



Planning &
Infrastructure

LIVERPOOL GROWTH CENTRE PRECINCTS

Development Control Plan

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1.0

Introduction

1.1 Name and application of this plan

This Development Control Plan (DCP) is the Liverpool Growth Centre Precincts Development Control Plan (also referred to as the DCP). It has been prepared pursuant to the provisions of Section 72 of the *Environmental Planning and Assessment Act 1979*.

This DCP was adopted by the Deputy Director General Planning Strategies, Housing and Infrastructure (under delegation from the Director-General) of the Department of Planning & Infrastructure on 21 March 2013 and came into force on 3 April 2013. The South West Growth Centre Precincts are shown in **Figure 1-1**. This DCP applies to Precincts, or parts of Precincts, within Liverpool Local Government Area where precinct planning has been completed, as shown on **Figure 1-1** and listed below:

- The Austral Precinct, as shown in the Land Application Map in Schedule One.
- The Leppington North Precinct, within Liverpool Local Government Area, as shown in the Land Application Map in Schedule One.

Notes: *The Leppington Major Centre is part of the Leppington North Precinct. Specific controls for the Leppington Major Centre are contained in Schedule Two, and should be read in conjunction with Schedule One.*

Some Growth Centre Precincts are partly within Liverpool local government area and partly within Camden local government area. Applicants should ensure that they refer to the DCP applying to the local government area where their development is situated.

1.2 Purpose of this plan

The purpose of this DCP is to:

- a. Communicate the planning, design and environmental objectives and controls against which the Consent Authority will assess Development Applications (DAs);
- b. Consolidate and simplify the planning controls for the Precincts in the South West Growth Centre;
- c. Ensure the orderly, efficient and environmentally sensitive development of the Precincts as envisaged by the South West Growth Centre Structure Plan and *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (the Growth Centres SEPP);
- d. Promote high quality urban design outcomes within the context of environmental, social and economic sustainability.

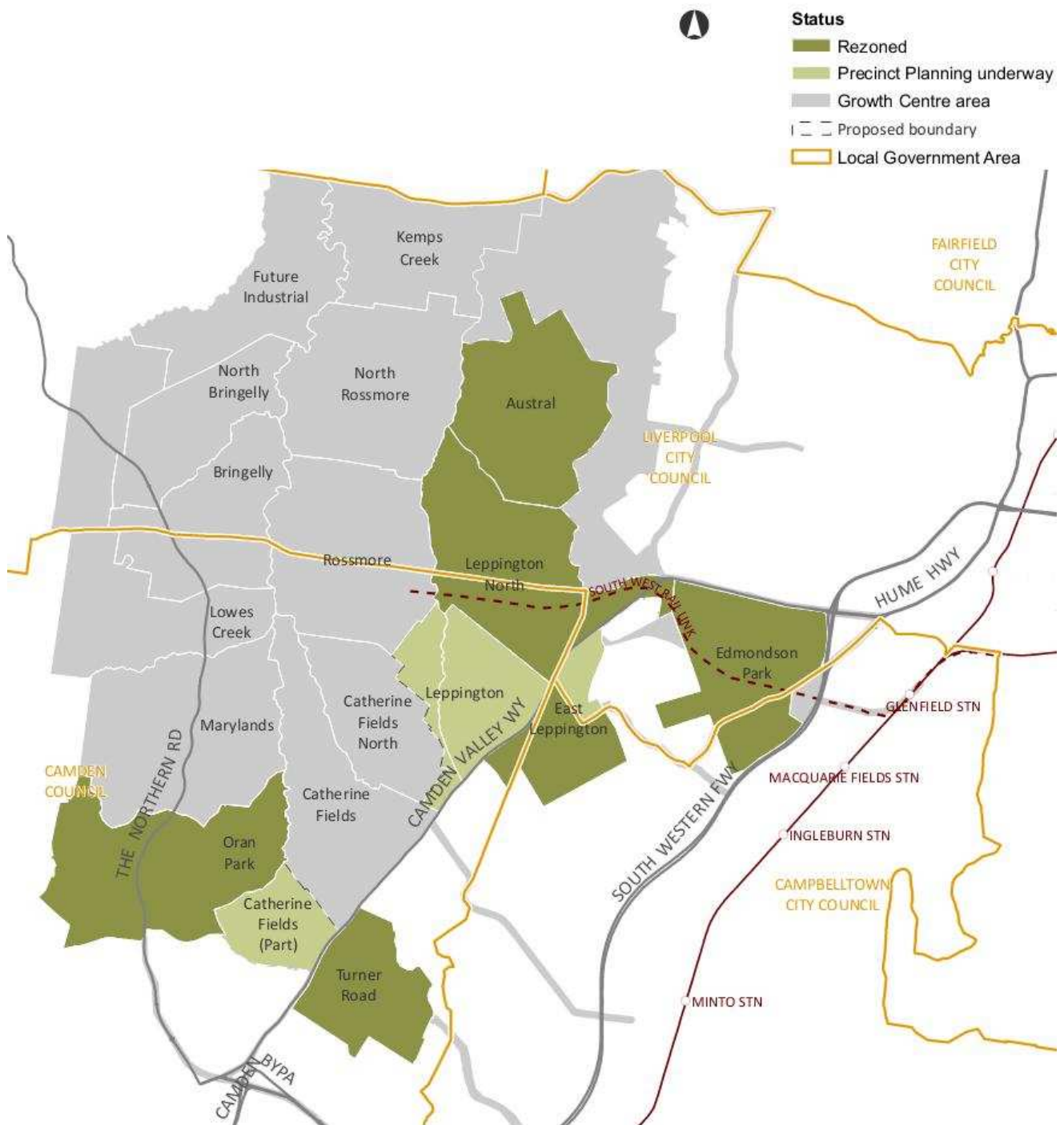


Figure 1-1: South West Growth Centre Precincts

1.3 Using this DCP

1.3.1 Structure of this DCP

The main body of this DCP is structured in six sections containing objectives and controls which apply to all development in the Growth Centre Precincts to which this DCP applies.

As Precinct Planning is completed for each Precinct, a Schedule is added to this DCP with Precinct Specific controls in addition to the controls within the main body of the DCP. In the event of an inconsistency between a Precinct's Schedule and the main body of this DCP, the Precinct's Schedule prevails. Appendices provide more detailed guidance on specific issues. **Table 1-1** provides a summary of the content of each of the sections and the appendices.

Table 1-1: Structure of the DCP

Part	Summary
1 – Introduction	Sets out the aims and objectives of the DCP, identifies the land to which the DCP applies, explains the structure of the document, the relationship of the DCP to other planning documents, and explains procedures for exempt and complying development and submitting a development application.
2 – Precinct Planning Outcomes	Sets out the general structural elements of the Indicative Layout Plan which development should comply with. Also establishes matters to be addressed when carrying out a site analysis to inform the design of subdivisions and other developments. This part of the DCP provides the rationale for the more detailed and specific planning controls in the parts that follow.
3 – Neighbourhood and subdivision design	Provides objectives and controls related to residential subdivision design including the residential character, road layout, access to arterial and sub-arterial roads, neighbourhood design, lot orientation and solar access.
4 – Development in the residential zones	Establishes the objectives and controls that guide residential development, including residential design controls for dwelling houses, attached dwellings, semi detached dwellings, multi unit housing, secondary dwellings, dual occupancies, residential flat buildings and shop top housing. Also covers residential amenity controls such as streetscape, safety, visual and acoustic privacy, floor to ceiling heights, sustainable building design, fencing, waste management and site services. This section also contains controls applying to non-residential development in residential zones, such as child care centres, neighbourhood shops, home businesses, schools and other community uses.
5 – Town Centres and Neighbourhood Centres Development Controls	Provides objectives, controls and design principles for the town centres and neighbourhood centres, including the core retail and commercial area and the mixed use fringe areas.
6 – Employment Lands Development Controls	Provides controls to guide the development of industrial areas and business parks.
Precinct Schedules	A schedule for each Precinct that provides additional objectives and controls which are precinct specific, as well as precinct specific maps which are referred to throughout the main body of this DCP. Note that a separate schedule (Schedule 2) contains controls for the Leppington Major Centre. This is because it is the only major centre in the SWGC and requires specific controls.
Appendix A – Glossary	Explains the terms used in the DCP.
Appendix B – Salinity management plan	Provides details to guide subdivision and building development applications and works, to minimise the risk of developments increasing the risk of, and impacts from, soil and groundwater salinity.
Appendix C – Prescribed trees and preferred species	Identifies trees that are subject to the tree preservation provisions of the Precinct Plans, and provides a list of plant species that are preferred for use in landscaping within the Precinct.

Additional notes are provided throughout this document. These notes are not part of the formal provisions of the DCP, but are intended to provide additional guidance and explanation of the provisions. If further

guidance is required on the interpretation of provisions in the DCP, readers should refer to the definitions or contact Council for advice.

1.3.2 How to use this DCP

Table 1-2 summarises the controls that are applicable to the main types of development that are permissible in this DCP.

Table 1-2: Guide to the controls in this DCP

Relevant DCP clause	Residential Subdivision	Industrial Subdivision	Dwelling House	Dual Occupancy	Secondary Dwelling	Attached Dwelling	Semi-Detached Dwellings	Multi Dwelling Housing	Residential Flat Buildings	Non-residential Development **	Shop top Housing	Retail/ Commercial Development	Industrial Development
Part 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Part 2	✓	✓											
Part 3	✓												
Clause 4.1			✓	✓	✓	✓	✓	✓	✓	✓	✓		
Clause 4.2			✓	✓	✓	✓	✓	✓	✓	✓	✓		
Clause 4.3			✓	✓	✓	✓	✓	✓	✓	✓	✓		
Clause 4.4			✓	✓	✓	✓	✓						
Clause 4.5				✓	✓	✓							
Clause 4.6								✓	✓				
Clause 4.7										✓			
Part 5											✓***	✓	
Part 6		✓											✓
Precinct Specific Schedule*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Appendices	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes:

* Additional precinct specific controls may also be contained in the relevant Precinct Schedules.

** Applies to non-residential development in land within the Residential zones (R1, R2, R3 & R4)

*** If located on land zoned B2 Local Centre or B4 Mixed Use

1.4 Relationship to other planning documents

1.4.1 The Act and the Growth Centres SEPP

This DCP has been prepared under the *Environmental Planning and Assessment Act, 1979*. It has been prepared to provide additional objectives, controls and guidance to applicants proposing to undertake development in the South West Growth Centre Precincts, and for Council reference in the assessment of development applications. It should be read in conjunction with the Growth Centres SEPP, in particular the specific Precinct Plans which are included as Appendices of the SEPP. The Growth Centres SEPP and the relevant Precinct Plan provide the statutory planning controls for development in the Precinct. This DCP is consistent with and supports those controls by providing more detail in relation to how development is to occur in the Precinct.

1.4.2 Liverpool Council planning documents

Liverpool Local Environmental Plan 2008 and the Liverpool Development Control Plan 2008 do not apply to land that a Precinct Plan applies to, except if specifically referred to in the Growth Centres SEPP or this DCP. Some other design standards and guidelines of Council do continue to apply, such as the Council's Engineering Specifications. Where other policies, procedures and guidelines apply to the South West Growth Centre Precincts, these are specifically referred to in the relevant clauses of this DCP.

1.4.3 NSW and Commonwealth Biodiversity Assessments

Growth Centres Biodiversity Certification

The *Threatened Species Conservation Act 1995* (the TSC Act) provides for the protection of threatened species, populations, endangered ecological communities, and critical habitat in NSW. Typically, threatened species issues are addressed during both the rezoning of land and when development applications are submitted and assessed by Council. However, the TSC Act also provides for planning instruments to be "certified", meaning that the assessment of threatened species is done at the rezoning stage and does not need to be further considered at the development application stage. This approach provides for more strategic assessment and management of threatened species issues, and streamlines the development application process.

Biodiversity Certification was conferred upon the Growth Centres SEPP on 14 December 2007 via the gazettal of a Biodiversity Certification Order signed by the Minister for Climate Change and the Environment. The Order requires 2,000 ha of "existing native vegetation" (ENV) to be retained across the Growth Centres. Any clearing of ENV within Non-Certified Areas will be required to undertake a TSC assessment and vegetation removal may need to be offset in accordance with the Biodiversity Certification Ministerial Order.

All Indicative Layout Plans, Precinct Plans and this DCP have been prepared in accordance with the Biodiversity Certification Order. The majority of land within the Growth Centre Precincts is certified, meaning

that development can occur without the need for further assessment under the TSC Act. The relevant Precinct Plans contain controls to restrict the clearing of “Existing Native Vegetation” and this is the principle mechanism for ensuring consistency with the Biodiversity Certification Order. This DCP contains other objectives and controls in relation to the protection and enhancement of native vegetation, consistent with the Biodiversity Certification Order.

More information on the Growth Centres Biodiversity Certification is available at www.growthcentres.nsw.gov.au.

Growth Centres Strategic Assessment Program

In December 2011 the Federal Government endorsed the Sydney Growth Centres Strategic Assessment Program Report and in February 2012 approved the classes of actions in the Growth Centres that if undertaken in accordance with the approved program do not require separate approval under the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

The Program includes a range of commitments for matters of national environmental significance protected under the EPBC Act. The commitments are drawn from the analysis in the Supplementary Assessment Report and Draft Strategic Assessment Report (Part B), and build upon the Relevant Biodiversity Measures for the Growth Centres Biodiversity Certification.

Generally, if a development proposal complies with the Biodiversity Certification under the TSC Act (refer above), the requirements of the Strategic Assessment Program will have also been met. This means that:

- On land that is **certified** under the TSC Act, there is no need for further assessment of impacts under the EPBC Act.
- Any proposal to clear vegetation on land that is **non-certified** must be in accordance with the Relevant Biodiversity Measures (RBMs) of the Growth Centres Biodiversity Certification.
- Any proposed development on non-certified land that is not in accordance with the RBMs would require full assessment and approvals under both the TSC Act and the EPBC Act.

More information on the Growth Centres Strategic Assessment Program is available at www.growthcentres.nsw.gov.au.

1.4.4 Summary of applicable planning documents

Applicants proposing to undertake development in the Precinct, and Council when assessing development applications, should refer to:

- the Growth Centres SEPP, as amended, including the relevant Precinct Plan;
- this DCP;
- the relevant Section 94 Contributions Plan;
- Technical Studies completed as part of the Precinct Planning work (available from Council);

- the Growth Centres Biodiversity Certification Order, December 2007 and related amendments to the *Threatened Species Conservation Act 1995*; and
- The Sydney Growth Centres Strategic Assessment Program, under the EPBC Act.

1.5 Consent authority

Unless otherwise authorised by the *Environmental Planning and Assessment Act 1979* Liverpool Council is the consent authority for all development in the Precincts to which this DCP applies on land that is within Liverpool Local Government Area.

Council will use this DCP when assessing development applications.

1.6 Exempt and Complying Development

The *Environmental Planning and Assessment Act 1979* enables certain forms of development to be classified as either exempt development or complying development through Environmental Planning Instruments.

Exempt development is development of a minor nature that can be undertaken without the need for development consent.

Complying development is development that, providing it meets pre-determined development standards, can be assessed through the issuance of a complying development certificate.

The *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, and the associated Housing Code provides controls for the siting and design of detached housing on lots 200m² and larger as well as alterations and additions to existing residential dwellings up to two storeys. Development that meets the criteria in the Housing Code is complying development and this DCP does not apply. Where a development does not meet the requirements of the Housing Code, consent is required and this DCP applies.

The *NSW Commercial and Industrial Code* outlines how some types of commercial and industrial development in certain zones can meet the complying development criteria. Where a development does not meet the requirements of these Codes, consent is required and this DCP applies.

Other Environmental Planning Instruments that apply to the land that this plan applies to may also specify that certain development is exempt or complying development. Applicants should review relevant instruments to determine the applicable approval process for their development.

1.7 Development Application Process

1.7.1 Development Application Process

The development application process is summarised in **Figure 1-2**.

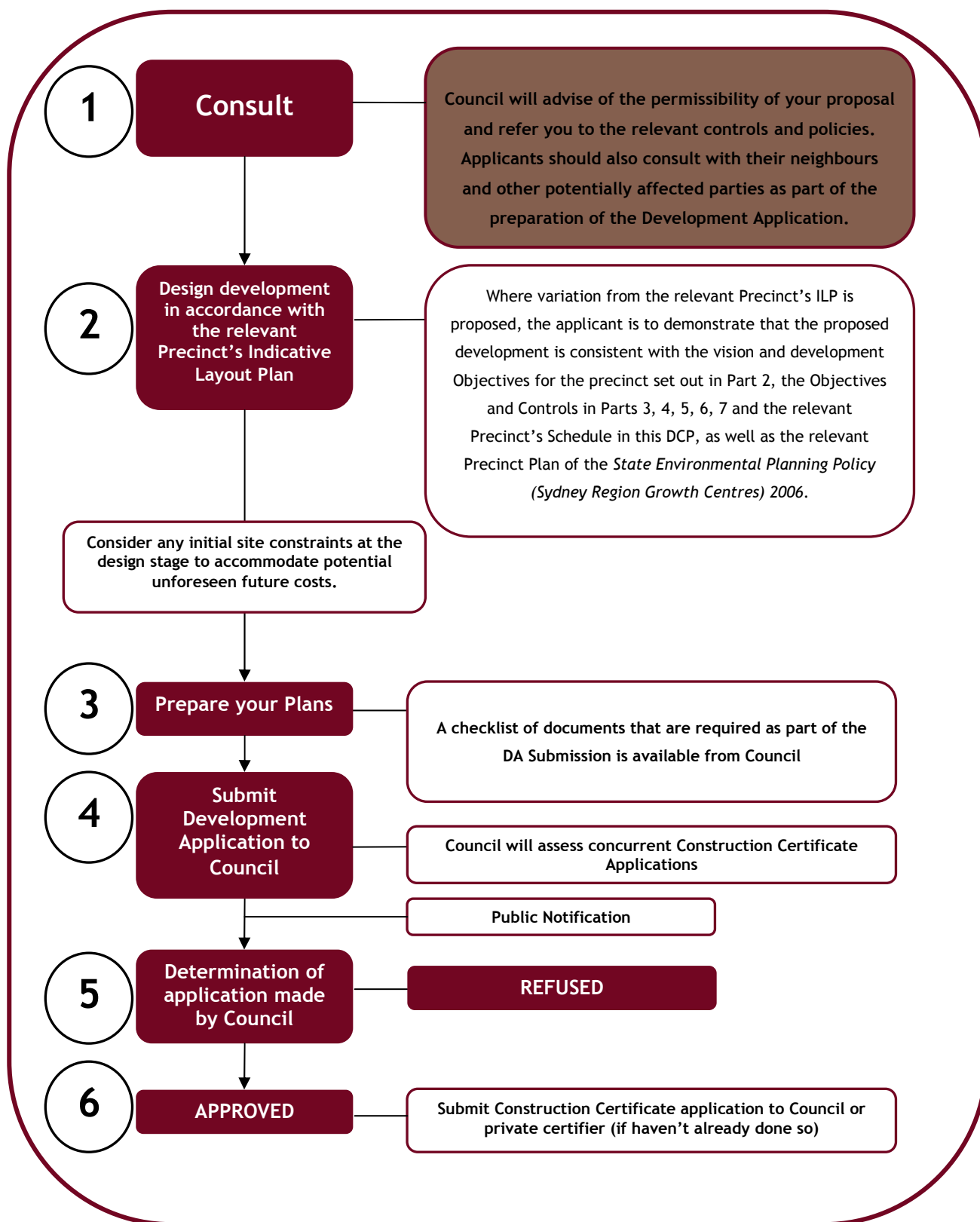


Figure 1-2: Development Approval process

Notes:

Notification is where Council writes to those people identified as requiring notification, advising of the submission of a development application. Notification is for a minimum period of 14 days.

Advertising is where Council, in addition to writing to those people required to be notified, places an advertisement in a local newspaper advising of the submission of a development application. Advertising is for a minimum period of 14 days unless otherwise specified by legislation or Environmental Planning Instruments in the case of Integrated, Designated and Advertised Development.

Council has a Policy which establishes the types of Development Applications that will be notified or advertised. Reference should be made to Liverpool DCP 2008 for notification requirements.

1.7.2 Information to be submitted with Development Applications

Applicants are required to submit information with all Development Applications that clearly illustrates and describes the development proposal, and demonstrates consistency with the relevant planning controls (particularly the Precinct Plan and this DCP). The level of detail and the range of issues to be addressed by applicants varies depending on the type and scale of development that is proposed: Some information is required for all Development Applications, while more detailed or specific information is required only for some types of development.

Council can advise applicants on the information required to be submitted with Development Applications.

Considerable background work has been undertaken to inform the preparation of the ILP and planning controls for each Precinct. This information is available either by contacting Council or the Department of Planning and Infrastructure.

In some cases, Precinct Planning studies and reports may be sufficient for the purposes of lodging a Development Application, while for some properties or some development types, more detailed information may need to be prepared. Applicants should discuss the suitability of studies prepared as part of Precinct Planning with Council prior to preparing Development Application documentation, to determine if additional studies or documentation will be required.

The ILP and Planning Controls have been prepared based on the Precinct Planning studies. Where applications propose a development type or design that differs from the ILP or doesn't comply with the planning controls (refer to **Part 1.7.3**), additional technical studies are likely to be required to justify the non-compliance.

1.7.3 Variations to Development Controls and DCP Amendments

Compliance with the Indicative Layout Plan

The Precinct Indicative Layout Plan (in the relevant Precinct Schedule) is intended to show how the overall Precinct will develop over time. It shows how the numerous developments, undertaken over numerous years, will come together to ensure the overall development of the Precinct is integrated, sustainable and attractive. However, it is recognised that some variation to the layout shown on the ILP may be reasonable

to address new or more detailed information about the site, or other factors that might influence individual developments.

