Portal effect entry treatment signifies to driver entry to shared pedestrian vehicle surface.
8. Speed control devices every 80m ensure that vehicles do not exceed safe speed of approx. 20km/h.
9. Access lanes should have predetermined driveways for each dwelling.
10. If linked through to next access place no "rat-run" should result.
11. Parallel parking should be provided at the rate of one bay for every two dwellings where lanes connect through or where four or more dwellings are served.

Figure 5. **Design of Access Places and Access Lanes**

terms of maintenance. Pavers can be used to form rumble strips and raised plateaus, and to separately define parking bays so as to avoid large uniform expanses of car dominated road space.

- Drainage should run along the centre of the carriageway to allow the use of flush kerbing.

- 4.2 Turning areas will be required at the head of linear access places. An informal configuration, avoiding straight edges and sharp corners, will minimise the hard edge between the carriageway and verge. Dimensions should be closely related to the length and purpose of the access place. Sufficient turning areas/manoeuvring space should be provided to accommodate service vehicle access (i.e. garbage collection trucks). Recommended dimensions for turning areas are shown on Figure 6.

## 5. INTERSECTIONS

- 5.1 Most residential intersections considered in the Residential Road Planning Policy are priority junctions or roundabouts. Visibility requirements are only considered here as they affect subdivision layout and verge planting, and these requirements dictate that intersections should not be located over crests or on the insides of curves.
- 5.2 Priority junctions are the most common type of intersection in urban areas, and overall turning movements are relatively light. For the purpose of geometric design, driveways may be regarded as simple priority junctions.
- 5.3 Roundabouts operate as a one-way circulatory system around a central island, where traffic entering gives way to traffic on the right. They are flexible in operation, although best when traffic is well balanced between the arms. Maintenance costs and vehicle operating delays are generally lower than for other types of intersection, particularly those with signal control, as a free flow of traffic is permitted when demand is light. In addition, roundabouts can be used to restrict vehicle speed on residential streets.
- 5.4 Simple four-way intersections with low traffic flows should be used only in specific circumstances such as higher density modified grid layouts near railway stations, transfer stations and city/sub-regional centres where a

more robust and permeable road system is required. Stop signs will be needed to define priority.

- 5.5 Intersections between local distributors and other roads should be designed as follows:

- Between district distributors and local distributors, at grade priority junctions with channelisation are usual. At more heavily trafficked junctions where the risk of accidents is greater, signal controls or properly designed roundabouts may be necessary.
- Between local distributors roundabouts are particularly suitable as all roads will be of equal status, although priority junctions are also acceptable.
- Between local distributors and access ways priority junctions and roundabouts are usual. Roundabouts can also help to control vehicle speeds on local distributors where lot frontages abut. The entrance to the access way should emphasise the change from traffic to residential environments through the use of rumble strips, narrowing of the carriageway, raised thresholds, or other entry statements.
- Priority junctions or small informal roundabouts would be appropriate at intersections between access ways and access places. A change in pavement surface should signal to drivers the entry into a lower hierarchical level of residential road, and a narrower carriageway width and threshold treatments such as speed humps, rumble strips, or plateaus may also be appropriate.
- Access places will not normally intersect with local distributors, but where connection through an access way is not possible, the design standards for an intersection with an access way will apply.



