

Transit boulevard: A new road type for Sydney's Growth Centres

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Abstract

The North West and South West Growth Centres on Sydney's outer periphery were identified for greenfield release by the NSW Government in 2005, with the first precincts released for planning in 2006. The Growth Centres will eventually provide over 180,000 dwellings and \$7.5 billion in infrastructure for about half a million new residents within two Centres, similar in size to two small cities. As these new centres are being planned and built on the outskirts of Sydney, it became apparent that a new type of road was required. The new type of road was needed to move large numbers of vehicles while accommodating the safety needs and amenity of adjacent land uses, such as residents and shoppers who use the road for short local journeys and pedestrian and cyclist movements. Overall, the roads need to be safe for all road users. The Roads and Traffic Authority of NSW has identified and developed criteria for a hierarchy of road types, including the Transit Boulevard, which will provide guidance in the development of the road transport system in these greenfield areas as well as help to manage the road safety of all road users. While some roads already exist and there is, in some locations, some rail infrastructure, some roads have been identified for widening and other roads will be provided on undeveloped land. Expansion of the existing rail infrastructure is also proposed. There is a unique opportunity, therefore, to take advantage of early planning to help ensure that a road safety problem is not generated, and that communities are places where residents and visitors alike can feel and are safe in their every-day pursuits.

Key words: Road safety, partnerships, urban design, land use planning

Sydney's Growth Centres

The NSW Government established the North West and South West Growth Centres in 2005 to streamline the supply of greenfield land for urban development and coordinate the delivery of infrastructure in these areas through the NSW Department of Planning. The Growth Centres' aim is to prepare for and manage Sydney's growth over the next 25 to 30 years. The *Metropolitan Plan for Sydney 2036* identified a need for 770,000 new homes in Sydney between 2006 and 2036. 230,000 of these are to be in new release areas. The NSW Government aims to supply land linked to key infrastructure, supported by all the facilities required of a thriving community. These include parks, bushland, health and education facilities, shops, services and public transport. This is achieved through an approach called Precinct Planning which coordinates planning and delivery of water, wastewater, recycled water, power, transport and other services in time to service new communities. Precinct

Planning is combined with regional and local infrastructure planning to assist in the supply of land for housing and to ensure jobs are provided close to where people live. It works from a 'whole of government' perspective, ensuring infrastructure provision can be incorporated into wider State agency planning and budgets so that elements like new roads and public transport as well as other necessary facilities are in place for residents of the Growth Centres. Sydney's North West and South West Growth Centres will accommodate over 180,000 new dwellings and land for employment for around half a million new residents over the next 25 to 30 years. The location of the Growth Centres is shown in Figure 1, below.



Figure 1: Sydney's Growth Centres

Source: Growth Centres web site at <http://www.gcc.nsw.gov.au/> (June 2011)

North West Growth Centre

The North West Growth Centre is approximately 10,000 hectares – the size of Wellington, New Zealand. It is in the local government areas of Baulkham Hills, Blacktown and Hawkesbury. It will contain about 70,000 new dwellings and is made up of sixteen precincts which will be progressively planned and released for development over the next 25 to 30 years. Its major centre is Rouse Hill and it will be serviced by a new North West rail link.