Council may grant consent to a proposal that differs from the Indicative Layout Plan (ILP), where the variation is considered to be minor and the proposal is demonstrated to be generally consistent with the ILP. Development Applications will be considered on their merits, and applicants are required to demonstrate that the proposed variation is:

- Consistent with the relevant Precinct Plan under the Growth Centres SEPP;
- Consistent with the Precinct Planning Outcomes in **Part 2** of this DCP;
- Consistent with the Precinct Planning Vision in the relevant Precinct Schedule;
- Not likely to significantly impact on the amenity, safety or environmental quality of adjoining lands, or the ability of adjoining development to occur generally in accordance with this DCP.

Where a proposed variation to the DCP does not meet the above requirements, Council may either:

- refuse consent for the application;
- condition the development consent to ensure the above requirements are achieved subject to compliance with any condition Council imposes; or
- request the applicant to demonstrate that amendment of the DCP is warranted to enable the development to be approved.

Amendment of the DCP will only be considered where the amendment would not significantly alter the planning outcomes for the Precinct. Typically, DCP amendments will not be undertaken to address issues that relate only to a single development: these issues should be dealt with by addressing the criteria for ILP variations above. Amendments will usually only be considered where the change relates to an aspect of the ILP that is demonstrably unreasonable or unnecessary, or where amendments are appropriate to address issues that will affect development generally in the Precinct.

Compliance with Objectives and Controls in this DCP

Each clause in this DCP contains **Objectives** and **Controls** relating to various aspects of development (for example, building setbacks, requirements for car parking, or minimum requirements for landscaping).

The Objectives enable Council and Applicants to consider whether a particular proposal will achieve the development outcomes established for the Precinct in the ILP.

The Controls establish standards, which if met, mean that development should be consistent with the Objectives. However, in some circumstances, strict compliance with the controls may not be necessary, or may be difficult to achieve because of the particular characteristics of a development site. In these situations, Council may grant consent to a proposal that does not comply with the Controls in this DCP, providing the intent (i.e. the Objective/s) of the Controls is achieved. Where a variation is sought it must be justified in writing by indicating how the development will meet the Objectives of the relevant Control and/or is generally consistent with the ILP.

1.7.4 Infrastructure

The Growth Centres SEPP requires that, before granting consent to development applications, Council is satisfied that essential infrastructure (water, sewer and electricity) are available or that satisfactory arrangements are in place for the infrastructure to be available, to service the development. As part of Precinct Planning, and Infrastructure Delivery Plan is prepared that documents the planned provision of essential infrastructure for each Precinct. The Infrastructure Delivery Plan identifies where trunk level services will be provided, and gives an indication of likely timing. In most cases, the timing and location of the first stages of infrastructure delivery will be subject to demonstrated demand for development, so while the Infrastructure Delivery Plan may indicate that some parts of the Precinct will be serviced before others, this may change if development demand in another part of the Precinct is sufficient to justify an alternative delivery strategy.

Applicants and land owners should refer to the Infrastructure Delivery Plan, available from Council or the Department of Planning and Infrastructure) to understand the current arrangements for infrastructure delivery in the Precinct. Applicants should also discuss their development plans with Council and infrastructure providers (eg. Sydney Water and Endeavour Energy), in the early stages of preparing a development proposal, to determine the availability of infrastructure. Alternative approaches to infrastructure delivery may be possible particularly in the early phases of development in the Precincts when demand may not be sufficient to justify investment in major trunk infrastructure works. Infrastructure delivery agencies may be able to suggest alternative measures that can satisfy the requirements of the Growth Centres SEPP and enable development consent to be granted.

The Infrastructure Delivery Plan may be updated from time to time as arrangements for infrastructure delivery change or as more detailed information becomes available.

2.0

Precinct Planning Outcomes

2.1 Introduction

This Part of the DCP defines Precinct wide planning outcomes. These outcomes apply broadly to all Precincts that this DCP applies to. The specific way the outcomes are to be achieved for each Precinct is established by the Indicative Layout Plan. This part also outlines the matters to be considered when undertaking site analysis for all development. These controls should be considered to determine the suitability and the development potential, and during the initial stages of planning for the development. Typically, the planning outcomes will be addressed for new development at the subdivision stage. However, some development may occur without prior subdivision, and in these cases the requirements of this Part of the DCP should be addressed in the Development Application. Some controls in this Part apply regardless of whether the proposal is for subdivision or other forms of development. Applicants should review this Part to identify relevant provisions.

2.2 The Indicative Layout Plan

An **Indicative Layout Plan**, specific to each Precinct, is in the relevant Precinct Schedule. The Indicative Layout Plan forms the basis for urban development in the Precinct by setting out:

- the transport network;
- the open space and drainage networks;
- the locations of land uses including residential development, schools, community facilities, utilities, centres and employment lands;
- areas requiring protection because of environmental or heritage values;
- the density and types of housing that are preferred in various parts of the Precinct.

Objectives

- a. To ensure that development in the Precinct occurs in a coordinated manner consistent with the Precinct's Indicative Layout Plan.

Controls

1. All development applications are to be generally in accordance with the Indicative Layout Plan.
2. When assessing development applications, Council will consider the extent to which the proposed development is consistent with the Indicative Layout Plan.
3. Any proposed variations to the general arrangement of the Indicative Layout Plan must be demonstrated by the applicant, to Council's satisfaction, to be consistent with the Precinct Planning vision in the relevant Precinct Schedule.

2.3 Site analysis

The following clauses contain matters to be addressed in relation to existing site characteristics, when planning new developments.

2.3.1 Flooding

Objectives

- a. to limit the flow of stormwater from development to replicate pre-development flows;
- b. to define the flood constraints and standards applicable to development in the Precincts;
- c. to minimise the potential of flooding impacts on development, essential services, other land uses and risk to human life.

Controls

1. The pattern of subdivision is to ensure that no new dwelling will be located within the 1% Annual Exceedance Probability (AEP) flood extent shown on the **Flood Prone Land** figure in the relevant Precinct's Schedule.
2. Filling and development within the 1% AEP flood extent may be permitted where site specific flood investigations justify the development in conjunction with the considerations in control 11 below.
3. Floor levels must be above the 1% Annual Exceedance Probability (AEP) flood level plus a freeboard of 500mm (the 'flood planning level'). The 1% AEP flood extent may be varied based on more detailed site specific flood studies that are prepared to the satisfaction of Council. Note Council may request such a study be undertaken by the applicant.
4. Where an existing building (including dwellings) is within the 1% AEP flood extent, and is proposed to be replaced by a new dwelling, the floor level of the new structure must satisfy the flood planning level (1% AEP plus 500mm freeboard).
5. For existing buildings (including dwellings) where floor levels are within the 1% AEP flood extent, a proposed addition (including new outbuilding) or alteration to that existing building should not exceed 30sqm or 10% of the existing floor area (whichever is the lesser). This may be varied based on more detailed site specific flood investigations that are prepared to the satisfaction of Council
6. Any change of use of an existing building, (including a dwelling) within the 1% AEP flood must not increase flood risk.
7. Pedestrian and cycle pathways and open space may extend within the 1% AEP flood level, provided the safe access criteria contained in the NSW Floodplain Manual are met. The **Flood Prone Land** figure in the relevant Precinct's Schedule shows the approximate extent of the 1% AEP flood level.

4. Roads and basement car parking are to be located above the 1% AEP level. The design of the road network is to ensure that evacuation routes from existing development and adjoining properties are maintained, or suitable alternative evacuation routes are provided for flood events up to and including the 500 year ARI (0.2%AEP) flood event.
5. Existing roads that are below the 1% AEP level may be retained or upgraded on the current vertical alignment, providing safe evacuation routes can be provided, where they provide access to existing development and where elevation of the road to achieve a higher level of flood immunity would:
 - Unreasonably restrict, or require significant modifications to access to properties; or
 - Restrict overland flow paths or the installation of stormwater pipes; or
 - Result in unacceptable flooding impacts on other properties; or
 - Upgrading of the road would require removal of Existing Native Vegetation mapped under the Growth Centres SEPP.
6. In general, Council will not support development, including the filling of land, within the floodway (as defined in the Precinct Water Cycle Management Strategy, available from Council) due to its function as the main flow path for flood waters once the main channel has overflowed and the possibility of a significant threat to life and property in a major flood.
7. In determining any application for development on land designated as being within the floodway or flood fringe Council will consider the following:
 - Consistency with the NSW Floodplain Manual;
 - Whether the proposed building materials are suitable (refer control 14 below);
 - Whether the buildings are to be sited in the optimum position to avoid flood waters and allow evacuation;
 - Whether the flood impact of proposed structures, including fencing, or the filling of land are likely to affect flood flows, or increase flood affectation elsewhere;
 - Whether earthworks required to maintain the capacity of the floodplain and flood flow velocities will impact on soil salinity and soil stability;
 - The potential impact of the development, including earthworks, on native vegetation; and
 - The views of other relevant authorities, as considered necessary and whether the applicant has consulted with those authorities and the outcomes of that consultation.
8. An application (other than agriculture, cultivation and minor alterations to existing buildings) lodged for development in a floodway (as defined in the Precinct Water Cycle Management Strategy, available from Council) shall be accompanied by a survey plan to satisfactorily demonstrate that:
 - The development will not increase flood hazard or damage to other properties or adversely affect them in any way, by the provision of a report from a professional civil engineer experienced in hydraulics.

- The building can withstand the force of flooding, by the provision of a detailed report from a professional structural engineer.
9. Applications may be required to indicate that permanent fail-safe measures are incorporated in the development to ensure the timely, orderly and safe evacuation of people from the area should a flood occur. In addition, it may also be necessary to demonstrate that the displacement of these people during times of flood will not significantly add to the overall community cost and community disruption caused by the flood.
 10. Applications may be required to indicate proposed flood compatible building components and flood proofing of the structure to the satisfaction of Council. This may include evidence that the structure can withstand the forces of floodwater, debris and buoyancy up to and including a 1% AEP flood plus 500m freeboard.

2.3.2 Water cycle management

Objectives

- a. To ensure that the quality of stormwater discharged from urban areas into the environment complies with appropriate standards.
- b. To minimise potable water consumption and maximise re-use of stormwater within urban areas.
- c. To ensure that the water cycle management infrastructure is cost effective and maintainable.
- d. To maintain and enhance the quality of natural water bodies.

Controls

1. Management of 'minor' flows and 'major' flows within subdivisions and development sites is to be in accordance with Council's Engineering Specification.
2. Stormwater within new subdivisions is to be managed primarily through a gravity network of pipes and overland flows generally following streets where flow volumes exceed the capacity of pipes in accordance with Council's Engineering Specification.
3. All new development is to be connected, via the network described in control 1 above, to the Council's trunk drainage system shown on the **Key elements of the water cycle management and ecology strategy** figure, in the relevant Precinct Schedule.
4. The acquisition of drainage easements over downstream properties, or inclusion of drainage easements on subdivision plans, will be required where direct access to Council's drainage system or discharge of stormwater to a creek via the street network is not possible (i.e. street kerb and gutter, piped system or open channels and watercourses). However, the design of subdivisions is to generally comply with controls 1 and 2 above and management of stormwater through easements will only be permitted by Council in exceptional circumstances where no other practical solution is available.

5. Roads on primary drainage lines shown on the **Key elements of the water cycle management and ecology strategy** figure, in the relevant Precinct Schedule, are to be constructed in the locations shown (subject to detailed survey and subdivision design), and are to be designed in accordance with specifications of Council in relation to management of stormwater flows and quality.
6. The developed 1%, 20% and 50% AEP peak flows are to be maintained at pre-development flows through the incorporation of stormwater detention and management devices. Where subdivision works occur prior to the completion of required trunk drainage works, temporary on site facilities need to be provided in order to limit drainage volume and velocity to that experienced prior to development.
7. Where development includes the construction of water quality treatment infrastructure, the infrastructure is to be constructed in accordance with the Precinct Water Cycle Management Strategy (available from Council) and Council's Engineering Specification. The applicant must demonstrate that the proposed infrastructure will achieve the water quality targets in **Table 2-1**.
8. Trunk drainage channels are to be designed and constructed as naturalised channels.
9. Council may consider amendments to the Precinct water cycle management strategy if a revised strategy is submitted that can demonstrate to Council's satisfaction:
 - compliance with the targets in **Table 2-1**;
 - any costs associated with construction (including the cost of land) will be met by the applicant; and
 - A maintenance framework addressing maintenance strategies and life-cycle maintenance costs
10. Where development is located on land that drains towards the Sydney Catchment Authority Upper Canal, specific water quality measures may be required to ensure that development does not adversely impact on the quality of water in the Upper Canal. Specific controls are contained in relevant Precinct Schedules.
11. Where development includes land within a Riparian Protection Area (refer to the Riparian Protection Areas Map that is part of the Growth Centres SEPP) applicants are to refer to the *Guidelines for riparian corridors on waterfront land* prepared by the NSW Office of Water. The guidelines contain the outcomes and requirements for development on land containing a riparian protection area within the Growth Centres. The guidelines are available at www.water.nsw.gov.au.

Table 2-1: Water quality and environmental flow targets

	WATER QUALITY % reduction in pollutant loads				ENVIRONMENTAL FLOWS Stream erosion control ratio ¹
	Gross Pollutants (>5mm)	Total suspended solids	Total phosphorous	Total nitrogen	
Stormwater management Objective	90	85	65	45	3.5-5.0: 1
'Ideal' stormwater outcome	100	95	95	85	1:1

¹ This ratio should be minimised to limit stream erosion to the minimum practicable. Development proposals should be designed to achieve a value as close to one as practicable, and values within the nominated range should not be exceeded. A specific target cannot be defined at this time.

2.3.3 Salinity and soil management

Objectives

- a. To manage and mitigate the impacts of Salinity and Sodicity on the Environment.
- b. To minimise the damage caused to property and vegetation by existing saline soils, or processes that may create saline soils.
- c. To ensure development will not significantly increase the salt load in existing watercourses.
- d. To prevent degradation of the existing soil and groundwater environment, and in particular, to minimise erosion and sediment loss and water pollution due to siltation and sedimentation.

Controls

1. Development applications, that include earthworks, on land with a low, or moderate to high risk of salinity (identified in the **Areas of potential salinity risk map**), are to be accompanied by information detailing how the design and construction of the proposed subdivision intends to address salinity issues. All works are to comply with the Western Sydney Salinity Code of Practice 2004 (WSROC) and **Appendix B**.
2. Salinity and sodicity management related to **Appendix B** is to complement WSUD strategies, improving or at least maintaining the current condition, without detriment to the waterway environment.
3. All development must incorporate soil conservation measures to minimise soil erosion and siltation during construction and following completion of development. Soil and Water Management Plans, prepared in accordance with Managing Urban Stormwater - Soils and Construction (Landcom 3rd Edition March 2004 ('The Blue Book')) are to be submitted with each relevant subdivision Development Application.

4. Salinity shall be considered during the planning, design and carrying out of earthworks, rehabilitation works and during the siting, design and construction of all development including infrastructure:
 - To protect development and other works from salinity damage; and
 - To minimise the potential impacts that development and other works may have on salinity.

2.3.4 Aboriginal and European heritage

Objectives

- a. To manage Aboriginal heritage values to ensure enduring conservation outcomes.
- b. To ensure areas identified as European cultural heritage sites or archaeological sites are managed appropriately.

Controls

1. Development applications must identify any areas of Aboriginal heritage value that are within or adjoining the area of the proposed development, including any areas within the development site that are to be retained and protected (and identify the management protocols for these).
2. Developments or other activities that will impact on Aboriginal heritage may require consent from the Office of Environment and Heritage (OEH) under the *National Parks and Wildlife Act 1974* and consultation with the relevant Aboriginal communities.
3. Any development application that is within or adjacent to land that contains a known Aboriginal cultural heritage site, as indicated on the **Aboriginal cultural heritage sites** figure, in the relevant Precinct Schedule, must consider and comply with the requirements of the *National Parks and Wildlife Act, 1974*.
4. Where the necessary consents under the *National Parks and Wildlife Act, 1974* have been obtained, the development application must demonstrate that the development will be undertaken in accordance with any requirements of that consent.
5. Applications for subdivision and building on the properties identified on the **European cultural heritage sites** figure, in the relevant Precinct's Schedule, are to be accompanied by:
 - A Heritage Management Document that details the heritage significance of the heritage item, the impacts of the proposed development on the heritage item and any management or mitigation measures that are proposed.
 - A report from a suitably qualified heritage consultant detailing the results of archaeological investigations undertaken to confirm the presence of archaeological material relating to the heritage site (where heritage studies completed to date indicate the potential presence of as yet unidentified archaeological material). Where archaeological material is identified, the proposal is to address the requirements of the Heritage Act 1977.

6. Features which contribute to the heritage significance of the item or conservation area are to be conserved.
7. Features which contribute to an understanding of the history of the item, or key periods of its development, are to be conserved.
8. Significant landscape elements and/or views associated with the item are to be conserved.
9. Significant historical property boundaries, if identified as part of the significance of the item, are to be conserved.
10. Significant uses, if identified as part of the significance of the item, are to be conserved or a similar/compatible use identified for the heritage item where possible.
11. Unsympathetic elements are to be removed from the item or conservation area, where this will contribute to the heritage significance of the item or conservation area.
12. New work in the vicinity of built heritage items should be readily identifiable as such, and be sympathetic to the form, scale, massing, setback and overall character of the item, and should not detract from its appreciation.
13. Alterations and additions are to be located away from significant and/or primary elevations, and behind and below the main ridge line of built heritage items.
14. Existing fabric, use, associations and meanings are to be adequately recorded before any changes are made.

Notes:

*Any works, development or other activity that will impact on a known site of Aboriginal cultural heritage significance may require approval under the National Parks and Wildlife Act, 1974, in addition to any approval requirements of Council under the relevant Precinct Plan. Applicants should consult with the Office of Environment and Heritage (OEH) to determine requirements for assessment and approval where developments or other works are to be carried out on or near Aboriginal heritage sites identified on the **Aboriginal cultural heritage sites** figure, in the relevant Precinct Schedule.*

Council or the OEH may require additional investigations to be undertaken as part of a development application to confirm the presence of Aboriginal cultural heritage on the land.

Where works uncover items that may be Aboriginal cultural heritage, the applicant is to consult with the OEH to determine an appropriate course of action.

2.3.5 Native vegetation and ecology

Objectives

- a. To conserve and rehabilitate the remaining native vegetation and trees within the relevant Precinct;
- b. To ensure that native vegetation contributes to the character and amenity of the relevant Precinct;
- c. To conserve the ecological values of the Precinct, and ecological links to surrounding areas.

Controls

1. Native trees and other vegetation are to be retained where possible by careful planning of development (particularly at the subdivision stage) to incorporate trees into areas such as road reserves and private or communal open space.
2. When assessing an application that proposes removal of a tree or trees, Council will consider whether the tree or trees:
 - Form(s) a prominent part of the streetscape or the landscape character of the locality.
 - Is of historic or cultural significance or is/are registered on any Council register of significant trees.
 - Is prominent due to its height, size, position or age.
 - Is a locally indigenous.
 - Provides visual screening.
 - Is part of an important habitat for wildlife.
 - Is part of a larger vegetation remnant or is in a Riparian Protection Area.
 - Can be effectively treated by applying appropriate remedial treatment such as pruning of branches, pruning of roots and removal of deadwood or by other appropriate action as recommended by an arborist.
 - Is (when located on non-certified land) listed under the provisions of the *Threatened Species Conservation Act 1995* (Listed as a threatened species, is habitat of a threatened species or is part of a threatened ecological community).
 - Is unsafe.
3. All existing indigenous trees shall be retained or replaced where removal is unavoidable. Where approval is given to remove trees, appropriate replacement planting using similar species will be required.
4. The design of a development should demonstrate that existing street trees will be retained to the greatest practical extent.
5. Buildings are to be set back a minimum of 3 metres from existing trees that are to be retained.

6. The design and location of access driveways should wherever possible be located to avoid or minimise removal of existing street trees.
7. Council may consider alternative street cross section designs where the typical cross section would result in removal of existing street trees that could otherwise be retained.
8. Where practical, prior to development commencing, applicants are to:
 - provide for the appropriate re-use of native plants and topsoil that contains known or potential native seed bank; and
 - relocate native animals from development sites. Applicants must refer to OEH's *Policy on the Translocation of Threatened Fauna in NSW*.
9. Within land that is in the **Environmental Protection Overlay**, as shown on the Indicative Layout Plan in the relevant Precinct Schedule, all native vegetation is to be retained and rehabilitated, except where clearing is required for essential infrastructure such as roads and drainage and where that clearing is consistent with the Growth Centres Biodiversity Certification and the Growth Centres Strategic Assessment Program¹; and
10. Within land that is in a **Riparian Protection Area** (refer to the Riparian Protection Areas Figure in the relevant Precinct Schedule) native vegetation is to be conserved and managed in accordance with the Guidelines for riparian corridors on waterfront land prepared by the NSW Office of Water (available at www.water.nsw.gov.au).
11. Development on land that adjoins land zoned E2 Environmental Conservation is to ensure that there are no significant detrimental impacts to the native vegetation and ecological values of the E2 zone.
12. All subdivision design and bulk earthworks are to consider the need to minimise weed dispersion and to eradicate weeds on site. If Council believes that a significant weed risk exists, a Weed Eradication and Management Plan outlining weed control measures during and after construction is to be submitted with the subdivision DA.
13. A landscape plan is to be submitted with all subdivision development applications, identifying:
 - all existing trees on the development site and those that are proposed to be removed or retained;
 - the proposed means of protecting trees to be retained during both construction of subdivision works and construction of buildings;
 - proposed landscaping including the locations and species of trees, shrubs and ground cover to be planted as part of subdivision works;

¹ The relevant Precinct Plan under the Growth Centres SEPP contains provisions that prohibit the clearing of Existing Native Vegetation and limit clearing of vegetation in Native Vegetation Protection Areas.

- the relationship of the proposed landscaping to native vegetation that is to be retained within public land, including factors such as the potential for weed or exotic species invasion and the contribution of the proposed landscaping to the creation of habitat values and ecological linkages throughout the Precinct; and
 - How bushfire risk has been managed, including requirements for Asset Protection Zones and how these relate to the proposed landscaping.
14. The selection of trees and other landscaping plants is to consider:
- The prescribed trees in **Appendix C**;
 - The use of locally indigenous species where available;
 - Bushfire risk;
 - Contribution to the management of soil salinity, groundwater levels and soil erosion;
 - Items of environmental heritage, heritage conservation areas, historic road alignments and significant view lines.
15. For the purposes of clause 5.9 of the relevant Precinct Plan, prescribed trees include:
- Trees taller than the minimum height and greater than the minimum trunk diameter specified in **Appendix C**, and
 - Tree species listed in **Appendix C**.