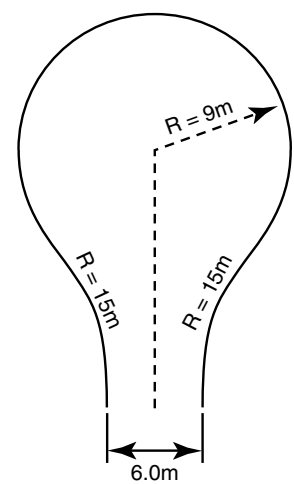
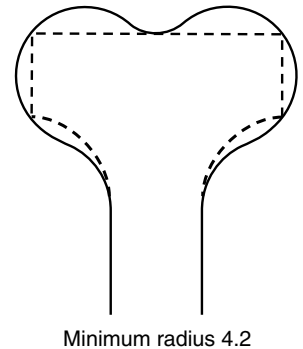
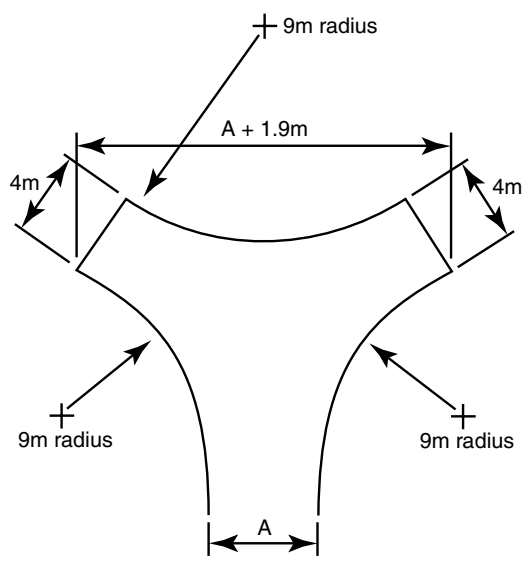
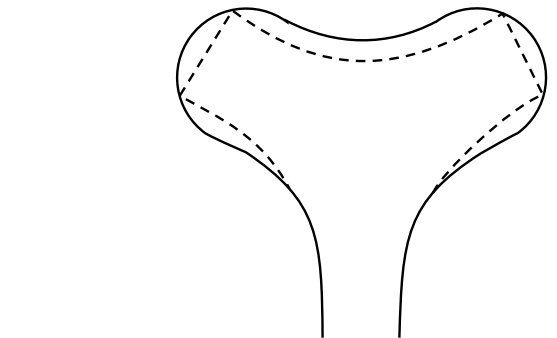
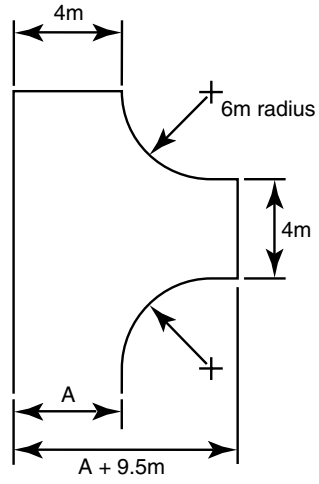
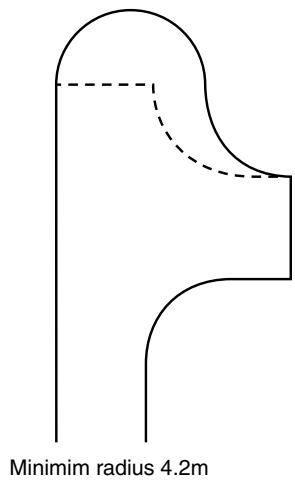
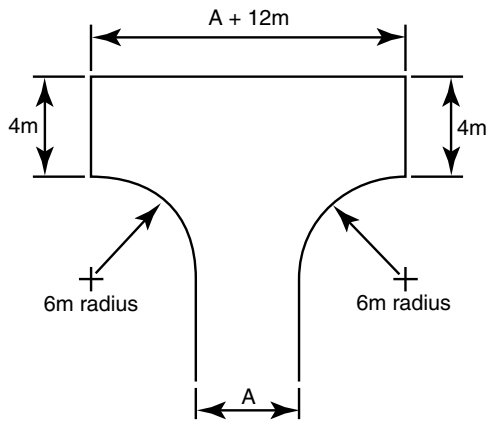