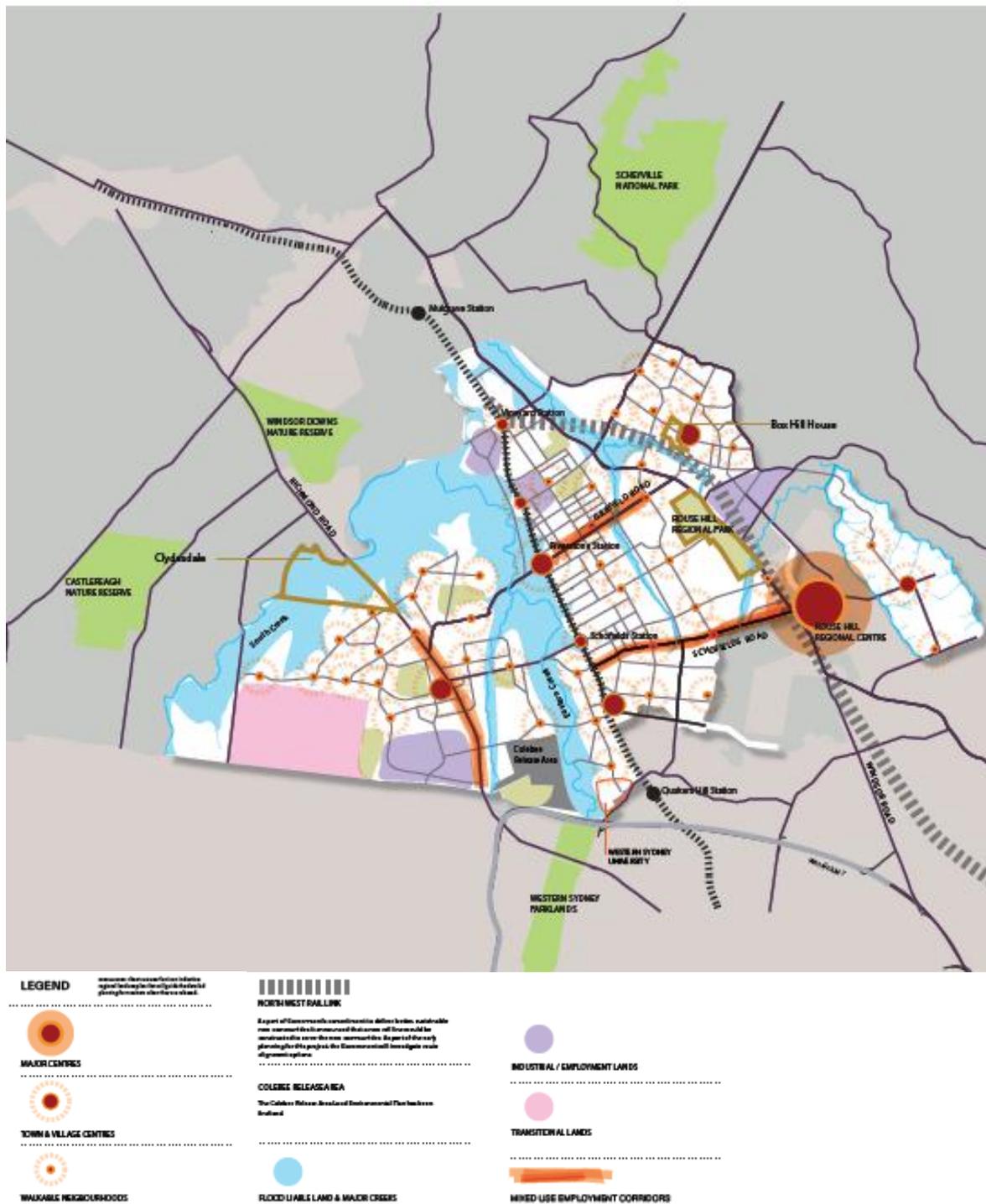


Figure 2: North West Growth Centre structure plan

Source: Growth Centres web site at <http://www.gcc.nsw.gov.au/> (June 2011)

South West Growth Centre

This Growth Centre is within the local government areas of Liverpool, Camden and Campbelltown and will be around the same size as Canberra, Australia's national capital. It comprises 18 precincts, which will be progressively planned and released for development over the next 25 to 30 years, and is approximately 17,000 hectares in area. Its major centre is Leppington and it will be serviced by a new South West Rail Link. It has capacity for around 110,000 new dwellings.