Note: Where applicable, clause 5.9 of the Precinct Plan requires development consent or a permit to ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation that is prescribed by this DCP, except where other requirements of clause 5.9 are met.

2.3.6 Bushfire hazard management

Objectives

- a. To prevent loss of life and property due to bushfires by providing for development compatible with bushfire hazard.
- b. To encourage sound management of bushfire-prone areas.

Controls

1. Reference is to be made to Planning for Bushfire Protection 2006 in subdivision planning and design and development is to be consistent with Planning for Bushfire Protection 2006.
2. Subject to detailed design at development application stage, the indicative location and widths of Asset Protection Zones (APZs) are to be provided generally in accordance with the Bushfire risk and Asset Protection Zone Requirements figure in the relevant Precinct Schedule. APZs and construction standards are to be accurately mapped and detailed for each affected lot on plans submitted with the development application.
3. APZs:
 - are to be located wholly within the Precinct;
 - may incorporate roads and flood prone land,
 - are preferred to be located wholly outside of a riparian zone. APZs may only be permitted within a riparian zone where compliant with the NSW Office of Water requirements,
 - may be used for open space and recreation subject to appropriate fuel management,
 - are to be maintained in accordance with the guidelines in Planning for Bushfire Protection 2006,
 - may incorporate private residential land, but only within the building setback (no dwellings are to be located within the APZ),
 - are not to increase the maintenance burden on public lands, and
 - are to be generally bounded by or incorporate a public road or perimeter fire trail that is linked to the public road system at regular intervals in accordance with *Planning for Bushfire Protection 2006*.
4. Establishment and maintenance of the APZ must not require clearing of native vegetation within any Native Vegetation Protection Areas or Existing Native Vegetation Areas shown on the Native Vegetation Protection Map.
5. Vegetation outside Riparian Protection Areas, Native Vegetation Protection Areas and Existing Native Vegetation Areas is to be designed and managed as a 'fuel reduced area' where it forms part of an APZ.

6. Where an allotment fronts and partially incorporates an APZ it shall have an appropriate depth to accommodate a dwelling with private open space and the minimum required APZ. The APZ will be identified through a Section 88B instrument.
7. Temporary APZs, identified through a Section 88B instrument, will be required where development is proposed on allotments next to undeveloped land that presents a bushfire hazard. Once the adjacent stage of development is undertaken, the temporary APZ will no longer be required and shall cease.
8. Reticulated water is to meet the standards contained within Planning for Bushfire Protection 2006. Water supply is to be via a ring main system, engineered to the requirements of Australian Standard 2419.1-1994 Fire Hydrant Installations.
9. Buildings adjacent to APZs are to be constructed in accordance with the requirements of Appendix 3 of Planning for Bushfire Protection 2006 and Australian Standard 3959-1999 - Construction of Building in Bushfire Prone Areas.

2.3.7 Site contamination

Objectives

- a. To minimise the risks to human health and the environment from the development of potentially contaminated land; and
- b. To ensure that potential site contamination issues are adequately addressed at the subdivision stages.

Controls

1. All subdivision Development Applications, and applications proposing a change of use to a more sensitive land use (eg. Residential, education, public recreation facility etc), shall be accompanied by a Stage 1 Preliminary Site Investigation prepared in accordance with the NSW EPA Contaminated Sites Guidelines, State Environmental Planning Policy 55 – Remediation of Land and the *Contaminated Land Management Act, 1995* and relevant Council Policies.
2. Where the Stage 1 Investigation identifies potential or actual site contamination a Stage 2 Detailed Site Investigation must be prepared in accordance with the NSW EPA Contaminated Sites Guidelines, State Environmental Planning Policy 55 – Remediation of Land and the Contaminated Land Management Act, 1995 and any relevant Council Policies. A Remediation Action Plan (RAP) will be required to be submitted and approved by Council prior to development consent being granted for areas identified as contaminated land in the Stage 2 Site Investigation.
3. DAs for development in “high risk” areas of **potential contamination risk-ranking** figure shall be accompanied by a Stage 2 Detailed Environmental Site Investigation prepared in accordance with the NSW EPA Contaminated Sites Guidelines, State Environmental Planning Policy 55 – Remediation of Land and the Contaminated Land Management Act, 1995 and any relevant Council Policies. If remediation is required, a Remediation Action Plan (RAP) is to be prepared and submitted as part of the DA that seeks consent for remediation. Council may require a Site Audit Statement

(SAS) (issued by an NSW Accredited Site Auditor) during any stage of the investigation or remediation process.

4. All investigation, reporting and identified remediation works must be in accordance with the NSW EPA's (now Office of Environment and Heritage) Guidelines for Consultants Reporting on Contaminated Sites and SEPP 55 – Contaminated Land and relevant Council Policies.
5. Prior to granting development consent, the Consent Authority must be satisfied that the site is suitable, or can be made suitable, for the proposed use. Remediation works identified in any RAP will require development consent prior to the works commencing.
6. Council may require a Site Audit Statement (SAS) (issued by an NSW Accredited Site Auditor) to be provided at any stage of the contamination investigation, remediation or validation stages.

Notes:

All applicants should consider and assess contamination hazards on their land in accordance with the Contaminated Land Management Act, 1995 and State Environmental Planning Policy 55 – Remediation of Land, both of which override any controls in this DCP.

A site audit may be necessary when the Council believes on reasonable grounds that the information provided by the proponent is incorrect or incomplete, wishes to verify that information provided by the proponent adheres to appropriate standards, procedures and guidelines or does not have the internal resources to conduct its own technical review.

2.3.8 Development on and adjacent to electricity and gas easements

Objectives

- a. To ensure that development on or adjacent to land affected by major infrastructure easements does not impact on the continued operation of the infrastructure.
- b. To provide for the safety and amenity of residents living near infrastructure easements.
- c. To encourage applicants to find appropriate uses for land burdened by an easement having regard to the particular circumstances in each case.

Controls

1. Subdivision of land that is affected by easements and land adjacent to easements, as shown on the **Location of Easements** figure in the relevant Precinct Schedule, is to be consistent with the controls in this part of the DCP, and any specific controls in the Precinct Schedule.
2. Where development is proposed on land containing or adjacent to easements, applicants are to consult with the organisation responsible for management of the easement as part of the process of preparing subdivision or other development plans. Any written requirements of the infrastructure organisation are to be submitted with the Development Application, and the Development Application documentation is to demonstrate how the requirements have been addressed in the design.

3. Road crossings of the easement are to be minimised, to be generally in the locations shown on the relevant Precinct Indicative Layout Plan, and are to be designed in accordance with any requirements issued by the organisation responsible for management of the infrastructure.
4. Earthworks (excavation or filling) and landscaping within easements are subject to conditions and requirements of the infrastructure organisation.
5. Subdivision of easements is to be minimised.
6. Requirements of the infrastructure organisation in relation to access to easements for inspections and maintenance are to be addressed in the design of the development. Access to the easement from public land (eg. roads, open space or drainage land) is preferable.

Note: Under the Infrastructure SEPP, Council must notify the relevant authority if works are being carried out on or adjacent to lands containing a gas or electricity easement.

2.3.9 Noise

Objectives

- a. To minimise the impacts of noise from major transport infrastructure, industrial and employment areas on residential amenity.
- b. To achieve an acceptable residential noise environment whilst maintaining well designed and attractive residential streetscapes.

Controls

1. **Figure 2-1** provides guidance to applicants on measures to mitigate the impacts of rail and traffic noise within the Precinct.

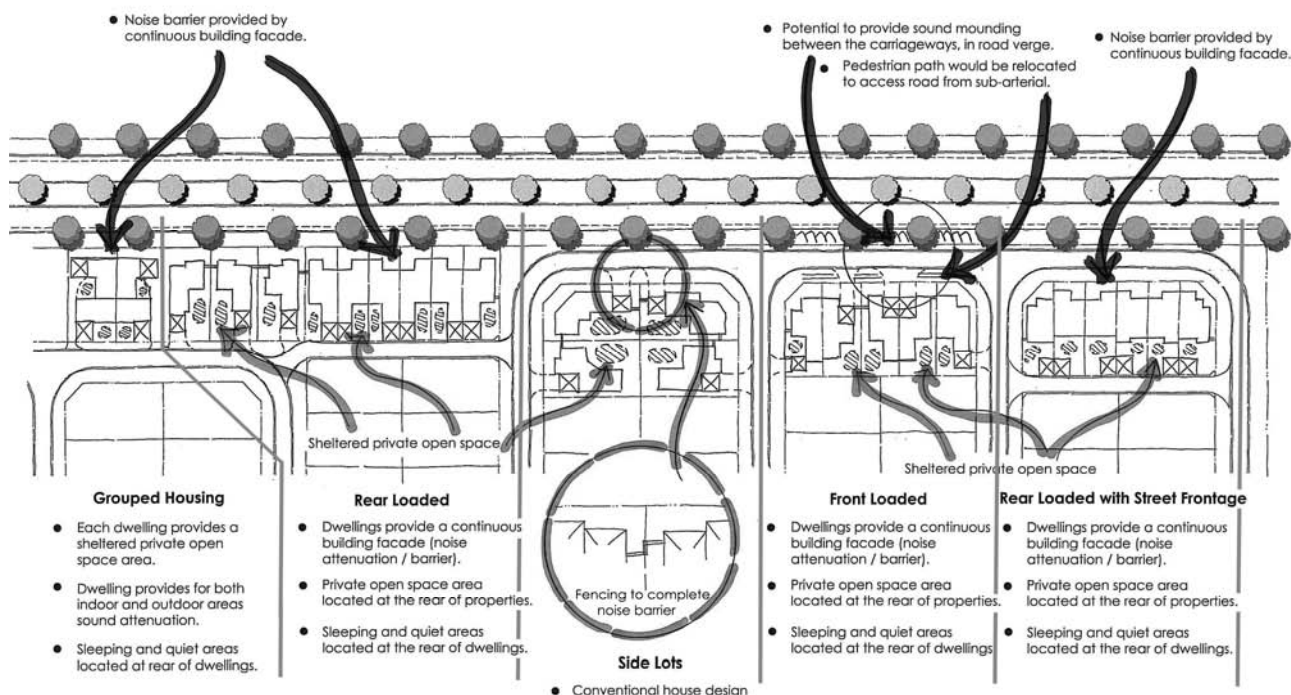


Figure 2-1: Measures to attenuate noise

- Development Applications must be accompanied by an acoustic report where the development is in a location, shown on the **Potential noise attenuation measures** figure in the relevant Precinct Schedule, such as:
 - adjacent to a railway line, arterial road, sub-arterial road, transit boulevard or other road with traffic volumes predicted to exceed (or currently exceeding) 6,000 vehicles per day;
 - potentially impacted upon by a nearby industrial / employment area; or
 - potentially impacting upon sensitive receivers such as residences within the precinct and outside the precinct.
- The acoustic report shall demonstrate that the noise criteria in Development Near Rail Corridors and Busy Roads- Interim Guideline (Department of Planning 2008) have been considered.
- Subdivision design on land adjacent to significant noise sources is to consider and implement measures to attenuate noise within dwellings and in external areas that are classified as Principle Private Open Space (refer to **clause 4.4.7**)
- Physical noise barriers (ie. Noise walls or solid fencing) are not generally supported, and measures to attenuate noise through subdivision layout, such as setbacks, building orientation, and building design and materials selection should be implemented to achieve appropriate internal noise standards.

2.3.10 Odour assessment and control

Odour management is subject to the *Protection of the Environment Operations Act 1997*. Currently the only methods of controlling odour impacts are applying buffers around odour generating activities and industry best management practices.

Prior to the commencement of this DCP the Growth Centre precincts were mostly zoned for rural purposes. The Precincts, and nearby rural areas, contain a number of existing rural uses that have the potential to generate odour and other associated impacts that may affect the amenity of nearby urban areas. While these activities may cease operation at some point in the future (such as when the land is rezoned and developed for urban purposes) the timing of cessation of odour generating land uses is not known nor able to be controlled by Council or the Department of Planning & Infrastructure. Developers and buyers of property within the Growth Centre precincts should be aware that their property may be subject to odour impacts from these uses for an indeterminate period of time.

Where land is deemed by Council to be affected by an odour source Council will consider whether the type of development in this area is appropriate and will also consider the need for the applicant to provide additional supporting information with the development application. An odour assessment prepared by an appropriate qualified person in accordance with the EPA Draft Policy "Assessment and Management of Odour from Stationary Sources in NSW" and Technical Notes may be required to be submitted.

2.3.11 Air quality

Objectives

- a. Preserve air quality, minimise pollution and improve environmental amenity.
- b. Ensure appropriate levels of air quality for the health and amenity of residents.

Controls

1. For industrial / employment developments, the emission of all air impurities is to be strictly controlled in accordance with the Protection of the Environment Operations (Clean Air) Regulation 2002 and must not exceed the prescribed standard concentration and emission rates. Where no standard is prescribed by the regulation, the activity or operation of any plant must be carried out by such practicable means as may be necessary to prevent or minimise air pollution. A report prepared by a suitably qualified air quality expert may be requested by Council to be prepared prior to development consent being granted. Such a report is to detail the likely air emissions and impacts, methods for control and maintenance of equipment, to ensure compliance with the *Protection of the Environment Operations Act, 1997* and associated Regulations. Refer to Department of Planning and Infrastructure (then Department of Planning) *Development Near Rail Corridors and Busy Roads – Interim Guideline*.
2. Implement effective site controls during and after demolition and construction to ensure that development does not contribute to increased air pollution.

Note: *Emissions from premises of any matter, whether solid, liquid or gaseous must comply with the Protection of the Environment Operations Act and its Regulations, or a pollution control consent provided by the Office of Environment and Heritage for Scheduled Premises.*

2.4 Demolition

Objectives

- a. To minimise waste generation and disposal to landfill.
- b. To ensure efficient storage and collection of wastes and recyclables during demolition and construction stages.
- c. To minimise adverse impacts on adjoining premises; and
- d. To avoid the release of contaminated materials.

Controls

1. All demolition work must comply with the Australian Standard AS2601 - 1991, The Demolition of Structures.
2. Security fencing such as hoardings must be provided around the perimeter of the demolition site prior to work commencing to prevent access by unauthorised persons at all times during the demolition period. Approval of the fencing by Council must be received prior to erection.

3. All lead contaminated materials identified in the building must be handled and disposed of in accordance with the NSW Environment Protection Authority's requirements.
4. Dust controls must be implemented on site prior to and during demolition.
5. Hazardous materials audits shall be conducted on any buildings at the site that may require demolition.
6. Asbestos, if identified in the building, must be removed and disposed of in accordance with the requirements of Work Cover.
7. Demolition activities on site must be limited to the following hours:
 - Monday to Friday 7:00am to 5:00pm
 - Saturday 8:00am to 5:00pm
 - No work on Sunday and Public Holidays
8. Sound pressure levels emanating from the site must comply with the Interim Guideline for Construction Noise (Office of Environment and Heritage).
9. A Waste Management Plan (WMP) is to be submitted with the Development Application. The WMP must include volume or area estimates and information about reuse, recycling and disposal options for all types of waste produced on-site, including excavation materials.
10. The WMP together with proof of lawful disposal for all waste that is disposed of, or otherwise recycled from the site must be retained on site.
11. A Dilapidation Report may be required to be submitted with a Development Application for any demolition within the zone of influence of any other building.

2.5 Crime Prevention through Environmental Design

Principles of crime prevention through environmental design apply to all forms of development including residential, retail, commercial, industrial developments, public buildings and community facilities. The design requirements apply to all residential flat buildings and medium density developments. Many of the principles are also relevant to single dwelling houses and dual occupancies.

Objectives

- a. To ensure that the siting and design of buildings and spaces, through casual surveillance, decreases opportunities for crime.
- b. To ensure that development encourages people to use streets, parks and other public places without fear of personal risk.
- c. To ensure the design of publicly accessible areas (eg parks, footpaths, etc) encourages a sense of community ownership of open and public spaces.

Controls

1. Buildings should be designed to overlook streets, lanes and other public or communal areas to provide casual surveillance. In the case of corner lots habitable windows are also be oriented to overlook the side street.
2. The design of all development is to enhance public surveillance of public streets and open space/conservation areas.
3. For residential development, the use of roller shutters other than garages is not permitted on doors and windows facing the street. Any security railings must be designed to complement the architecture of the building.
4. Developments are to avoid creating areas for concealment and blank walls facing the street.
5. Pedestrian and communal areas are to have sufficient lighting to ensure a high level of safety. These areas must be designed to minimise opportunities for concealment.
6. All developments are to incorporate the principles of Crime Prevention Through Environmental Design (CPTED). Development Applications for subdivision, public open space, community facilities, commercial developments, mixed-use developments, and schools may require a formal crime risk (CPTED) assessment as part of the EP&A Act 1979.

2.6 Earthworks

Objectives

- a. To minimise cut and fill through site sensitive subdivision, road layout, infrastructure and building design.
- b. To locate buildings to minimise site works.
- c. To ensure that earthworks do not adversely impact local drainage patterns or increase flooding impacts.
- d. To minimise the impacts of earthworks on the natural environment and on the visual character of the locality.

Controls

1. Subdivision and building work is to be designed to respond to the natural topography of the site wherever possible, minimising the extent of cut and fill both during subdivision and when buildings are constructed.
2. The applicant is to demonstrate how the finished land levels will be integrated with nearby land and facilitate appropriate drainage.
3. Where terraced retaining walls are proposed the minimum horizontal distance between each step is one metre.
4. A variation to the retaining wall heights can be considered with supporting justification.
5. Council will consider permitting greater cut for basements.
6. All retaining walls proposed are to be identified in the development application. Those affecting adjoining properties i.e. adjacent to property boundaries are to be available for inspection prior to the internal linings of the house being installed. All other approved retaining walls are to be in place prior to the issue of an occupation certificate.
7. Where cut or fill is proposed on the boundary of a lot, retaining walls are to be constructed with side fence posts integrated with the retaining wall (relevant construction details are required with retaining wall approval).
8. Retaining walls that front a public place are to be finished with anti-graffiti coating.
9. Retaining walls are to be designed and constructed to allow for installation of boundary fencing without impact on the structural soundness of the retaining wall and its footings.
10. A Validation Report is required to be submitted to Council prior to the placement of imported fill on site. All fill shall comply with the NSW Office of Water – “*Site Investigation for Urban Salinity*” and the OEH Contaminated Sites Guidelines – “*Guidelines for the NSW Site Auditor Scheme (2nd edition) – Soil Investigation Levels for Urban Development Sites in NSW*”.

11. Earth moved from areas containing noxious weed material must be disposed of at an approved waste management facility, and transported in compliance with the *Noxious Weeds Act 1993*.
12. Development on land having a natural gradient of 1:6.7 (15%) or greater shall be accompanied by a geotechnical study, including guidelines for structural and engineering works on the land.

Note: the consent authority may require specific information to be submitted with Development Applications that propose earthworks. Applicants should consult with Council to identify information requirements prior to lodgement of an application.

13. For sites with existing water storage facilities (dams) the DA must include a dam removal plan which addresses each of the following controls to Council's satisfaction and must also include details of:
 - A water quality and soil test which details any contaminants in both the water and soil at the base of the dam (all testing shall be undertaken by a qualified consultant and National Association of Testing Authorities accredited laboratory).
 - A salinity hazard test undertaken in accordance with the Office of Water salinity site assessment guidelines.
14. Sites identified as contaminated must follow the Office of Environment and Heritage contaminated water or soil removal guidelines in the *National Environment Protection (Assessment of Site Contamination) Measure 1999*. Contaminated water should be disposed of at a liquid waste facility.
15. Water identified as not contaminated may be re-used on site or on other properties. Should there be no possible reuse option for the water; a controlled release into the creek may be possible.
16. Any controlled release of water into the receiving waters (creek) must ensure against any erosion impact.
17. It is recommended that any water release is undertaken during high flow events as creek water quality is reduced at this time.

3.0

**Neighbourhood and
subdivision design**

3.1 Introduction

This Part of the DCP is structured in two main sections:

- **Clause 3.2** contains controls relating to the design of subdivisions for residential development including lot orientation, road layout, access to arterial and sub-arterial roads, lot dimensions and considerations for land affected by bushfire, flooding and noise.
- **Clause 3.3** outlines general requirements for construction environmental management.

The controls in this Part should be read in conjunction with **Part 4**, which controls development at the individual lot level in the residential areas.

3.2 Neighbourhood and subdivision design

3.2.1 General controls

Objectives

- a. To establish a clear urban structure that promotes a 'sense of neighbourhood' and encourages walking and cycling.
- b. To efficiently utilise land and achieve the target dwelling yield for the relevant Precinct.
- c. To emphasise the natural attributes of the site and reinforce neighbourhood identity through the placement of visible key landmark features, such as parks, squares and landmark buildings.
- d. To ensure that all residential lots are afforded a high level of amenity in terms of solar access, local climatic conditions, outlook and proximity to public and community facilities and parks.
- e. To encourage variety in dwelling size and design to promote housing choice and create interesting streetscapes.

Controls

1. Residential neighbourhoods are to be focused on elements of the public domain such as a school, park, retail, or community facility that are typically within walking distance.
2. Subdivision layout is to create a legible and permeable street hierarchy that responds to the natural site topography, the location of existing significant trees and solar design principles.
3. Pedestrian connectivity is to be maximised within and between each residential neighbourhood with a particular focus on pedestrian routes connecting to public open space, bus stops and railway stations, educational establishments and community/recreation facilities.