Figure 6. Recommended Turning Head Dimensions

## APPENDIX ONE - Summary of Planning Criteria for the Design of Residential Roads

	Local	Distributor	Access Way	Access Place	Access Lanes & Rear Laneways
	Neighbourhood	Foreshore Access			
<b>Network Role</b>	Serves Neighbourhood	Neighbourhood Plus External Recreation	Minor Tributary	Housing Access Only	Rear or direct Housing Access
<b>Degree of Connectivity</b>	Moderate Within Neighbourhood	Discontinuous Along Foreshore	Very Low	Through or None	Through or None
<b>Connects with</b>	District Distributors Other Local Distributors Access Ways	As for Local Distributor	Local Distributors Other Access Ways Access Place Occasionally Access Lane	Access Way Other Access Places Access Lane Occasionally Local Distributors	Access Places Access Way or Occasionally Local Distributors
<b>Max. Desirable Traffic Volume Vpd</b>	3,000 with Direct Lot Frontage 7,000 with direct lot frontage & frontage treatments	Below 10,000 Near Distributor Network 3,000 - 5,000 along foreshore	800 (Note 3) 1,200 where loop connects to local distributors	200	100 (Note 7)
<b>Max. Desirable Opr Speed Kmh</b>	50	50	30	20 or less	20 or less
<b>Speed for sight distance criteria km/h</b>	60	60	40	40	20
<b>Carriageways Edges</b>	Conventional Kerb	Conventional Kerb	Mountable Kerb	Flush Edge	Flush
<b>Shared Pedestrian/ Vehicle Carriageway</b>	No	No	No	Yes	Yes
<b>Separate dual-use path/footpath provision</b>	Dual-use path on one side and/or footpath on one side	Dual-use path on one side and/or footpath on one side	One side (footpaths)	No	No
<b>Bus Route</b>	Yes	Yes	Occasional Mini bus (Note 5)	No	No
<b>Acceptable carriageways widths (excluding parking areas)</b>	6-10m or 4.5m each (dual) 7m or 5.0m each for bus (dual)	6 - 10m or 4.5m each (dual) 7.4m or 5.0m each for bus (dual)	5.5 - 6M	4 - 5.5m where 4 dwellings or less are served 3m acceptable	4 - 5.5m. for access lanes where 4 dwellings or less are served 3m acceptable. Min. Of 6m for rear laneways.
<b>Verge width</b>	Minimum 4.2 - 6.3M	Minimum 4.2 - 6.3M	To accomm. 3 - 4.5M	3 - 4.5M	Services 3 - 4.5m (note 8)
<b>Total road Reserve widths</b>	14.4 - 23M Min 16m for bus (Note 6)	14.4 - 23M Min 16m for bus (Note 6)	11.5 - 15M	10 - 14.5M (less with one side frontage)	6 - 13.5m (note 4)
<b>Provision for parking</b>	On carriageway Off Carriageway In Widened Parking Strips	On carriageway Off Carriageway In Widened Parking Strips	On carriageway Off Carriageway In Widened Parking Strips	In road Parking Bays.	In road Parking Bays. 1 for every 2 Lots above 4 Lots

**All parking areas have contrasting surface finish to carriageway**

**Notes:**

- Any residential road design which meets the criteria contained within this table is deemed to comply with the new policy. These standards are, however, guidelines only and proponents may argue for variation in individual cases.
- AUSTROADS standards to apply, together with Local Gov't Engineers Requirements under the Local Government Act subject to negotiation and appeal.
- Cul-de-sac systems linking into a loop system may generate a total of 1,200vpd where the two ends of the loop meet the next level of road.
- 6 metres is considered acceptable where lots back a laneway. Where frontage is proposed, a minimum width of 13.5 metres should apply.
- Suitable for mini-bus access but not for normal line-haul bus routes.
- CAPS may require up to 30 - 32m if provided both sides.
- Non-continuous access lanes may be connected (DUP) for permeability.
- Verge width can be reduced to 1.5m where no frontage, or to zero width where bollard protection is employed.