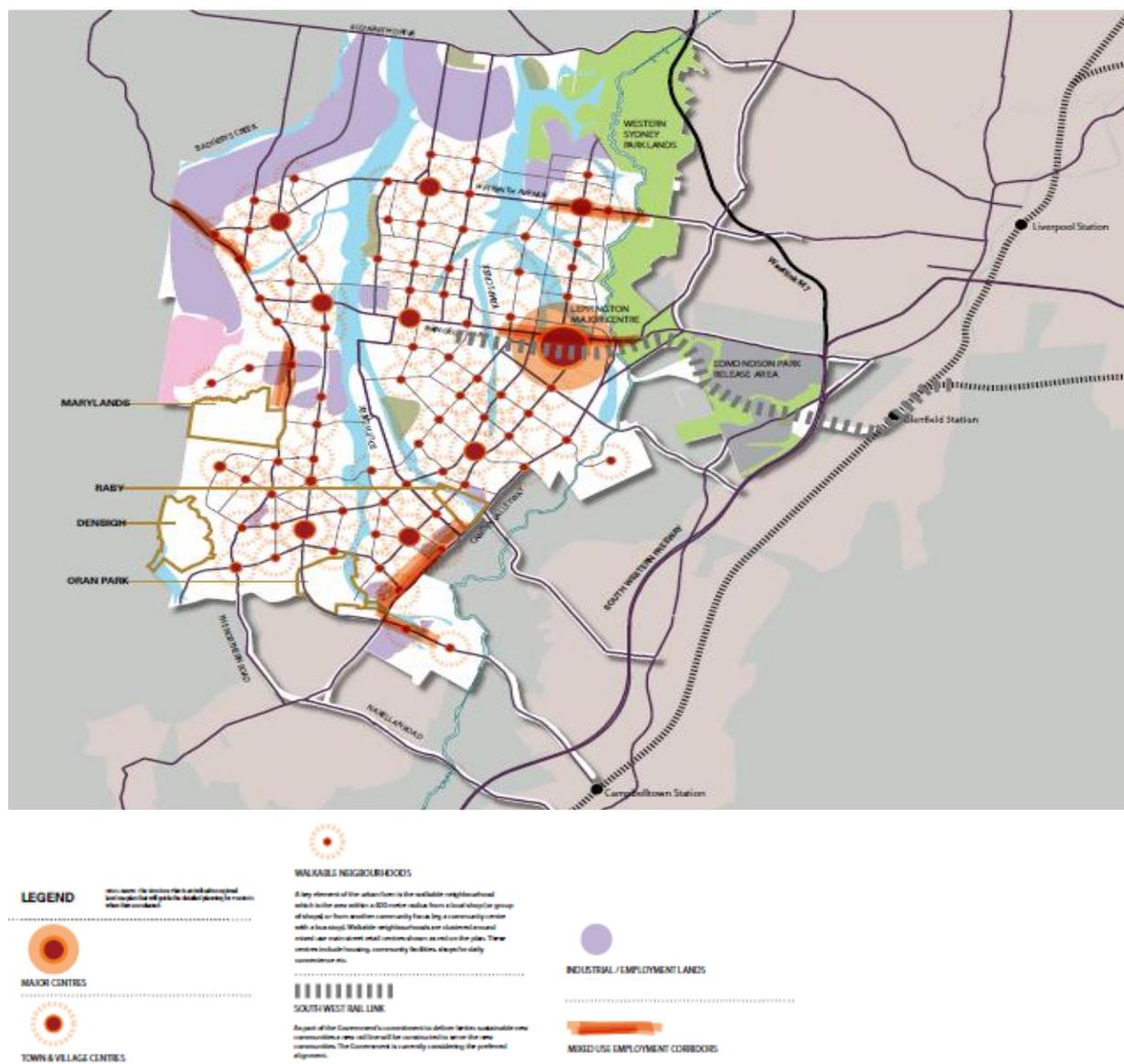


Figure 3: South West Growth Centre structure plan
 Source: Growth Centres web site at <http://www.gcc.nsw.gov.au/> (June 2011)

As can be identified in the above structure plans, there are many stakeholders with an interest in the development of the Growth Centres and therefore a need for the NSW Department of Planning to ensure that all stakeholders are included in all steps of the development of the Centres. Stakeholders include local government bodies, landholders, property developers including the NSW Government's property development agency Landcom and major transport organisations such as the Roads and Traffic Authority and rail and bus transport agencies.