4. Street blocks are to be generally a maximum of 250m long and 70m deep. Block lengths in excess of 250m may be considered by Council where pedestrian connectivity, stormwater management and traffic safety objectives are achieved.
5. Residential lots should be rectangular in geometry.
6. The use of battle-axe lots is to be minimised.
7. The subdivision plans are to include:
 - Preferred locations for building footprints;
 - Driveway locations;
 - A plan showing proposed landscape treatments of road verges and locations of street trees;
 - For any lots less than 300 square metres, building envelopes that demonstrate compliance with solar access (**clause 4.4.7**), front, side and rear setback controls (**clauses 4.4.3 and 4.4.4**), minimum dimensions for landscaping (**clause 4.4.6**) and private open space (**clause 4.4.7**), or that demonstrate compliance with the development standards relating to site coverage, building setbacks, landscaping and private open space in Part 3 Division 2 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Note: Where residential or environmental living zoned land is located adjacent to the Sydney Catchment Authority Upper Canal or the Western Sydney Parklands, specific controls (in addition to those in this part of the DCP) are contained in the relevant Precinct Schedule.

3.2.2 Residential character

Objectives

- a. To establish the desired character of the residential areas.
- b. To provide guidance to applicants on the appropriate mix of housing types and appropriate locations for certain housing types.
- c. To ensure that residential development addresses, activates and provides surveillance of the public domain.
- d. To encourage the development of non-residential uses within the residential areas where they support the needs of residents and are compatible with the desired character of those areas.

Controls

1. All applications for residential subdivision and the construction of residential buildings are to demonstrate that the proposal meets the minimum residential density requirements of the relevant Precinct Plan and contributes to meeting the overall dwelling target in the relevant Precinct.
2. Residential development is to be generally consistent with the residential structure as set out in the **Residential structure** figure in the relevant Precinct Schedule.

3. Where residential development is opposite land zoned RE1 Public Recreation or SP2 Drainage (whether or not separated by a road), dwellings are to provide an active frontage, including the main residential entry, oriented towards the open space or drainage land.
4. The orientation and configuration of lots is to be generally consistent with the subdivision principles shown at **Figure 3-1** and **Figure 3-2**.
5. Preferred lot orientation is established by the road layout on the Indicative Layout Plan in the relevant Precinct Schedule. Optimal lot orientation is east-west, or north-south where the road pattern requires. Exceptions to the preferred lot orientation may be considered where factors such as the layout of existing roads and cadastral boundaries, or topography and drainage lines, prevent achievement of the preferred orientation.
6. An alternative lot orientation may be considered where other amenities such as views and outlook over open space are available, and providing appropriate solar access and overshadowing outcomes can be achieved.
7. Residential development in the Environmental Living area, on the **Residential structure** figure, is to:
 - Consist primarily of single dwellings on larger lots, reflecting the environmental sensitivity and visual character of these parts of the Precincts.
 - Emphasise high quality housing design to make the most of the environmental characteristics of the surrounding area.
 - Be designed and located to minimise impacts on flood prone land, and risks to property from flooding.
 - Avoid impacts on Existing Native Vegetation and other remnant native vegetation.
 - Consider relationships to adjoining land uses including public open space and drainage infrastructure.
 - Be designed to respond to constraints from infrastructure corridors such as electricity lines, underground gas pipelines and the Sydney Catchment Authority Upper Canal.
 - Consider views to and from the land and surrounding parts of the Growth Centre and the Western Sydney Parklands.
8. Residential development in the Low Density Residential Area, on the **Residential structure** figure, is to:
 - Incorporate a mix of lot sizes for dwelling houses to provide a range of housing choice within a low density environment.
 - Provide for a mix of dwelling types by focusing the development of small lot dwelling houses, attached and semi-detached dwellings on lots that front land zoned RE1 Public Recreation and SP2 Drainage, and land that has good access to public transport, as shown on **Figure 3-1**.

- Comply with the residential density requirements and provide housing choice by implementing the principles of dwelling mix and lot sizes for the low density residential area, as indicated on **Figure 3-1**.
 - Ensure that the mix of lot size, orientation and dwelling types enables BASIX energy efficiency requirements to be met for all dwellings, and maximises the ability of dwellings to be approved as complying development.
9. Residential development in the Medium Density Residential Area, on the **Residential structure** figure, is to:
- Consist of a mix of dwelling types including small lot housing forms (including detached, semi-detached and attached dwellings), and multi-dwelling housing to take advantage of proximity to the local centre and public transport.
 - Be designed to provide for activation of the public domain, including streets and public open space through the orientation and design of buildings and communal spaces.
 - Comply with the residential density requirements and provide housing choice by implementing the principles of dwelling mix and lot sizes for the medium density residential area, as indicated on **Figure 3-2**.
 - Provide a mix of dwelling sizes to cater for a range of households.
10. Residential development adjacent to sub-arterial roads, arterial roads, transit boulevards and railway lines is to consider the effects of road and rail traffic noise and air quality on residential amenity.
11. Non-residential development in the residential areas is encouraged where it:
- Contributes to the amenity and character of the residential area within which it is located.
 - Provides services, facilities or other opportunities that meet the needs of the surrounding residential population, and contributes to reduced motor vehicle use.
 - Will not result in detrimental impacts on the amenity and safety of surrounding residential areas, including factors such as noise and air quality.
 - Is of a design that is visually and functionally integrated with the surrounding residential area.

Note: The relevant Precinct Plan permits certain non-residential development within the residential zones. **Clause 4.7** of this DCP provides more detailed objectives and controls for these types of development.

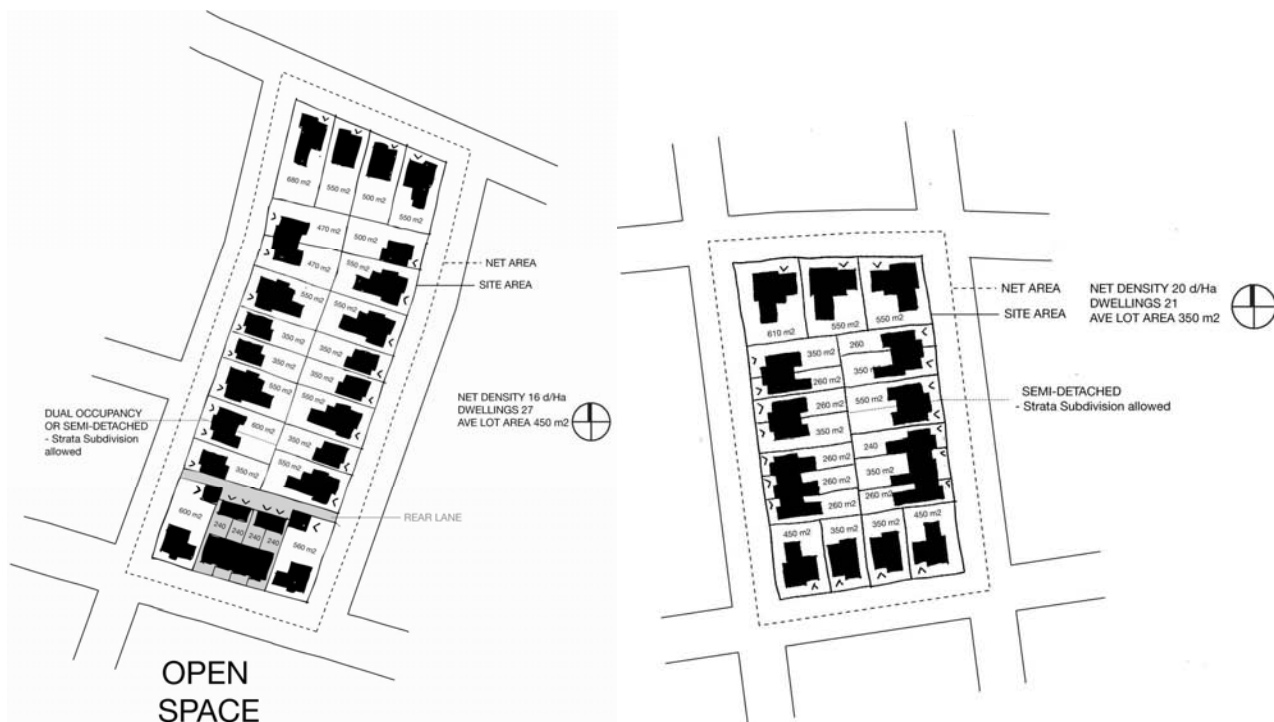


Figure 3-1: Principles of dwelling and lot size mix in the low density residential area

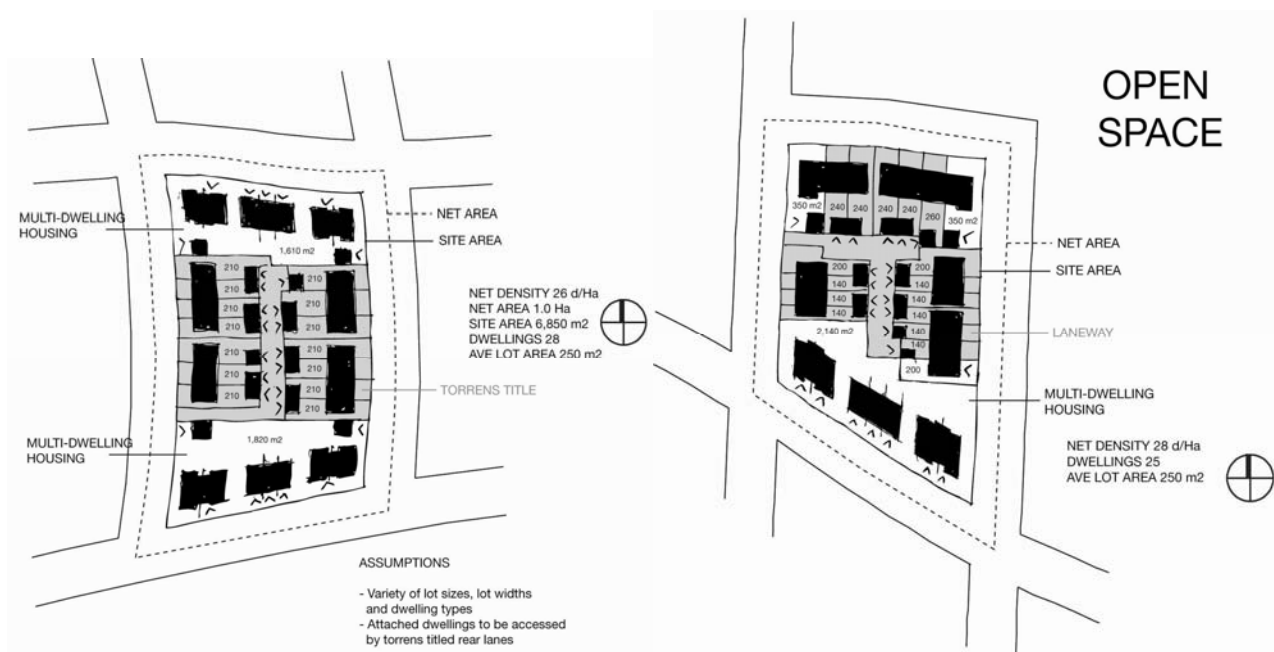


Figure 3-2: Principles of dwelling and lot size mix in the medium density residential area

3.2.3 Street network and design

Objectives

- a. To establish a hierarchy of interconnected streets that give safe, convenient and clear access within and beyond the Precinct;
- b. To assist in managing the environmental impacts of urban development including soil salinity, micro-climate effects, and stormwater;
- c. To facilitate energy efficient lot and building orientation;
- d. To contribute to the creation of an interesting and attractive streetscape; and
- e. Provide a safe and convenient public transport, pedestrian and cycleway network.

Controls

1. The design and construction of streets is to be consistent with the relevant typical designs in **Figure 3-3** to **Figure 3-7**, Council's Engineering Specifications and Austroads.
2. The typical designs in **Figure 3-3** to **Figure 3-7** are based on minimum dimensions and the design of streets may need to be modified to incorporate water sensitive urban design measures and to ensure appropriate site drainage.
3. All Collector Roads, Sub-arterial Roads, Arterial Roads and Transit Boulevards, and local streets which form part of a bus route identified by the Transport for NSW, are to have at least one travel lane in each direction with a minimum width of 3.5 metres, suitable for buses. Intersections on bus routes are to be designed to accommodate bus manoeuvrability.
4. Alternative street designs for local streets and access ways may be permitted on a case by case basis if they preserve the functional objectives and requirements of the design standards.
5. Roads in the relevant Precinct are to be constructed in accordance with the hierarchy shown on the **Precinct road hierarchy** figure in the relevant Precinct Schedule.
6. The locations and alignments of all roads are to be generally in accordance with the locations shown on the **Precinct road hierarchy** figure in the relevant Precinct Schedule.
7. Where any variation to the residential street network indicated at the **Precinct road hierarchy** figure, is proposed, the alternative street network is to be designed to:
 - create a permeable network that is based on a modified grid system,
 - encourage walking and cycling,
 - minimise travel distances for all modes of transport,
 - maximise connectivity between residential areas and community facilities, open space and centres,

- take account of topography and site drainage, and accommodate the retention of significant vegetation,
- optimise solar access opportunities for dwellings,
- provide frontage to and maximise surveillance of open space and drainage lands,
- provide views and vistas to landscape features and visual connections to nodal points and centres,
- maximise the effectiveness of water sensitive urban design measures,
- ensure that noise impacts from major roads are considered and are able to be effectively mitigated without the use of noise walls.
- minimise the use of cul-de-sacs. However, if required, they are to be designed in accordance with Council's Engineering Standards, and
- comply with the requirements of Planning for Bushfire Protection 2006.