Growth Centres Road Framework

The Roads and Traffic Authority of NSW, being a major provider and administrator of transport infrastructure and the road authority for a number of roads in the Growth Centres, has taken the initiative of developing a framework to help guide the development of the major road network in the Centres. The *Growth Centres Road*

Framework (RTA 2006) identifies a hierarchy of transport routes covering a number of road types including:

1. **Principal Arterials** – major roads linking regions that provide for higher volumes of traffic at higher speeds. Windsor Road and Richmond Road would be Principal Arterial roads in the North West Growth Centre. Camden Valley Way would fit this classification in the South West Growth Centre. Principal Arterials have a high order transport function and do not accommodate access to adjacent land uses and would, generally, have speed limits of 70 or 80km/h.
2. **Transit Boulevards** – are major roads linking to Principal Arterials and incorporate significant public transport facilities. Transit Boulevards give a balance between transport and local accessibility functions. Transit Boulevards in the North West Growth Centre include Schofields Road and Garfield Road. Fifteenth Avenue and Croatia Avenue would be in classification in the South West Growth Centre. Speed limits of 50 and 60km/h would be posted on a Transit Boulevard.
3. **Sub-Arterials** – roads linking with Transit Boulevards. They may be two lanes or four lanes with parking facilities in commercial or built-up areas and would, generally, have speed limits of 50km/h maximum.

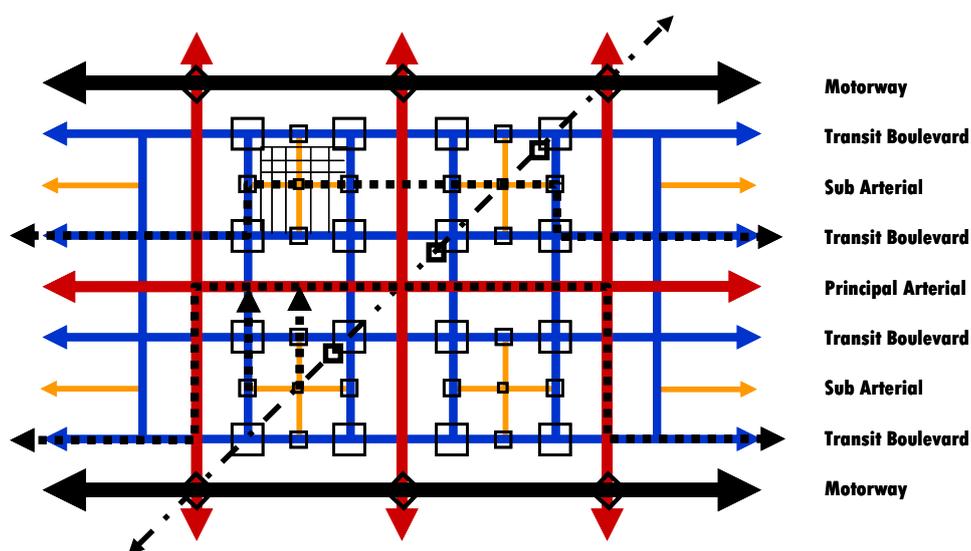


Figure 4. Main road hierarchy with bus routes, rail lines and stations, local roads and town centres

These road types are distinguished through a number of criteria including clear zone width, foot path and cycle path provision and median widths. Further, the differences are reinforced by variation in road corridor vegetation planting. For example, Transit Boulevards incorporate median tree planting as well as the roadside tree planting associated with Principal Arterials. In applying this hierarchy, consideration must be given to the issues of:

1. Public transport integration, particularly for buses at different stages in the development of the Growth Centres, but also for rail transport which will provide major inter-regional commuter links for both Growth Centres
2. Carriage of freight, employment or commercial development within the Growth Centres
3. Road intersection typologies for different conditions

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4. Service road typologies for different conditions
5. Bicycle and pedestrian integration
6. Vegetation for medians, verges and intersections
7. Integration of ecological and open space systems along and across corridors.