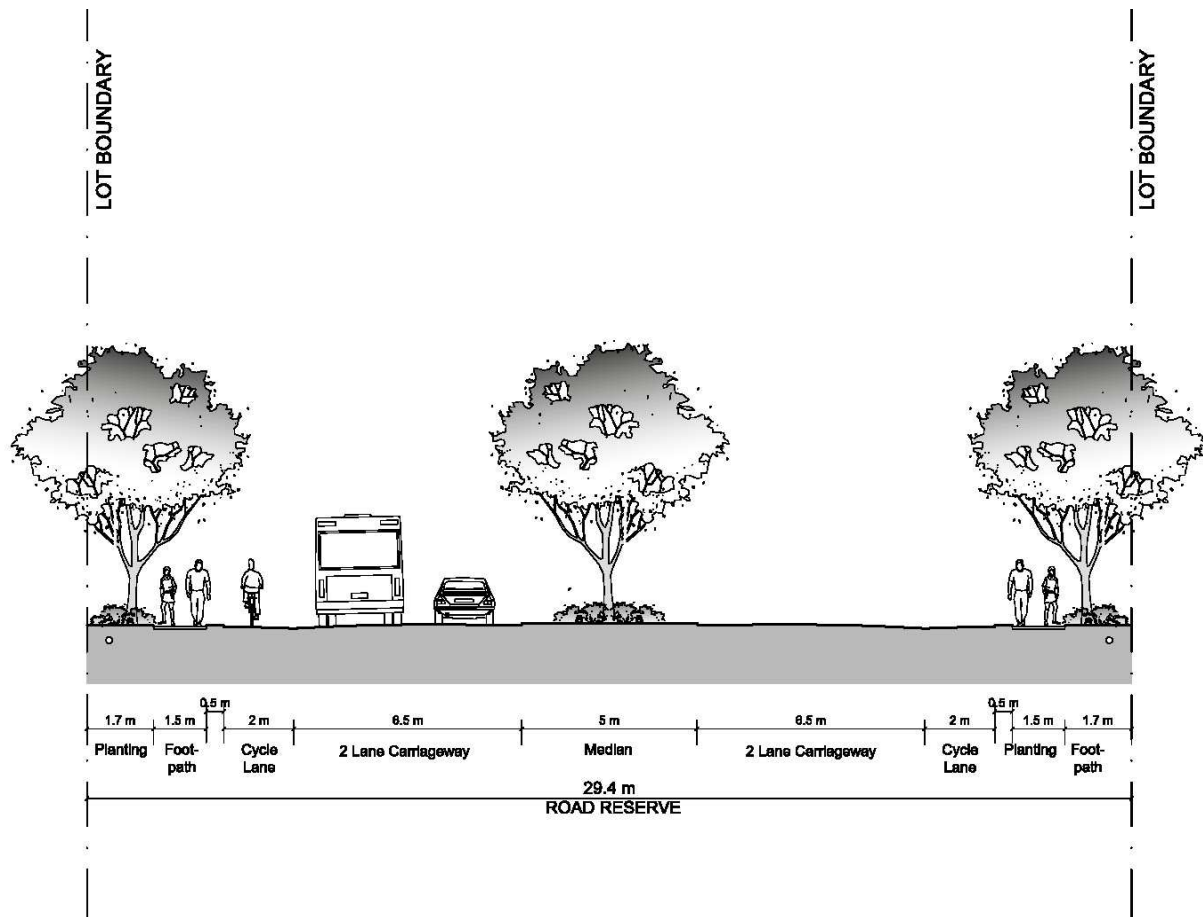


Figure 3-3: Typical Transit Boulevard

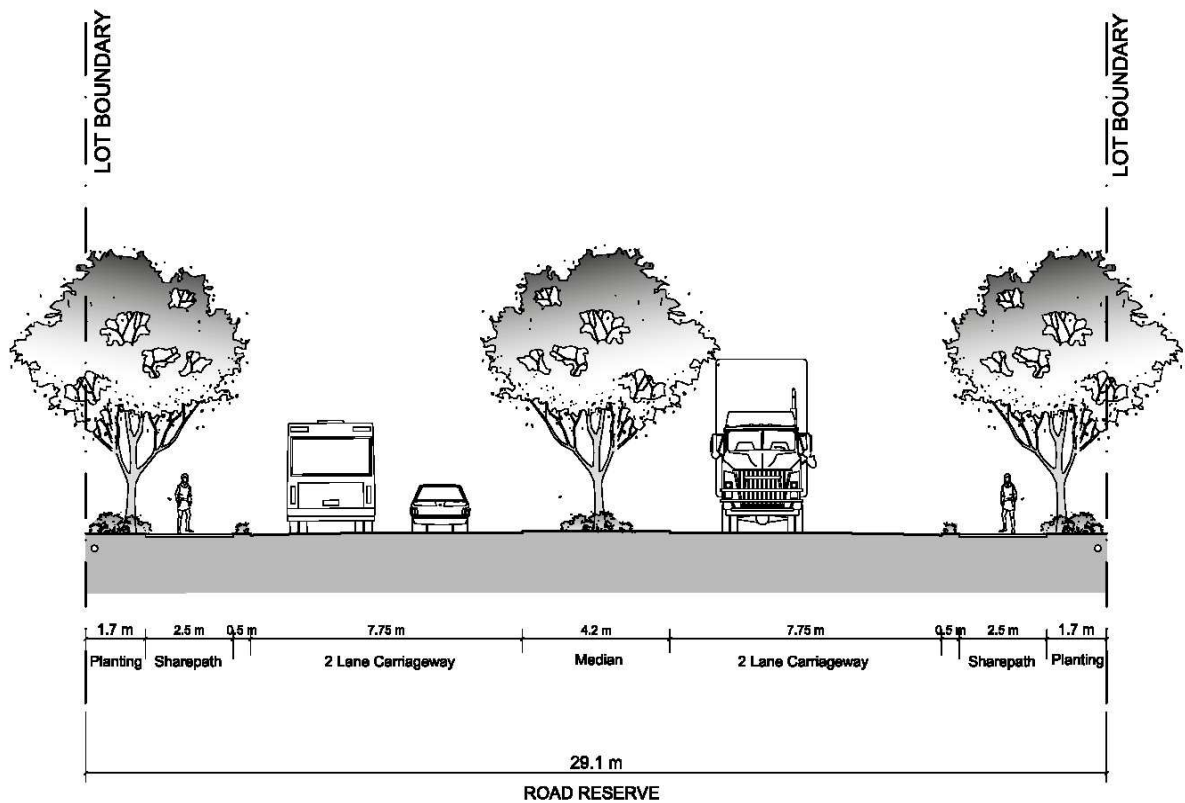


Figure 3-4: Typical sub-arterial road

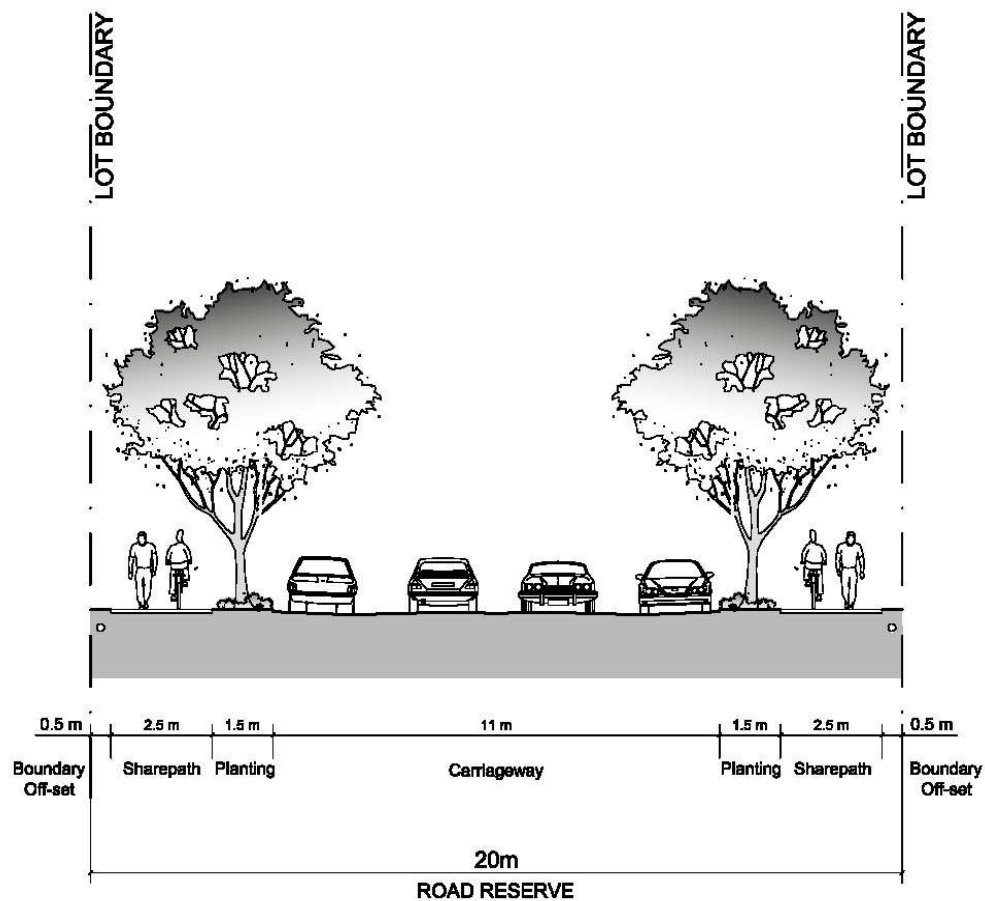


Figure 3-5: Typical collector road

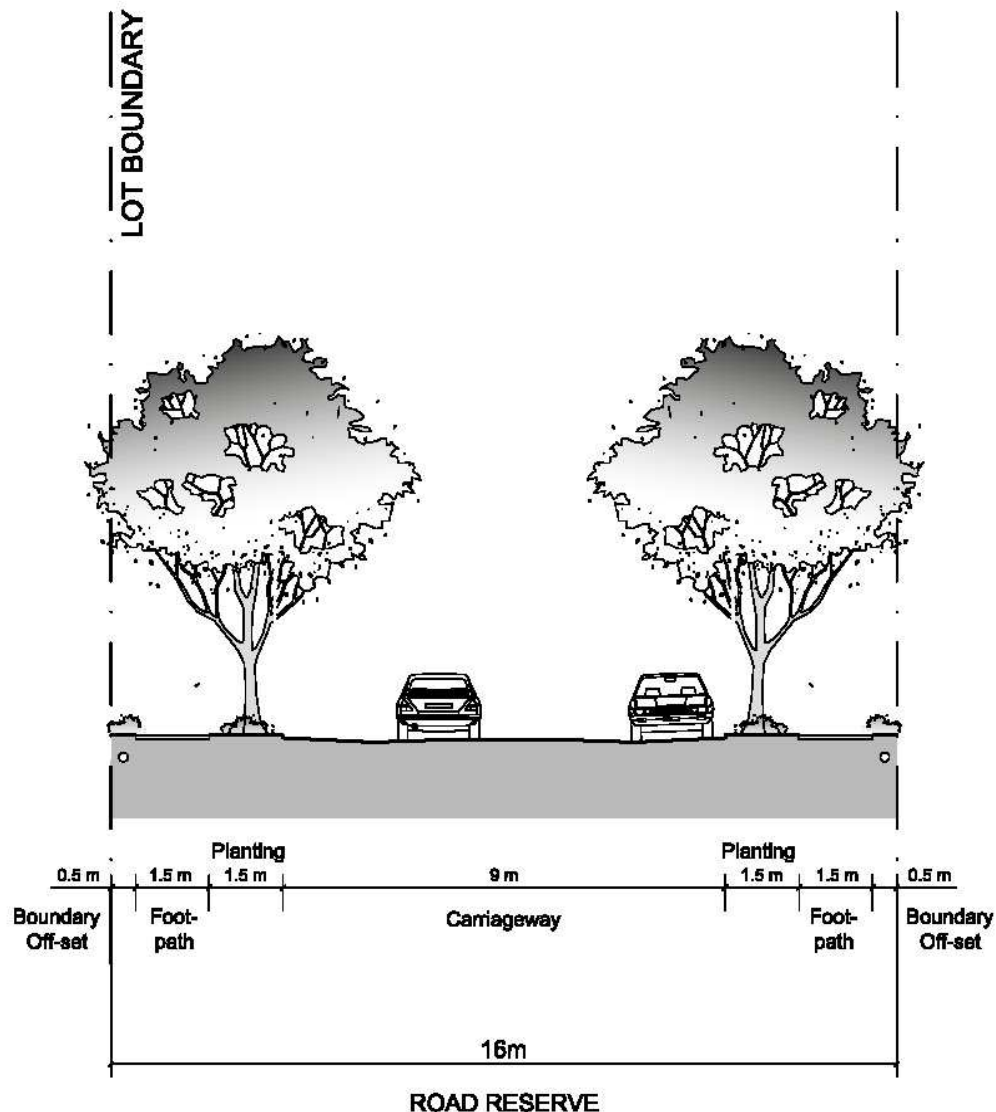


Figure 3-6: Typical local street

8. Variations to the residential street network as permitted under control 7 above will only be approved by Council where the applicant can demonstrate to Council's satisfaction that the proposal:
 - will not detrimentally impact on access to adjoining properties,
 - provides for the management of stormwater to drain to Council's trunk drainage network, without negative impacts on other properties,
 - will not impede the orderly development of adjoining properties in accordance with the relevant Precinct Plan and this Development Control Plan, and

- does not restrict the ability to provide water, sewer, electricity and other essential services to the development or to development on adjoining properties.
9. For changes to the proposed road system which Council considers minor, Council may write to affected property owners and consider any comments of those persons before determining the application. Applicants wishing to amend the proposed road pattern are advised to liaise with affected adjoining owners prior to the submission of the Development Application. By obtaining the prior agreement of adjoining owners to proposed road pattern changes, the time required by Council to determine the application may be reduced.
 10. For changes to the proposed road system which Council considers major, Council may require a formal application for amendment to the DCP map before determining the application.
 11. Where roads are adjacent to public open space or drainage land, or adjacent to arterial, sub-arterial or transit boulevards, the verge width on the side adjacent to the open space, drainage land or major road may, in certain circumstances, be reduced to a minimum of 1m, subject to:
 - Appropriate arrangements for the provision of public utilities,
 - Provision of appropriate pedestrian access,
 - Compliance with road safety, and
 - acoustic attenuation, bushfire asset protection zone, and riparian corridor requirements
 12. Where local roads are located as per control 11 above or are within or on the boundary of land zoned Environmental Living, the carriageway width may be reduced to 6.5 metres providing the applicant can demonstrate to Council's satisfaction that the road will operate safely and effectively.
 13. Where streets are proposed as part of an application for subdivision that are located adjacent to public recreation land, drainage land, community facilities or schools, the applicant will be responsible for construction of the full width of the street, unless Council specifies otherwise.
 14. Except where otherwise provided for in this DCP, all streets and roundabouts are to be designed and constructed in accordance with the minimum requirements set out in Council's Engineering Specifications.
 15. Council may require traffic calming measures to be incorporated into four-way intersections where traffic volumes necessitate controls other than signage, in addition to the intersection treatments specified in the **Precinct road hierarchy** figure in the relevant Precinct Schedule. Measures may include roundabouts, carriageway narrowing or re-alignment, pedestrian islands or raised platforms, banned turns or differently textured materials.
 16. On sloping land, roads that cross the slope may incorporate split carriageways so as to minimise cut and fill, and provide opportunities for landscaping and the preservation of trees. Where split pavements are proposed, they are to comply with the following:
 - Split level road pavements will only be considered where other design solutions eg. one way cross falls, road centre line re-grading, retaining walls within lot boundaries and widening of road reserves to accommodate wider medians etc, cannot achieve the desired outcome.

- The proposed split level pavement must be supported by a Road Safety Audit by an RMS accredited Road Safety Auditor.
 - Split level road pavements should be limited to a maximum road length of 80m, unless otherwise approved by Council. A minimum road length may be required to achieve the requirements of safety fencing.
 - Each "split" road carriageway should be a minimum of 5.5m wide.
 - Batter slopes within a central median shall comply with Council's Engineering Specifications. Retaining walls within the central median are not encouraged but may be considered by Council where road design and safety standards are to the satisfaction of Council.
 - Safety barriers are to be installed in accordance with the requirements of Section 6 of the RTA Road Design Guide. Sign-posting and line-marking are to be provided in accordance with RTA requirements.
 - No split carriageways are allowed at intersections if the split carriageway would restrict pedestrian, cyclist or vehicular access to key destinations such as parks, shopping centres, schools or community facilities.
17. Residential roads, i.e. collector roads, local streets, access road/places, and shareways shall be designed for and sign posted at a maximum of 50kph (i.e. traffic management must be considered at the subdivision application, with either road layout or speed reducing devices used to produce a traffic environment which reduces traffic speed).
 18. Where four way intersections are proposed, traffic is to be controlled, where appropriate and as specified by Council, by traffic lights, roundabouts, median strips or signage, or differently textured materials.
 19. Private roads are to be designed and constructed in accordance with Council's Engineering Specifications. Details must be shown on the engineering design plans and must be submitted prior to the issue of the subdivision certificate.
 20. Street trees are required for all streets. Street planting is to:
 - use the preferred species listed in **Appendix C**,
 - be consistently used to distinguish between public and private spaces and between different classes of street within the street hierarchy,
 - minimise risk to utilities and services,
 - be durable and suited to the street environment and, wherever appropriate, include endemic species,
 - maintain adequate lines of sight for vehicles and pedestrians, especially around driveways and street corners,
 - be located to minimise conflicts between trees and driveways,

- provide appropriate shade in summer and solar access in winter including shading of road carriageways and other hard paved areas to minimise heat retention in summer, and
 - provide an attractive and interesting landscape character and clearly define public and private areas, without limiting passive surveillance of the street.
 - consider items of environmental heritage, heritage conservation areas, historic road alignments and significant view lines.
21. Street trees are to be provided with a minimum spacing of one tree for each residential lot, or one tree per 10 metres of road, whichever spacing is the greater.
 22. Street trees may be permitted within the road carriageway subject to the findings of a Road Safety Audit.
 23. While acknowledging the amenity benefit from trees within the carriageway, applications that propose carriageway trees will be assessed by Council with consideration given to:
 - access and manoeuvrability of garbage trucks, street sweepers and cars,
 - the impact of the root system on the carriageway;
 - ongoing maintenance of the tree and carriageway;
 - the relationship with future driveway access points; and
 - Traffic safety.
 24. For medians less than 4m width (eg at intersections), no planting is permitted and hard surfaces are to be provided.
 25. Signage, street furniture and lighting is to be:
 - designed to reinforce the distinct identity of the development;
 - coordinated in design and style;
 - located so as to minimise visual clutter and obstruction of the public domain; and
 - consistent with any landscaping and public domain guidelines or policies specified by Council.
 26. Locating entry signage and the like within a public road reserve is subject to Council agreement.
 27. The location and design of signage and street furniture is to be indicated on the Landscape Plan and on engineering construction drawings.
 28. Street lighting is to be designed to meet the current Australian Standards AS/NZS 1158 series.
 29. Access streets (refer to **Figure 3-7**) may be used where:
 - The access street separates residential land from open space or drainage land or is adjacent to an arterial road, sub-arterial road or transit boulevard.
 - The road is not a through traffic route (ie it provides access only to residences on it).

- A maximum of 10 dwellings, between each intersection with another public road, have a frontage and vehicular access to the access street.

30. Access streets are to intersect with local roads only.
31. Access streets may also be used where the street is entirely within land zoned E4 Environmental Living, or separates land that is zoned E4 Environmental Living from another zone, including land zoned R2 Low Density Residential. In these situations the Boundary Off-set, Footpath and Planting areas in the verge (as shown in **Figure 3-7**) must be constructed on both sides of the road as part of the development:
32. The carriageway width of an access street may be reduced to a minimum of 6.5 metres subject to consideration of traffic volumes and road safety issues.

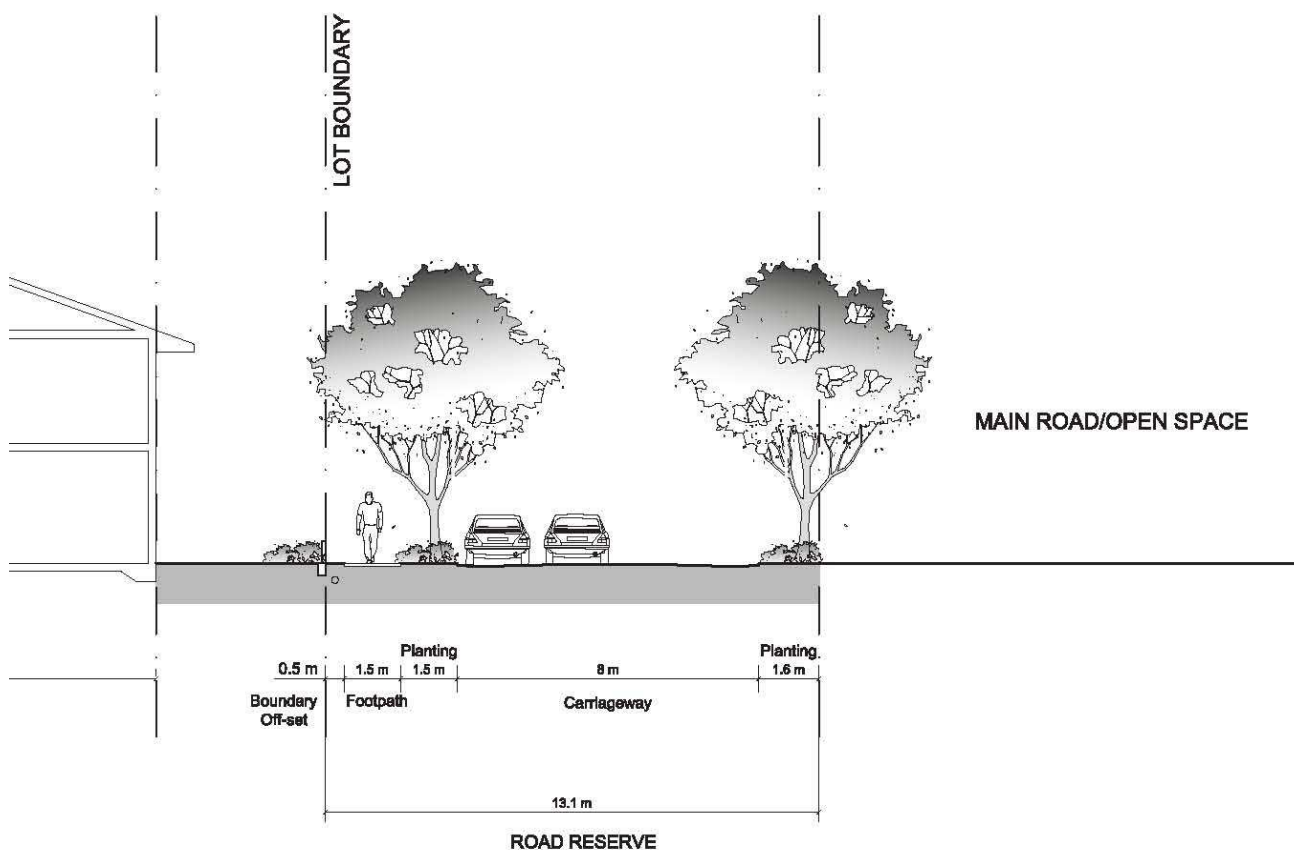


Figure 3-7: Typical access street

Note: As specified in Control 32, the carriageway width specified above may be reduced to 6.5m in some circumstances.

3.2.4 Pedestrian and Cycle Network

Objectives

- a. To provide a convenient, efficient and safe network of pedestrian and cycleway paths for the use of the community, within and beyond the site.
- b. To encourage residents to walk or cycle, in preference to using motor vehicles, as a way of gaining access to the schools, shops, and local community and recreation facilities.
- c. To promote the efficient use of land by allowing pedestrian pathways and cycleways to be located within parks and corridors wherever practical.

Controls

1. Key pedestrian and cycleway routes are to be provided generally in accordance with the **pedestrian and cycleway network** figure in the Precinct Schedule.
2. The design of footpaths and cycleways located within the road reserve is to be in accordance with **Figure 3-3 to Figure 3-7**.
3. The minimum width of off-street shared cycle and pedestrian pathways is to be 2.5m.
4. All pedestrian and cycleway routes and facilities are to be consistent with the Planning Guidelines for Walking and Cycling (DoP & RTA 2004), relevant Council pedestrian and cycling plans and policies, and Council Engineering Design and Construction Specifications.
5. Pedestrian and cycle routes and facilities in public spaces are to be safe, well lit, clearly defined, functional and accessible to all.
6. Pedestrian and cycle pathways and pedestrian refuge islands are to be designed to be fully accessible by all in terms of access points and gradients, generally in accordance with Australian Standard 1428:1-4.
7. Detailed designs for pedestrian and cycle paths are to be submitted with subdivision development applications.
8. Pedestrian and cycle pathways that are within road verges or carriageways are to be constructed as part of the road construction works for each subdivision.
9. Cycle and pedestrian bridges must be located above the 5% AEP flood level.

3.2.5 Temporary vehicular access

Objectives

- a. To enable development to progressively occur in Precincts where current land ownership or other development staging constraints temporarily limit road access to properties in accordance with this DCP;
- b. To ensure that appropriate vehicular access to properties is provided and maintained at all times during the development of the Precincts;
- c. To ensure that temporary vehicular access arrangements do not compromise safety and the efficient operation of the road network.

Controls

1. Where necessary to ensure that access to residential properties is provided in the early stages of development, Council may consent to the construction and operation of temporary access roads.
2. Temporary access arrangements must comply with Council's Engineering Specifications.
3. Temporary access roads are to remain in operation only until such time as the road network has been developed to provide permanent access to all properties. A section 88B instrument is required as part of the subdivision requiring that the temporary access road remains open for as long as necessary to ensure access to all properties.
4. The plan of subdivision is to show the location and design of temporary access roads, and the means of transitioning to permanent access arrangements

Note: Specific controls in **clause 3.2.6** apply to temporary access to arterial roads, sub-arterial roads and transit boulevards

5. Temporary turning circles may be required where roads are to continue onto adjoining properties that are not yet developed. Temporary turning circles are to have a minimum radius of 8 metres and are to be sealed using the same materials as the rest of the road. These turning circles must be shown on the plan of subdivision and the application must also demonstrate how the transition to permanent arrangements will be managed.
6. Half-width roads may be constructed to provide temporary access to residential development, in accordance with **Figure 3-8**. The applicant will cover all costs associated with the design of the full road width and construction of half the full width pavement, including temporary and permanent drainage infrastructure, adequate transitions to full width cross sections, plus a two way traffic configuration ensuring operational effectiveness and safety to relevant standards.
7. Half-width roads are only permitted where the road is located on the side boundary of the land to be developed.
8. The centreline (of the full-width road) is to be located on the boundary.
9. The half-width road design is to ensure that runoff from the road pavement is directed to the kerb.

10. The development application plans are to show the vertical alignment of the half-width road relative to existing ground level on the adjoining property, and the applicant is to demonstrate how the half-width road will be integrated with adjoining land.
11. A minimum carriageway width of 5.5 metres is required for all half-width roads.

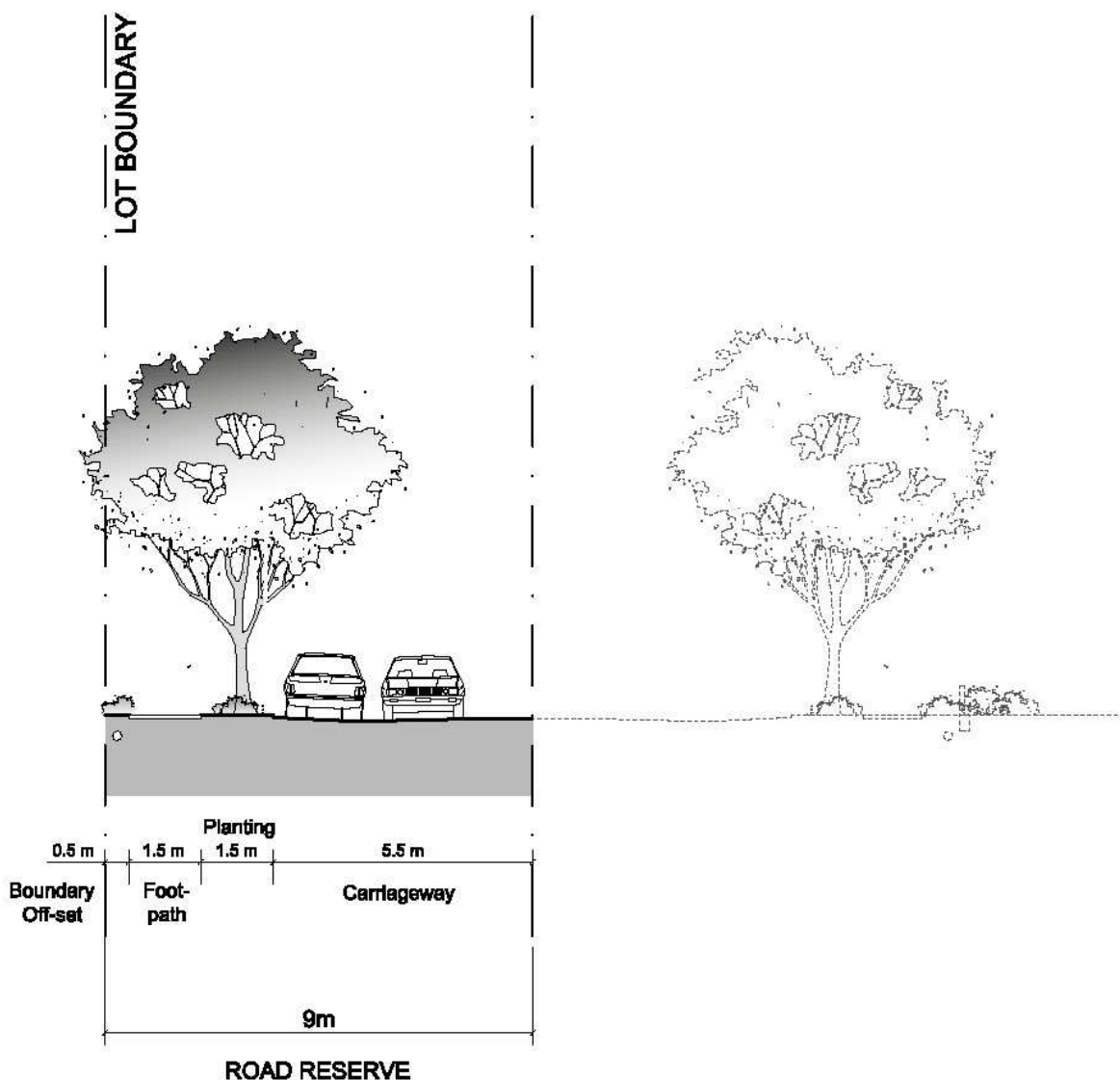


Figure 3-8: Temporary half road width construction

3.2.6 Access to arterial roads, sub-arterial roads and transit boulevards

Objectives

- a. To restrict direct property access to higher order roads to provide for the safe and efficient movement of vehicles on these roads.