The hierarchy was developed with the principles identified in Figure 5, below:

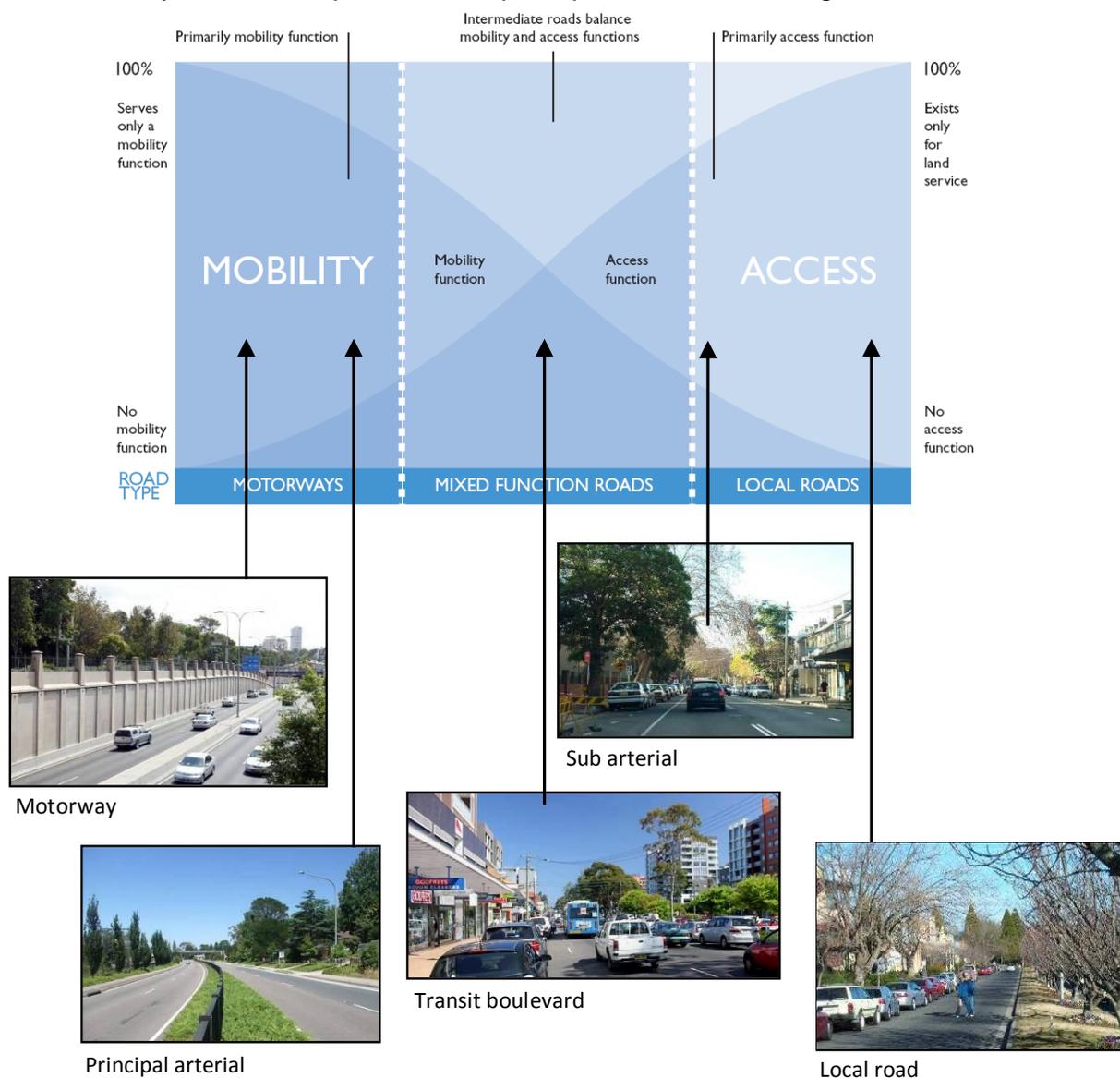


Figure 5: Road type and function

Adapted from Austroads Guide to Traffic Engineering Practice Part 9.

In the Growth Centres the opportunity exists to clarify the functions of the various roads that will be developed. There is also the opportunity to avoid the conflicts sometimes apparent on more traditional roads where the function has changed over time. Thus the major roads will be developed as Principal Arterial, Transit Boulevard or Sub Arterial.