Controls

1. Vehicular access to arterial roads, sub-arterial roads and transit boulevards shown on the **Precinct Road Hierarchy** figure, in the relevant Precinct's Schedule, may only be via another public road.
2. To enable the development of land, such as in situations where access across adjoining properties is required but not yet able to be provided, Council may allow temporary access to arterial roads, sub-arterial roads or transit boulevards where:
 - subdivisional roads generally conform with the road pattern shown on the Indicative Layout Plan and the development is capable of being adapted to ensure alternative access when adjacent development occurs;
 - The arterial road, sub-arterial road or transit boulevard is not yet upgraded to its ultimate configuration and/or traffic volumes on the road network are not sufficient to justify restricting direct access;
 - Council is satisfied that the carrying out of the development will not compromise traffic safety.
 - Applicants can demonstrate how the development will enable transition to permanent access arrangements that comply with parking, loading and access and adopted road network requirements of this DCP.
3. Where Council grants such consent, the temporary access must be constructed to Council's standards and conditions will be imposed that access to the designated road by way of the temporary access shall cease when alternative access becomes available.

Note: Approval from the RMS may also be required for any temporary access to a classified road.

3.2.7 Lot dimensions for residential subdivision

Objectives

- a. To accommodate a mix of lot sizes and dwelling types.
- b. To establish minimum lot dimensions for different residential dwelling types.
- c. To avoid overdevelopment by clearly relating the street frontage width, lot size and dwelling type controls.

Controls

1. Minimum lot frontage and lot sizes for each dwelling type will comply with **Table 3-1**.
2. Lot frontage is measured at the street facing building line as indicated in **Figure 3-9**.

Note: *The combination of the lot frontage width and the size of the lot determine the type of dwelling that can be erected on the lot, and the development controls that apply to that dwelling.*

3. Residential subdivision is to provide for a mix of lot frontage widths to enable the development of a range of housing types and sizes.
4. On all lots where a zero lot line is permitted, the side of the allotment that may have a zero lot alignment must be shown on the approved subdivision plan. In addition, the *S88B instrument* for the subject lot and the adjoining lot shall include a note identifying the potential for a building to have a zero lot line.

Note: *Council will require a minimum 900mm wide easement to be registered on the title of each lot that adjoins a lot with a zero lot line to enable servicing and maintenance of the adjoining dwelling.*

5. The location of the zero lot line is to be determined with regard to dwelling design, allotment orientation, adjoining dwellings, landscape features, drainage, earthworks, maintenance and topography.
6. Except for attached housing which is to be served by a rear lane, no more than 3 lots in a row of the same lot frontage width will be permitted.
7. Lots should be rectangular. Where lots are an irregular shape, they are to be large enough and oriented appropriately to enable dwellings to meet the controls in this DCP.

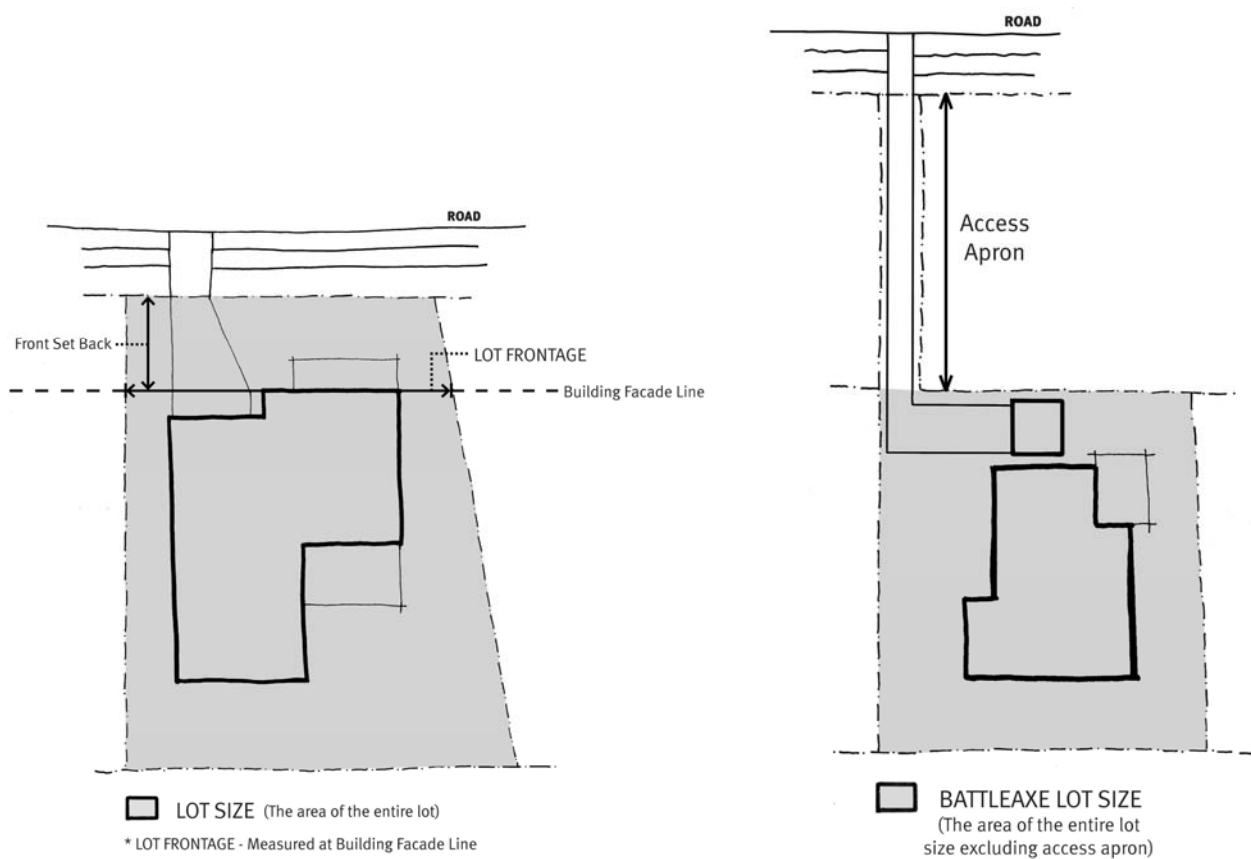


Figure 3-9: Measurement of minimum lot widths and lot area

Table 3-1: Minimum lot frontage and lot size according to dwelling type

Dwelling type	Lot Frontage (minimum)	Lot size (minimum)
Dwelling House	10m	250m ²
Dwelling House with zero lot line on one side	8m	200m ²
Dual Occupancy Dwellings	15m	500m ²
Secondary Dwelling	Same as for principal dwelling	450m ²
Semi-Detached Dwelling (per dwelling)	8m	200m ²
Attached Dwelling (per dwelling)	5m	125m ²
Multi Dwelling Housing	26m	1000m ²
Residential Flat Buildings	30m	1000m ²
Corner Lots (except for attached dwellings)	15m	450m ²
Battle Axe Lots	15m	500m ²

3.2.8 Battle-axe lots

Objectives

- a. To limit battleaxe lots to certain circumstances.
- b. To ensure that where battleaxe lots have to be provided, their amenity and the amenity of neighbouring lots is not compromised by their location away from the street.

Controls

1. Battle-axe lots will only be permitted where they border public recreation or drainage areas, or where they are required to resolve residual land issues. Principles for the location of battle-axe lots are illustrated at **Figure 3-10**.
2. The minimum site area for battleaxe lots is 500m² (excluding the access apron).
3. Only dwelling houses will be permitted on battleaxe blocks.
4. The access apron will comprise a driveway with adjacent planting and trees, as indicated in **Figure 3-11**.
5. Driveway design, including dimensions and corner splays, is to be in accordance with Council's Engineering Specifications.

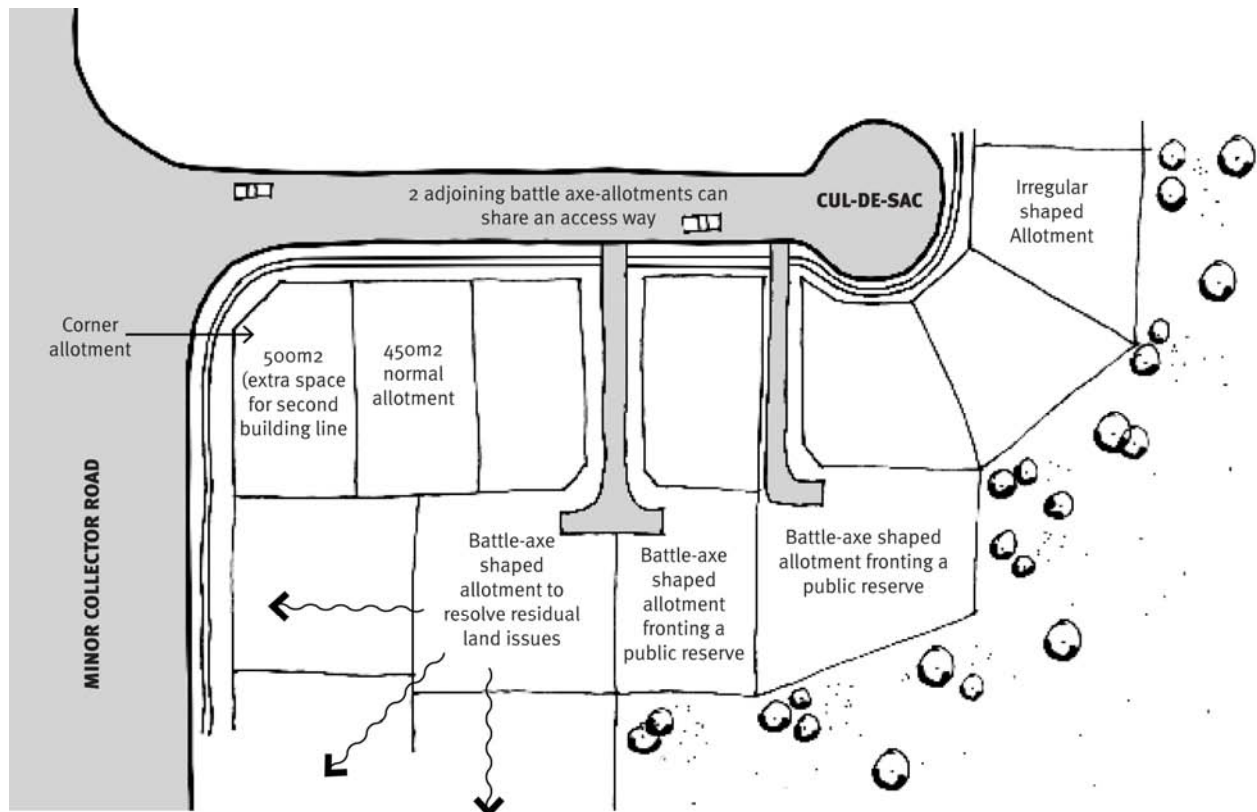


Figure 3-10: Locations of battleaxe lots

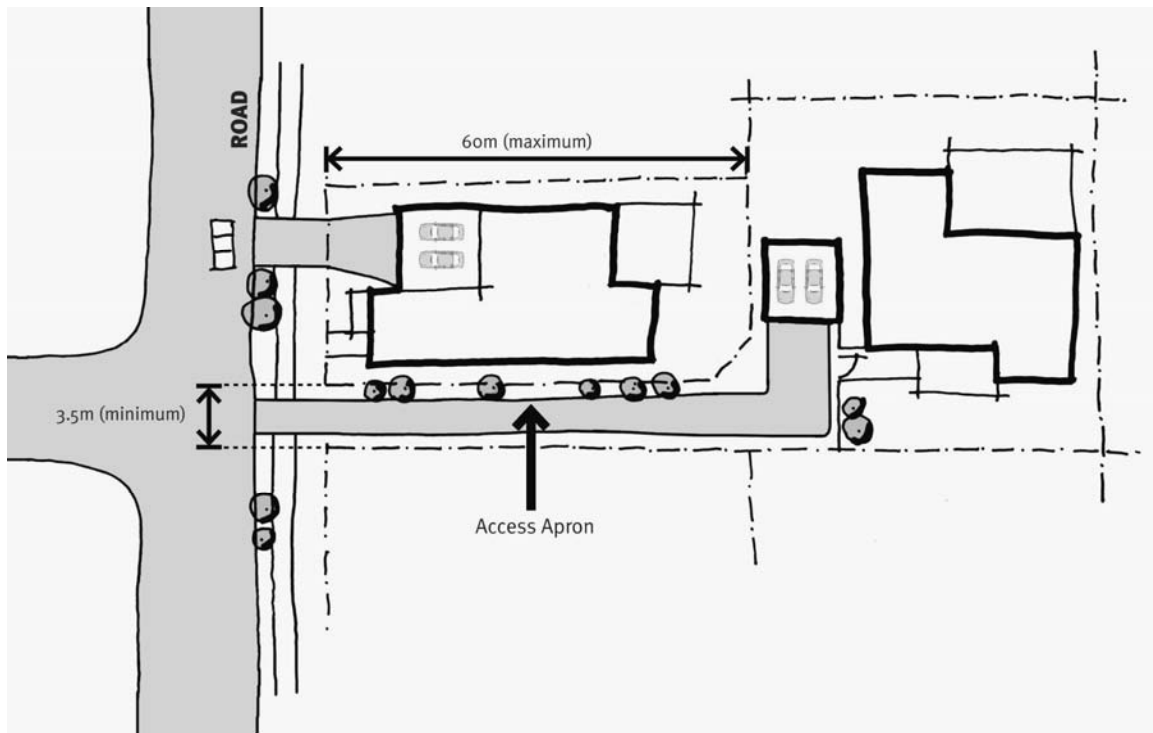


Figure 3-11: Access aprons for battle-axe lots

3.2.9 Corner lots

Objectives

- a. To ensure corner lots are of sufficient dimensions and size to enable residential controls to be met.

Controls

1. Corner lots are to be designed in accordance with AS 2890.
2. Corner lots are to be designed to allow dwellings to positively address both street frontages as indicated in **Figure 3-12**.
3. Splays on corner lots shall be designed in accordance with AS 2890.
4. The driveway shall be set back a minimum of 6 metres from the corner splay.
5. Garages on corner lots are encouraged to be accessed from the secondary street or a rear lane.

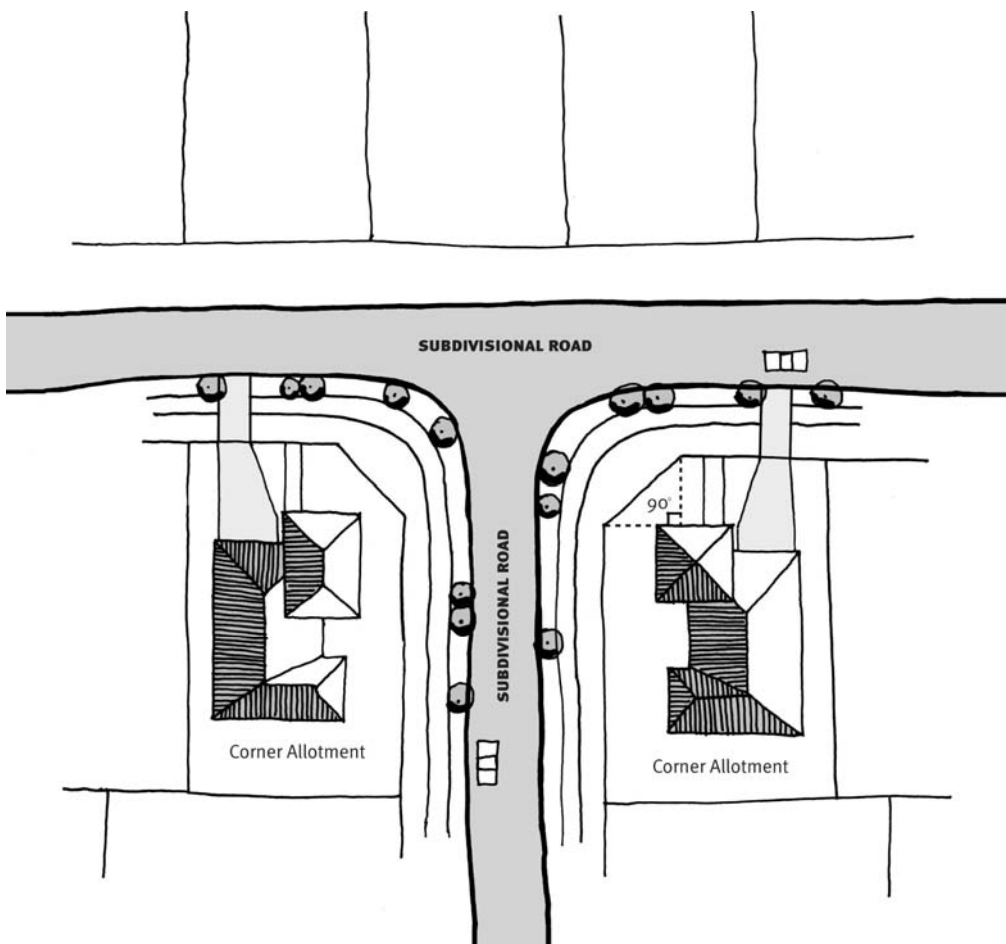


Figure 3-12: Corner lots

3.2.10 Subdivision in the Environmental Living zone

Objectives

- a. To ensure that lot sizes are consistent with the environmental qualities and constraints of land in these zones.
- b. To minimise potential impacts of development on flooding and risks to property from flooding.
- c. To limit risks of impacts to infrastructure including the Sydney Catchment Authority Upper Canal, electricity lines and underground pipelines.
- d. To ensure that development does not impact on the visual qualities of these areas or visual amenity in adjacent areas.

Controls

1. The minimum frontage width of lots in the Environmental Living zone is:
 - 30 metres, where the lot is within (or partly within) Floodprone and Major Creeks land as indicated on the Development Control Map that forms part of the Growth Centres SEPP; or
 - 20 metres where the lot is wholly outside Floodprone and Major Creeks land.
2. Subdivision of land in the Environmental Living zone is to:
 - Consider the location of flood prone land and ensure that each lot is capable of accommodating a dwelling that complies with the controls for development on flood prone land in **clause 2.3.1**.
 - Protect Existing Native Vegetation and other vegetation within the Environment Protection overlay on the Precinct Indicative Layout Plan.
3. Subdivision of land in the Environmental Living zone is to ensure that:
 - The layout of residential lots and the likely positioning and orientation of dwellings does not significantly impact on the visual character of the locality.
 - The orientation of lots and dwellings allows for passive surveillance of public land and infrastructure easements where relevant.
 - Any areas of remnant native vegetation or significant trees are preserved to the maximum practical extent, including avoiding or minimising subdivision of land that contains Existing Native Vegetation (as shown on the Native Vegetation Protection Areas Map).
 - Impacts on utilities easements can be avoided during subdivision works and when buildings are constructed on the land.
 - Access to easements for maintenance and inspections is maintained.

3.3 Construction Environmental Management

Objectives

- a. To ensure that the construction of subdivisions, new buildings and other structures and works is done in an environmentally responsible manner.

Controls

1. A Construction Environmental Management Plan (CEMP) is to be submitted to Council or the accredited certifier prior to the issue of a construction certification for subdivision.
2. The CEMP is to detail the methods of ensuring the protection of the environment during construction, monitoring and reporting on construction activities, and procedures to be followed in the event of an incident that is likely to cause harm to the environment.
3. Construction activities are to be undertaken to ensure that water quality, soil stability, trees and vegetation cover, and heritage sites are protected in accordance with the development consent and to maintain the quality of the natural environment.
4. Applicants are to ensure that the management of construction activities is undertaken in accordance with the Erosion and Sedimentation controls in Liverpool DCP 2008.
5. Preservation of trees and native vegetation during construction is to be in accordance with the development consent issued for the development, and with the native vegetation and tree preservation provisions of the relevant Precinct Plan.
6. Trees to be protected must be enclosed within a 1.8m high protection fence installed to conform to a Tree Protection Zone (TPZ) that is consistent with current arboriculture industry standards.
7. A report which outlines the condition, dimensions and species of existing trees contained within a development site is to be included as part of any development application documents and is to be accompanied by a Tree Retention Management Plan which shows the dimension of any proposed TPZs and outlines any other protection/enhancement methods that are appropriate to encourage the viable retention of trees.
8. All reports pertaining to trees on development sites are to be prepared by a suitably qualified person.

4.0

Residential Development

4.1 Introduction

This Part sets out the objectives and development controls that relate to the design of all residential development across the Liverpool Growth Centre Precincts. This Part is to be used to design buildings using principles that apply to all residential development and specific controls for certain types of housing.

4.2 Site analysis

Site analysis for each individual lot is an important part of the design process. Development proposals need to illustrate design decisions which are based on careful analysis of the site conditions and their relationship to the surrounding context. By describing the physical elements of the locality and the conditions impacting on the site, opportunities and constraints for development can be understood and addressed in the design.

The Site Analysis Plan should show the existing features of the site and its surrounding area, together with supporting written material. A Site Analysis Plan must show at least the following features:

- the position of the proposed building in relation to site boundaries and any other structures and existing vegetation and trees on the site;
- any easements over the land;
- the location, boundary dimensions, site area and north point of the land;
- location of existing street features adjacent to the property, such as trees, planting, street lights;
- contours and existing levels of the land in relation to buildings and roads and, whether the proposed development will involve any changes to these levels;
- location and uses of buildings on sites adjoining the land; and
- a stormwater concept plan (where required).

4.3 Residential amenity and sustainability

4.3.1 Cut and fill

Objectives

- a. To minimise the extent of cut and fill within residential allotments.
- b. To protect and enhance the aesthetic quality of the area by controlling the form, bulk and scale of land forming operations.
- c. To ensure that fill material is not contaminated and does not adversely affect the fertility or salinity of soil, or the quality of surface water or groundwater.

- d. To ensure that the amenity of adjoining residents is not adversely affected by any land forming operation.

Controls

1. The maximum cut on a site must not exceed 600mm.
2. All retaining wall structures shall be masonry construction and designed by a suitably qualified person, or constructed as specified by the manufacturer of the product. The retaining wall shall be constructed wholly inside (within) the boundary of the site.
3. All slab constructions for dwellings that are above natural ground level are to be constructed using dropped edge beams to retain fill, as shown in **Figure 4-1**. The maximum fill within the confines of the slab must not exceed 1m. All fill must be contained within the dwelling footprint. Retaining structures must be constructed prior to the release of the occupation certificate.
4. Contaminated fill, either imported or found on site, is not permitted.
5. Where an applicant considers that an allotment has characteristics which warrant exemption from this policy, an application for exemption may be made by the submission of a development application to Council for consideration. In addition to normal requirements the submission should include:
 - A plan showing existing contours (at 0.5m intervals) of the subject site and all adjoining sites.
 - A plan showing future contours (after proposed cut and fill) of the subject site and all adjoining sites.
 - Full details of any proposed retaining wall(s).
6. The maximum height of voids within individual allotments is 3m, as illustrated in **Figure 4-2**.

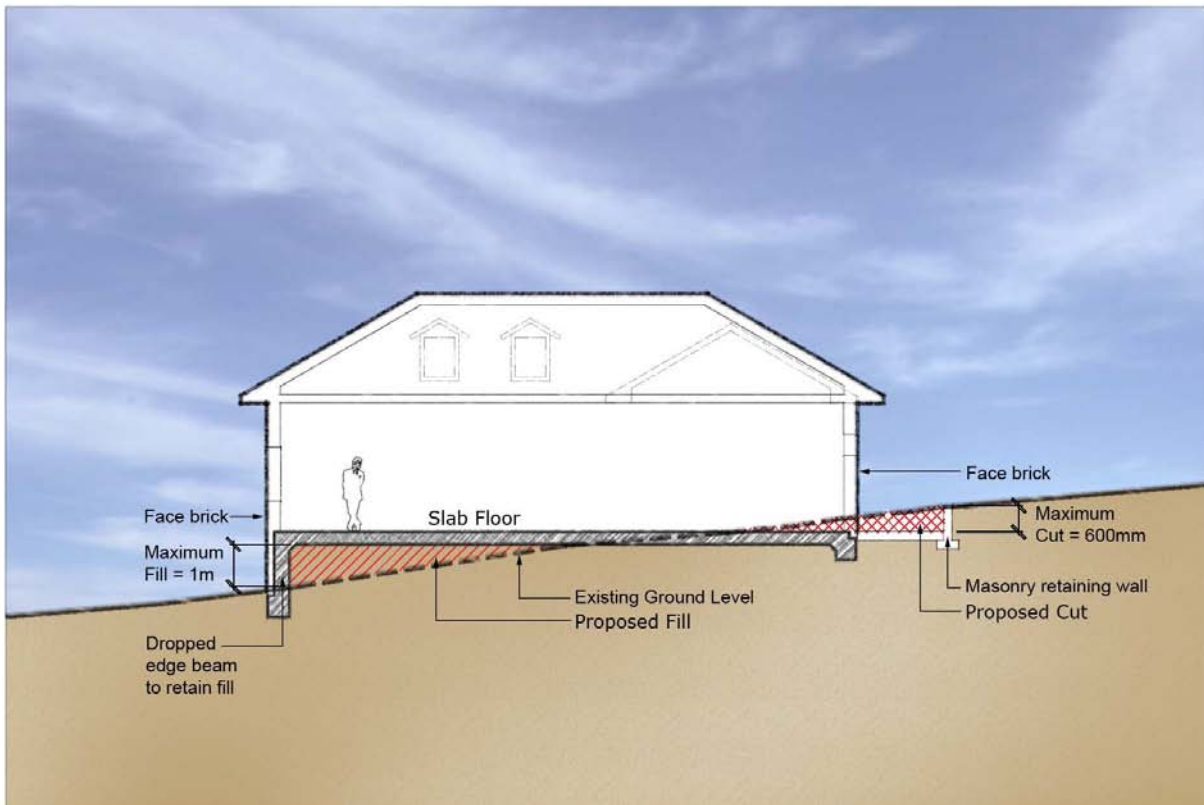


Figure 4-1: Cut and fill requirements

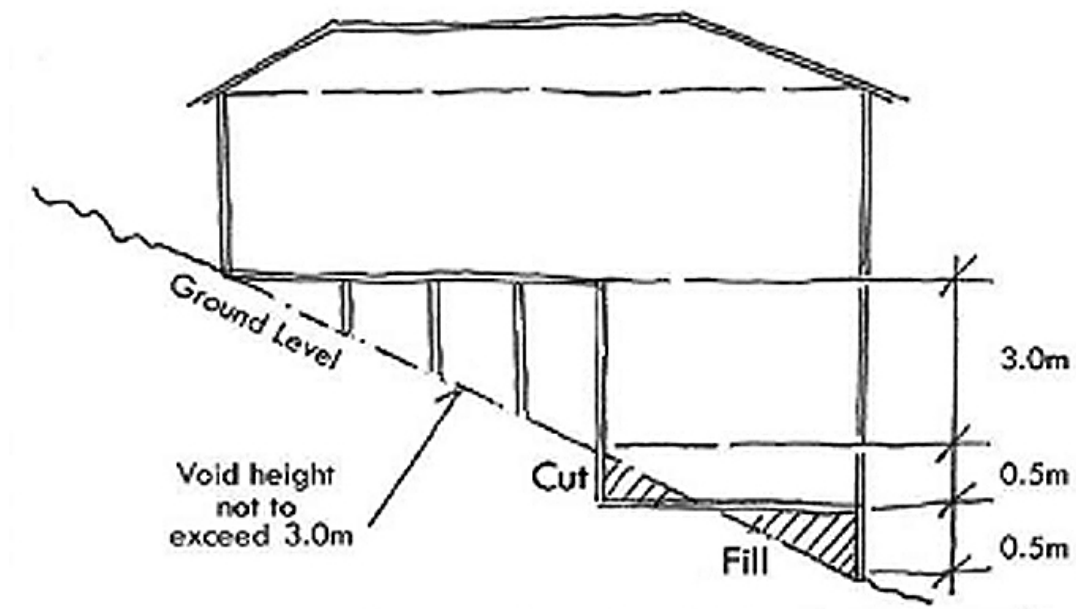


Figure 4-2: Maximum cut and fill within residential lots

4.3.2 Sustainable building design

Objectives

- a. To maximise microclimate benefits to residential lots and to minimise impacts of residential development on local climatic conditions.
- b. To enhance streetscape amenity and ensure an appropriate standard of landscaping.
- c. To minimise energy usage and greenhouse emissions and encourage the adoption of renewable energy initiatives.
- d. To minimise consumption of potable water for non-potable uses, minimise site runoff and promote stormwater re-use.
- e. To minimise the use of non renewable resources and minimise the generation of waste during construction.

Controls

1. The majority of plant species are to be selected from the preferred species listed at **Appendix C** and indigenous species are preferred.
2. The provisions of BASIX will apply with regards to water requirements and usage.
3. The design of dwellings is to maximise cross flow ventilation.
4. The orientation of dwellings, location of living rooms and the positioning and size of windows and other openings is to take advantage of solar orientation to maximise natural light penetration to indoor areas and to minimise the need for mechanical heating and cooling.
5. Outdoor clothes lines and drying areas are required for all dwellings and can be incorporated into communal areas for multi-dwelling development and residential flat building developments.
6. Design and construction of dwellings is to make use of locally sourced materials where possible.
7. Residential building design is to use, where possible, recycled and renewable materials.
8. Roof and paving materials and colours are to minimise the retention of heat from the sun.
9. The design of dwellings that are required to attenuate noise shall use, where possible, alternatives to air-conditioning, such as acoustic wall ventilators, ceiling fans, or bulkhead-mounted ducted fans to achieve appropriate ventilation.

4.3.3 Salinity, sodicity and aggressivity

Objectives

- a. To manage and mitigate the impacts of, and on, salinity.

Controls

1. All development must comply with the Salinity Management Plan developed at the subdivision phase or at **Appendix B**. The actions/works from the Salinity Management Plan must be certified upon completion of the development.
2. Salinity shall be considered during the siting, design and construction of dwellings including: drainage, vegetation type and location, foundation selection and cut and fill activities, to ensure the protection of the dwelling from salinity damage and to minimise the impacts that the development may have on the salinity process.

4.3.4 Visual and acoustic privacy

Objectives

- a. To site and design dwellings to meet user requirements for visual and acoustic privacy, while minimising the visual and acoustic impacts of development on adjoining properties.
- b. To minimise the impact of noise of other non-residential uses such as parking and sport areas, restaurants and cafes and waste collection and goods deliveries.

Controls

1. Direct overlooking of main habitable areas and the private open spaces of adjoining dwellings should be minimised through building layout, window and balcony location and design, and the use of screening, including landscaping.
2. Living area windows on upper floors with a direct sightline within 9 metres to the Principal Private Open Space of an existing adjacent dwelling are to:
 - be obscured by fencing, screens or landscaping, or
 - be offset from the edge of one window to the edge of the other by a distance sufficient to limit views into the adjacent window; or
 - have sill height of 1.7 metres above floor level; or
 - have fixed obscure glazing in any part of the window below 1.7 metres above floor level.
3. Balconies are not permitted on the first floor of the side and / or rear portion of the dwelling except where the balcony faces a public road, or land zoned for public recreation or drainage.
4. The design of dwellings must minimize the opportunity for sound transmission through the building structure, with particular attention given to protecting bedrooms and living areas.

5. In attached and semi-detached dwellings, bedrooms of one dwelling are not to share walls with living spaces or garages of adjoining dwellings, unless it is demonstrated that the shared walls and floors meet the noise transmission and insulation requirements of the National Construction Code.
6. No electrical, mechanical or hydraulic equipment or plant shall generate a noise level greater than 5dBA above background noise level measured at the property boundary during the hours 7.00am to 10.00pm and noise is not to exceed background levels during the hours 10.00pm to 7.00am.
7. Dwellings along sub-arterial or arterial roads, or transit boulevards, or any other noise source, should be designed to minimize the impact of traffic noise, and where possible comply with the criteria in **Table 4-1**.

Note: Figure 4-3 provides guidance on measures to mitigate noise in residential buildings.

8. The internal layout of residential buildings, window openings, the location of outdoor living areas (i.e. courtyards and balconies), and building plant should be designed to minimise noise impact and transmission.
9. Noise walls are not permitted.
10. Development affected by rail or traffic noise is to comply with *Development Near Rail Corridors and Busy Roads – Interim Guideline* (Department of Planning 2008). The design of development is also to consider ways to mitigate noise in Principal Private Open Space areas.
11. Architectural treatments are to be designed in accordance with AS3671 - Traffic Noise Intrusion Building Siting and Construction, the indoor sound criteria of AS2107 - Recommended Design Sound Levels and Reverberation Times for Building Interiors.

Table 4-1: Noise criteria for residential premises impacted by traffic noise

	Sleeping areas	Living areas
Naturally ventilated/ windows open to 5% of the floor area (Mechanical ventilation or air conditioning systems not operating)	LAeq 15 hours (day): 40dBA LAeq 9 hour (night): 35dBA	LAeq 15 hours (day): 45dBA LAeq 9 hour (night): 40dBA
Doors and windows shut (Mechanical ventilation or air conditioning systems are operating)	LAeq 15 hours (day): 43dBA LAeq 9 hour (night): 38dBA	LAeq 15 hours (day): 46dBA LAeq 9 hour (night): 43dBA

Notes:

These levels correspond to the combined measured level of external sources and the ventilation system operating normally.

*Where a naturally ventilated/windows open condition cannot be achieved, it is necessary to incorporate mechanical ventilation (**clause 4.3.2** includes controls for appropriate ventilation systems).*

LAeq 1 hour noise levels shall be determined by taking as the second highest LAeq 1 hour over the day and night period for each day and arithmetically averaging the results over a week for each period (5 or 7 day week, which ever is highest)

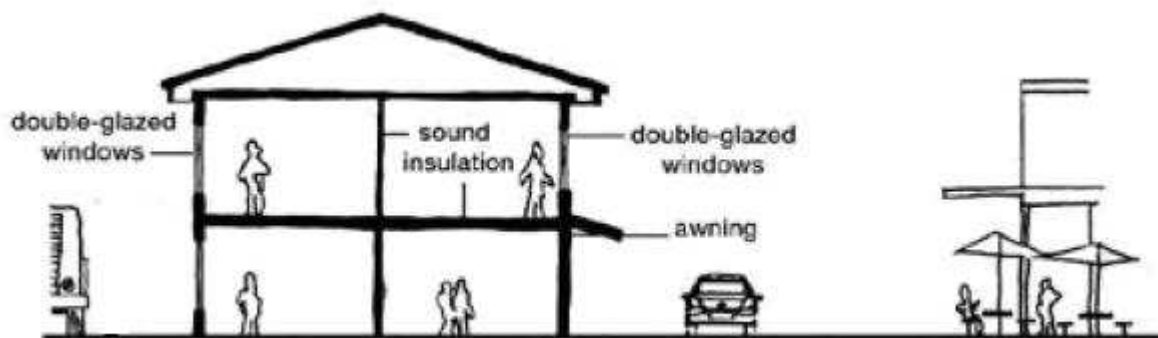


Figure 4-3: Strategies for minimising noise transmission

4.3.5

4.3.6 Fencing

Objectives

- a. To ensure boundary fencing is of a high quality and does not detract from the streetscape.
- b. To encourage the active use of front gardens through provision of a secure area.
- c. To ensure that rear and side fencing will assist in providing privacy to private open space areas.
- d. To ensure that fence height, location and design will not affect traffic and pedestrian visibility at intersections.

Controls

1. Front fencing shall be a maximum of 1.2m high above ground level (existing) and shall be an open style incorporating pickets, slats, palings or the like or lattice style panels with a minimum aperture of 25mm.
2. Front fences and walls are not to impede safe sight lines for traffic.
3. Side and rear fences are to be a maximum of 1.8m high commencing 2m behind the building line (refer to **Figure 4-4**).
4. Side fences not on a street frontage are to be a maximum of 1.2m high to a point 2m behind the primary building façade.
5. On corner lots or lots that have a side boundary that adjoins open space or drainage, the front fencing style and height is to be continued along the secondary street or open space/drainage land frontage to at least 4m behind the building line of the dwelling. Principles for corner lots are illustrated at **Figure 4-4**.
6. On side boundaries that adjoin open space or drainage land, fencing is to be of a high quality material and finish. The design of the fencing is to permit casual surveillance of the public space by

limiting fence height to 1.2m or by incorporating see through materials or gaps for the portion of the fence above 1.2m high.

7. Pre-painted steel or timber paling or lapped/capped boundary fencing is not permitted adjacent to open space or drainage land or on front boundaries.
8. Fencing that adjoins mews or rear access ways is to permit casual surveillance.

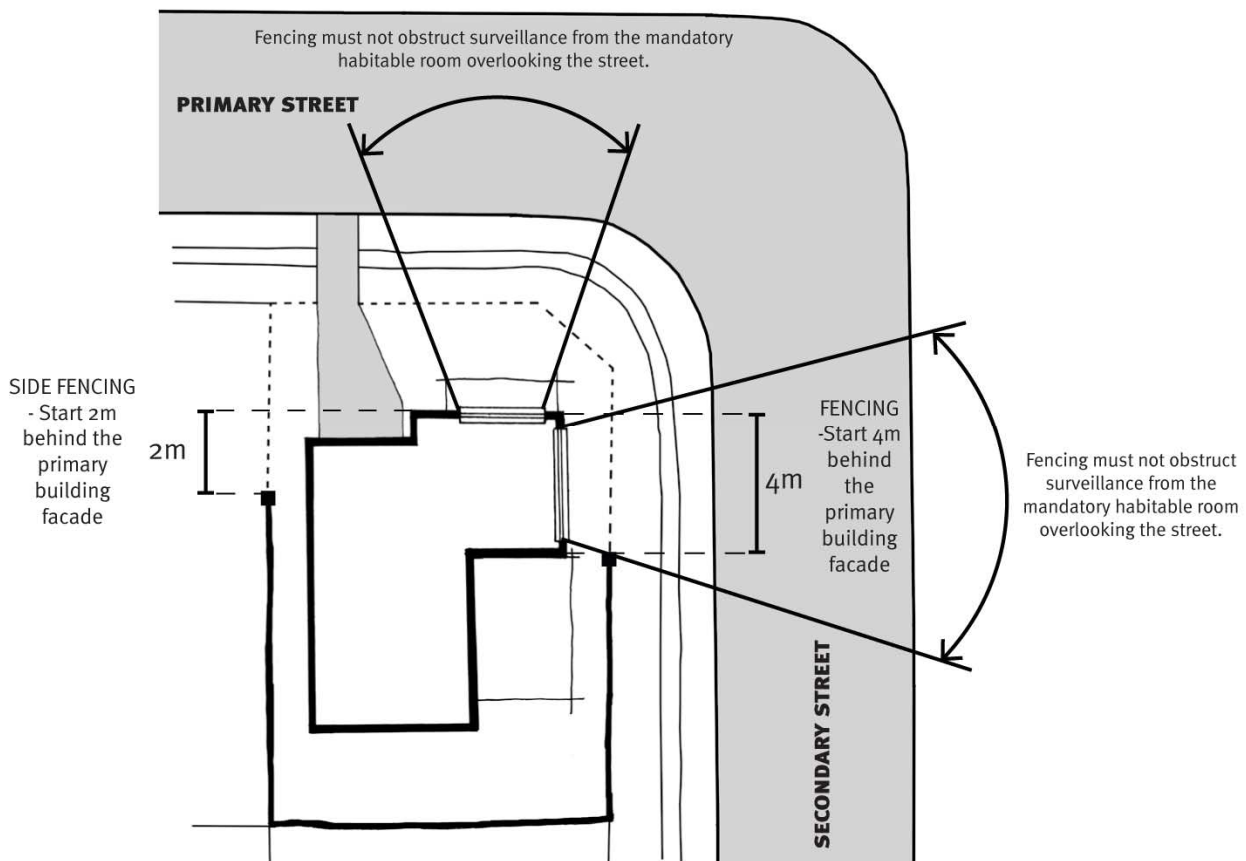


Figure 4-4: Fencing design

4.4 Dwelling design controls

Under the provisions of the Precinct Plan, development consent is generally required for all dwellings in all residential zones, except where applications meet the criteria for complying development. This section establishes objectives and controls for the following types of residential accommodation as defined in the Growth Centres SEPP:

- Dwelling houses;
- dual occupancy dwellings (including lifehouses – see **Appendix A**);
- secondary dwellings;
- semi-detached dwellings; and
- attached dwellings.

Additional controls for attached dwellings, secondary dwellings and dual occupancies are contained in **clause 4.5** and should be read in conjunction with the controls that follow. The controls in this clause do not apply to multi-dwelling housing, residential flat buildings and shop top housing. For these dwelling types, reference should be made to **clause 4.6**.

Note: Reference should be made to **Appendix A** for descriptions of the various dwelling types, and to the relevant *Precinct Plan* for statutory definitions of land uses.

4.4.1 Summary of Key Controls

The following tables summarise the key controls that apply to residential development on:

- Lots with frontages between 5m-10m (**Table 4-2**):
- Lots with frontages more than 10m up to 15m (**Table 4-3**).
- Lots with frontage more than 15m (**Table 4-4**).
- Lots within the Environmental Living zone and Large Lot Residential zone (**Table 4-5**).

The key controls should be read in conjunction with the controls in the clauses that follow.