Attributes of the Transit Boulevard

- Transit Boulevards offer a more conducive environment for community activity. Shops, offices and higher density residential uses are appropriate along these roads, with access to the retail / business areas near the Principal Arterials. If adjacent to the Transit Boulevard, housing should be set back behind service roads where possible. Pedestrian activity would be higher than for Principal Arterials.
- Transit Boulevards should, for the most part, have a posted speed of 60km/h or 50 km/h. However, a posting of 50km/h would be desirable in the town centre, thus improving safety and amenity for adjacent land uses, pedestrians and cyclists.
- Footpaths should be set behind a kerb and a landscape buffer with at-grade crossings provided at intersections where necessary.
- Footpath dining may be encouraged in some locations.
- Pedestrian movement along the Transit Boulevard is encouraged. More frequent crossings of the Transit Boulevard, and bus stops, are also provided for pedestrians to help facilitate support for public transport.
- Cycling may be on road, in a wide kerbside lane, or shared within the footpath.



Figure 6: Transit Boulevard layout and visualisation

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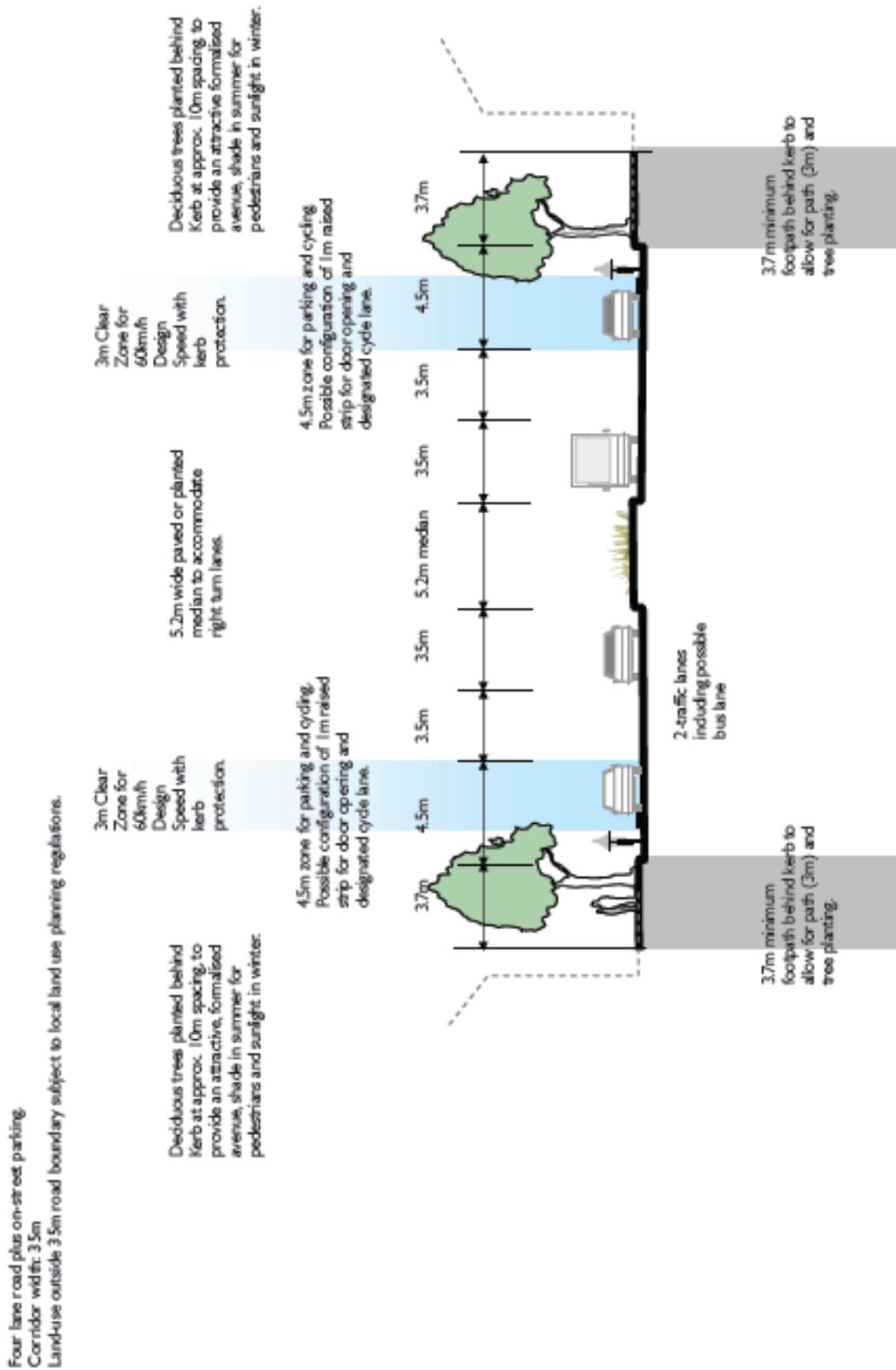
- Transit Boulevards would generally be differentiated by median tree planting in addition to verge trees – again outside appropriate clear zones. Lower shrubs will be planted in the clear zones (Note median planting in Figure 9). Tall Cumberland Plain species would be used in rural areas. Deciduous trees should be considered in urban areas for light (in winter), shade (in summer) and to provide a different character in the urban areas. Note the deciduous trees in the road corridor on Anzac Parade, Kensington in Sydney's south east as depicted in Figure 7, below.



Figure 7: An example of the Transit Boulevard – Anzac Parade in Sydney

Source: Growth Centres Road Framework (RTA 2006).

Cross-sections in Figures 8 and 9 are provided as a guide for corridor widths, integrating the various elements of the road infrastructure and identifying public utility zones. Dimensions shown are indicative and subject to refinement during detail design development. The differing road configurations stem from different design standards suitable for posted speeds and allow for variation in the design of the road. These variations help provide a character to the road which reinforces understanding of its role and posted speed, helps create a strong road and street structure for the Growth Centres and helps provide an interesting visual experience. Although RTA does not have formal control over the planning of adjacent land uses, the cross-sections illustrate possible land uses deemed suitable for the road type and its environmental effects. All of these issues and principles need to be taken into account in the planning, scope, design, costing and maintenance of a transport network for the Growth Centres. Government agencies, local government and developers all have responsibilities to work together to obtain the best outcomes for the Growth Centres and having the hierarchy of road types in place assists in delivering this.



All dimensions shown are indicative. The cross sections are not to scale and only provided as a guide for the design development of the road corridor.

Figure 9: Typical cross section of a Transit Boulevard (Built up areas)
Posted speed 50km/h

Source: Growth Centres Road Framework (RTA 2006).

Conclusion

Sydney's Growth Centres will be developed over a number of years. The hierarchy of road types, including the Transit Boulevard, identified and detailed in the *Growth Centres Road Framework* (RTA 2006) provides a strong foundation for use by the relevant road authority, whether the Roads and Traffic Authority of NSW or the local council. The Framework sets out clear principles and objectives to be observed in delivering transport infrastructure.

Of significant importance is the need to identify and plan, at the strategic and concept stages of infrastructure provision, for road safety for all road users as well as the community through which the Transit Boulevard passes. Too frequently road safety is relegated in importance in the development and provision of infrastructure, such as in large scale greenfield development areas such as Sydney's Growth Centres, or even in small scale property developments. To consider road safety for all road users and accommodate it in the road infrastructure at an early stage means that the community through which the road passes is a better place to live, adjacent land uses are more accessible and, hence, more viable and the community is not faced with the cost of retro-fitting road safety features to the infrastructure.

The Transit Boulevard provides a new road type which balances transport and community use and provides a spine for public transport options. The collaborative development of the *Growth Centres Road Framework* (RTA 2006) document by road design, urban design, road safety and strategic planning personnel means there is a shared commitment to ensuring the objectives set down in that document.

This shared commitment must be supported by a partnership of all agents in planning and delivery of road infrastructure in these cities of our future.

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