Table 4-2: Summary of key controls for lots with frontage width of 5m – 10m

Element	Control
Front setback (min)	4.5m to building facade line; 3.5m to building façade fronting open space 3.5m to articulation zone; 2.5m to articulation zone fronting open space No front loaded garages are permitted for lots less than 7m wide. For lots more than 7m wide, 5.5m setback to garage line and 1m behind the building line.
Side setback (min)	Ground floor – zero setback Upper floor – zero setback
Length of zero lot line on boundary	15m (excludes rear loaded garages)
Rear setback (min)	4m (excluding rear loaded garages) 1m (rear loaded garages)
Building height, massing and siting	2 storeys maximum (3rd storey subject to clause 4.4.5)
Site coverage	Max 65% of the area of an allotment Upper (2nd) level of a dwelling is to be no more the 30% of the lot area
Landscaped area	Min 15% of the area of an allotment
Principal Private Open Space (PPOS)	Min 16m ² with minimum dimension of 3m directly accessible from living areas. 10m ² per dwelling if provided as balcony or rooftop with a minimum dimension of 2.5m. 50% of the area of the required principal private open space (of both the proposed dwelling and adjoining dwellings) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June).
Garages and car parking	Rear loaded single or tandem garage only for lots less than 7m wide Frontloaded single garages permitted for lots wider than 7m Maximum carport and garage door width not to exceed 3m Carport and garage min. internal dimensions: 3m x 5.5m Garages are not to exceed an internal area of 40sqm Double and triple garages are not permitted

Table 4-3: Summary of key controls for lots with frontage with of 10 – 15m

Element	Control	
Front setback (min)	4.5m to building facade line; 3.5m to building façade fronting open space 3.5m to articulation zone; 2.5m to articulation zone fronting open space or drainage 5.5m to garage line and 1m behind the building line	
Side setback (min)	Lots >10m – 12.5m Ground Floor: 0m Upper Floor: 0.9m	Lots >12.5m – 15m: Ground Floor: 0m (Side A), 0.9m (Side B) Upper Floor: 0.9m (Side A), 1.5m (Side B)
Length of zero lot line on boundary	Lots >10m-12.5m: 11m (excludes rear loaded garages)	Lots >12.5m-15m: 7m (garage only)
Rear setback (min)	4m (excluding rear loaded garages) 1m (rear loaded garages)	
Building height, massing and siting	2 storeys maximum (3rd storey subject to clause 4.4.5)	
Site coverage	Single storey dwellings: 60% Two storey dwellings: 50% at ground floor and 30% at upper floor	
Landscaped area	Minimum 25% of allotment area with a minimum dimension of 1.5m	
Pervious surfaces	Minimum 30% of the site area	
Principal Private Open space (PPOS)	Minimum 20m ² with minimum dimension of 4.0m directly accessible from living areas 50% of the area of the required PPOS (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June)	
Garages and car parking	Lots >10m-12.5m: Front or rear loaded single or tandem garages only. Rear loaded double garages permitted Max. carport and garage door width not to exceed 3m (single) or 6m (double) Triple garages are not permitted	Lots ≥12.5m-15m: Front or rear loaded single, tandem or double garages permitted Triple garages are not permitted

Table 4-4: Summary of key controls for lots with frontage width of more than 15m

Element	Control
Front setback (min)	4.5m to building facade line 3.5m to building façade fronting open space or drainage land 3.5m to articulation zone 2.5m to articulation zone fronting open space or drainage 5.5m to garage line and 1m behind the building line
Side setback (min)	Ground Floor: 0.9m (Side A), 1.5m (Side B) Upper Floor: 0.9m (Side A), 1.5m (Side B)
Rear setback (min)	4m (excluding rear loaded garages) 1m (rear loaded garages)
Corner lots secondary street setback (min)	3m
Building height, massing and siting	2 storeys (3rd storey subject to clause 4.4.5)
Site coverage	Single storey dwellings: 50% Two storey dwellings: 50% at ground floor and 30% at upper floor
Landscaped area	Minimum 30% of the allotment area
Principal Private Open Space (PPOS)	Minimum 24m ² with minimum dimension 4m 50% of the area of the required principal private open space (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June).
Garages and car parking	Front or rear loaded double and tandem garages permitted Maximum garage door width 3m (Single) and 6m (Double) Triple garages are not permitted

Table 4-5: Summary of key controls for lots in the Environmental Living zone

Element	Control
Front setback (min)	4.5m to building facade line ground floor; Façade articulation is to be behind the front setback; Garage setback 1m behind the building façade line
Side setback (min)	Ground Floor: 1.5m Upper Floor: 1.5m (Side A), 3m (Side B)
Rear setback (min)	10m
Corner lots secondary street setback (min)	4.5m
Building height, massing and siting	2 storeys (3rd storey subject to clause 4.4.5)
Site coverage (maximum)	Single storey: 35% Two (or more) storey dwellings: 25% ground floor and 15% upper floors
Landscaped area	Single storey dwellings: Minimum 55% of the allotment area Two or more storey dwellings: Minimum 60% of the allotment area
Principal Private Open Space (PPOS)	Minimum 24m ² with minimum dimension 4m 50% of the area of the required principal private open space (of both the proposed dwelling and adjoining dwellings) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June).
Garages and car parking	Front or rear loaded double and tandem garages permitted Maximum garage door width 3m (Single) and 6m (Double) where garages front a public road Triple garages permitted where at least one garage door is not visible from the street or where the total width of the garages is less than 50% of the total width of the building façade.

4.4.2 Streetscape and architectural design

Objectives

- a. To ensure that buildings are designed to enhance the built form and character of the neighbourhood by encouraging innovative and quality designs that fit harmoniously with their surroundings.
- b. To encourage a diversity of house types and densities.
- c. To ensure the provision of equitable access to natural light and ventilation for the occupants of all residential buildings.
- d. To provide a clear distinction between private and public space and to encourage casual surveillance of the street.
- e. To reinforce significant street intersections particularly on open space and other key strategic areas through articulation of corner buildings.

Controls

1. Good streetscape design principles are illustrated at **Figure 4-5**. The primary street facade of a dwelling should address the street and must incorporate at least two of the following design features:
 - entry feature or portico;
 - awnings or other features over windows;
 - balcony or window box treatment to any first floor element;
 - recessing or projecting architectural elements;
 - a variation in scale to adjoining properties;
 - open verandah;
 - mixture of building materials;
 - bay windows or similar features; or
 - verandahs, pergolas or similar features above garage doors.
2. Corner lot development should emphasise the corner. The secondary street facade for a dwelling on a corner lot should address the street and must incorporate at least two of the following design features:
 - verandah;
 - gable;
 - vertical architectural elements to reduce the horizontal emphasis of the façade;
 - entry feature or portico;
 - balcony/window boxes or similar elements to habitable rooms; or

- landscaping/fencing compatible with the status of the surrounding streetscape.
3. Modulation of the façade should be integral to the design of the building, not ‘stuck on’.
 4. Eaves are to provide sun shading and protect windows and doors and provide aesthetic interest. Except for walls built to the boundary, eaves should have a minimum of 450mm overhang (measured to the fascia board). Council will consider alternative solutions to eaves so long as they provide appropriate sun shading to windows and display a high level of architectural merit.
 5. Proposed dwelling colours, materials and finishes are to be consistent with the character of the neighbourhood. Bright and highly reflective colours are to be avoided, except for architectural features. Multicoloured roof tiles are not to be avoided.
 6. Exact mirror-imaging of dwelling facades is not permitted. However, symmetrical design is permitted where each dwelling can satisfy two different design features as listed in sub-clause (1) above and where the overall design of the buildings is appropriate in the streetscape having regard to design, building form and bulk.
 7. The repetition of identical housing designs and colour palette in a group of dwellings, other than for attached dwellings, will not be permitted.
 8. Complex roof forms should be avoided. The pitch of hipped and gable roof forms on the main dwelling house should be between 22.5 degrees and 35 degrees. Skillion roofs, roofs hidden from view by parapet walls, roofs on detached garages, studios and ancillary buildings on the allotment are excluded from this control.
 9. All main entries to dwellings are to be orientated to the front / primary street only and not to side streets.
 10. Upper level wall lengths are not to exceed 14m in continuous length.
 11. Lightweight material such as boarded cladding may be used to add interest to the façade. Materials such as fibre cement cladding are to be rendered with either a reveal joint or no joints.
 12. Windows to living area are to be directed either to the street or rear private open space (and private driveway) to provide visual surveillance to the street and or private open space areas.
 13. The design and positioning of bathroom, ensuite or laundry windows is to maximise privacy and amenity, with consideration to the relationship with adjoining dwellings or public places.
 14. Carports and garages are to be constructed of materials that complement the colour and finishes of the main dwelling.

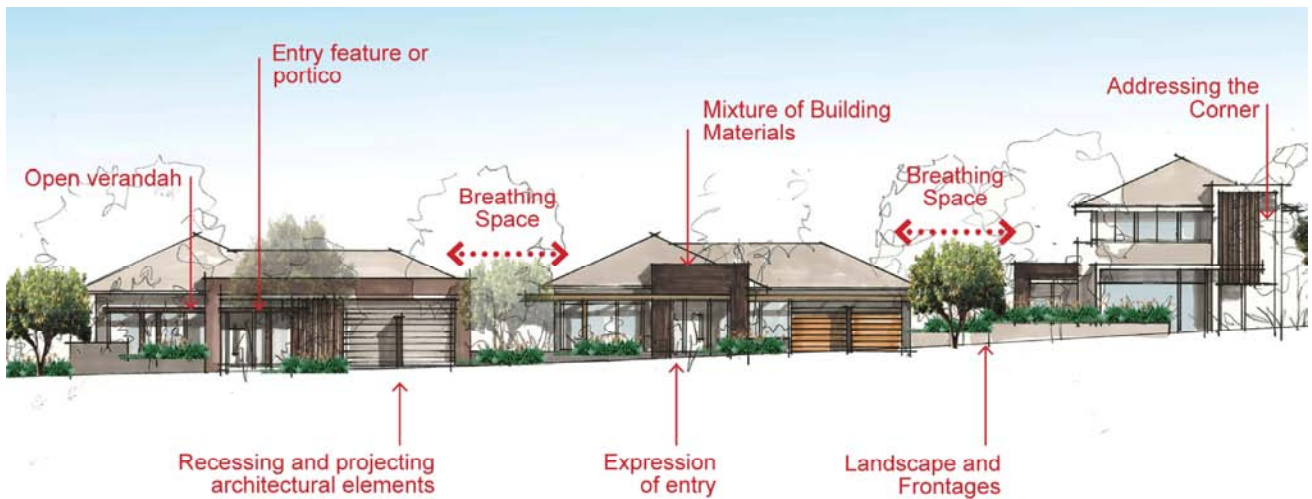


Figure 4-5: Good streetscape design principles

4.4.3 Front setbacks

Objectives

- a. To enable the integration of built and landscape elements in the streetscape.
- b. To encourage simple and articulated building forms.
- c. To ensure garages do not dominate the streetscape.

Controls

1. Dwellings are to be consistent with the front setback controls and principles in **Table 4-6** and **Figure 4-6**.
2. Where dwellings are located opposite open space or drainage land, the front setback may be reduced by a maximum of 1m as shown on **Figure 4-7**.
3. Elements permitted in the articulation zone (shown on **Figure 4-6**) include those items listed in control 4.4.2 (1)
4. Except for rear loaded garages, the garage line is to have a front set back that is at least 1m behind the building front facade line.

Table 4-6: Minimum front setbacks

Lot frontage range	5m – 10m	>10m – 15m	>15m	Environmental Living and Large Lot Residential zones
Building facade line	4.5m 3.5m where lot faces open space or drainage land	4.5m 3.5m where lot faces open space or drainage land	4.5m to building facade line 3.5m where lot faces open space or drainage land	4.5m to building façade line
Articulation zone	3.5m 2.5m where lot faces open space or drainage land	3.5m 2.5m where lot faces open space or drainage land	3.5m 2.5m where lot faces open space or drainage land	Behind the building façade line
Garage line	<7m wide no front loaded >7m wide 5.5m front setback or 1m behind the building facade line (whichever is greater) Refer to clause 4.4.8 'Garages Site Access and Parking')	5.5m front setback or 1m behind the building facade line (whichever is greater)	5.5m front setback or 1m behind the building line (whichever is greater)	5.5m front setback or 1m behind the building line (whichever is greater) 6.5m to garage line (for a third garage)

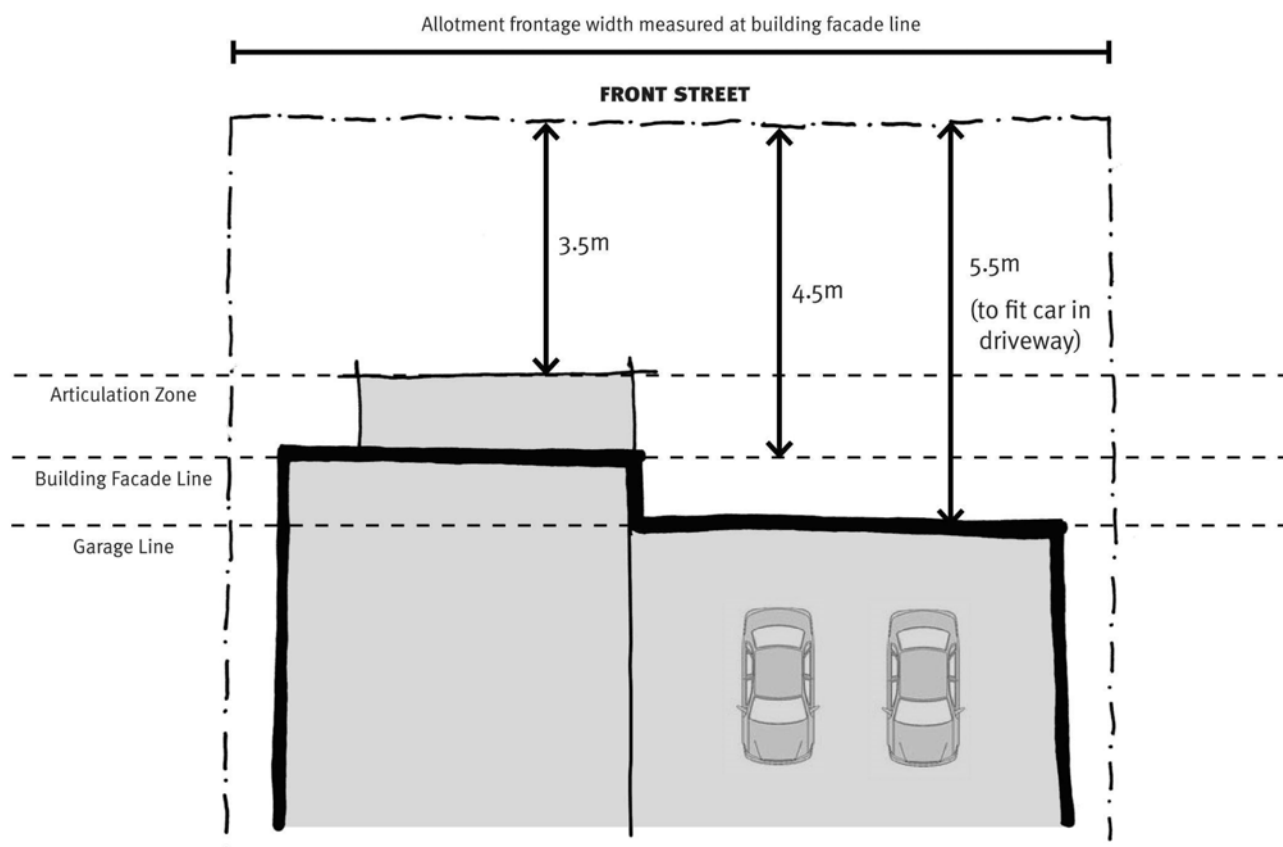


Figure 4-6: Minimum front setback distances

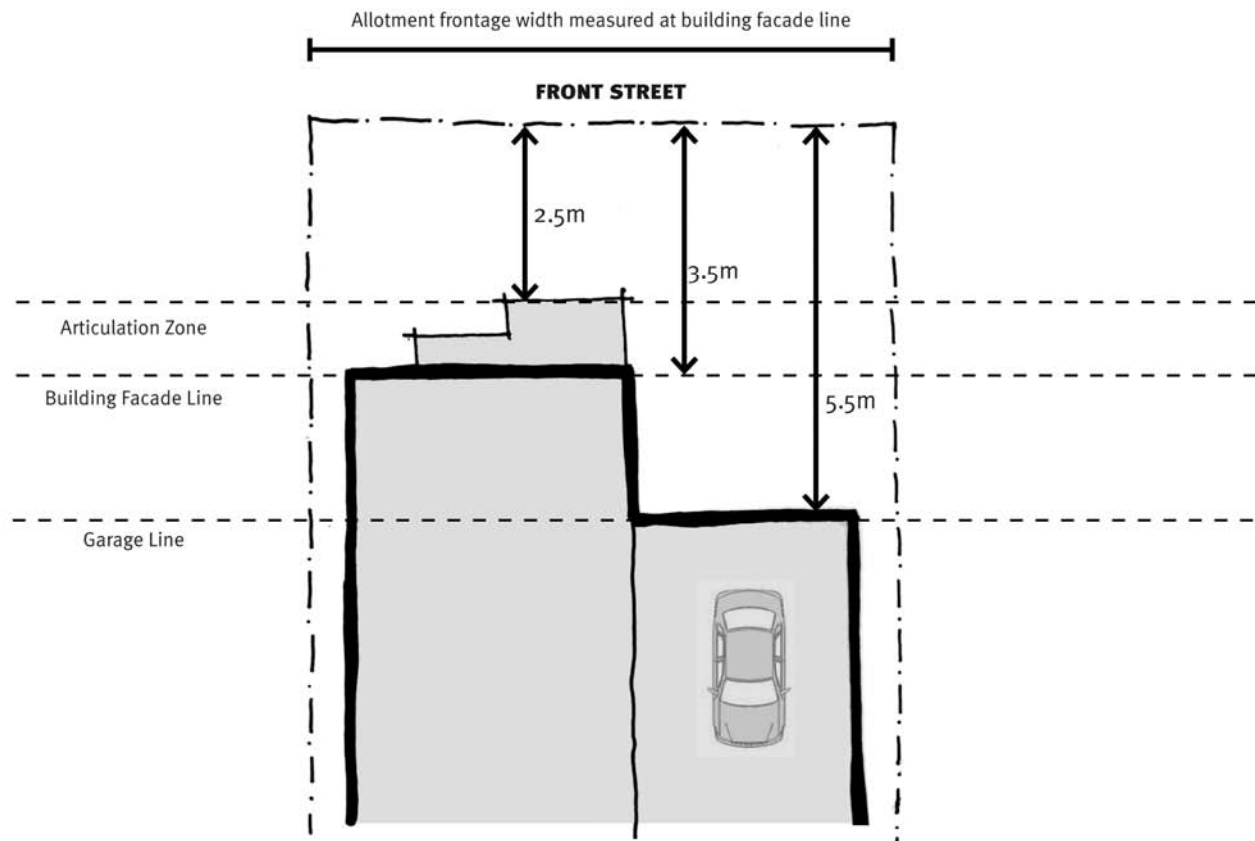


Figure 4-7: Minimum front setbacks for dwellings fronting open space or drainage land

4.4.4 Side and rear setbacks

Objectives

- To create an attractive and cohesive streetscape that responds to the character areas.
- To minimise the impacts of development on neighbouring properties.
- To provide appropriate separation between buildings.
- To create opportunities for articulation on the side walls.

Controls

- All development is to be consistent with the side and rear setback controls in **Table 4-7** and **Figure 4-10**.
- A side articulation zone may be utilised to break up the length of side walls.
- Building within the side articulation zone must comply with **Figure 4-8**.
- The length of the articulation should be no more than 40% of the total length of the wall and a maximum width of encroachment into the side setback of 300mm.

Table 4-7: Side and rear setbacks

Lot width	5m – 10m	>10m – 15m			>15m		Environmental Living and Large Lot Residential zones	
Ground Floor	Zero setback	Side A		Side B	Side A	Side B	1.5m	
		Lots >10m-12.5m	0m	0m	0.9m	1.5m		
		Lots >12.5m-15m	0m	1.5m				
Upper Floor	Zero setback	Side A		Side B	Side A	Side B	Side A	Side B
		Lots >10m-12.5m	0m	0m	0.9m	1.5m	1.5m	3.0m
		Lots >12.5m - 15m	0m	1.5m				
Rear setback (excludes garages)	4m	4m			4m		10m	
Rear setback (rear loaded garages)	1m	1m			1m		1m	

- The location of the upper floor Side B setback is to be determined with reference to the lot orientations shown on **Figure 4-9**.
- The location of zero lot line is to be determined with regard to dwelling design, allotment orientation, adjoining dwellings, landscape features and topography and the preferred lot orientation illustrated at **Figure 4-10**.
- The location of the Side B setback on lots greater than 15m wide is to be determined with regard to dwelling design, lot orientation, adjoining dwellings, landscape features and topography, with reference to the principles in **Figure 4-10**.
- For attached or semi-detached dwellings the side setback only applies to the end of a row of attached housing, or the detached side of a semi-detached house.
- For dwellings with a minimum 900mm side setback, projections permitted into side and rear setback areas include eaves (up to 450 millimetres wide), fascias, sun hoods, gutters, down pipes, flues, light fittings, electricity or gas meters, rainwater tanks and hot water units.

10. Pergolas, swimming pools and other landscape features/structures are permitted to encroach into the rear setback.
11. The minimum setback to dwellings from the secondary street boundary (not including the splay) shall be:
 - 2m in the R2, R3 and R4 zones.
 - 4.5m in the Environmental Living zone.

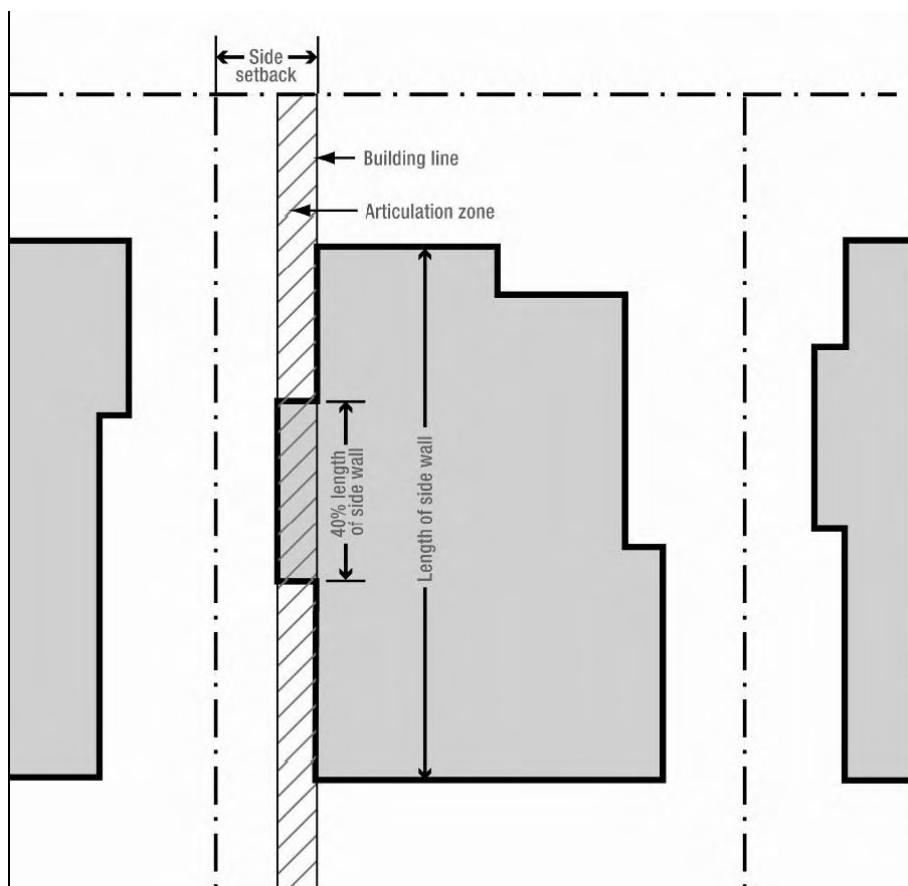


Figure 4-8: Side Articulation Zone

12. The minimum setback to dwellings from a side boundary that adjoins Public Recreation or Drainage land shall be:
 - 3m in the R2, R3 and R4 zones.
 - 4.5m in the Environmental Living zone.
13. All dwellings shall have a minimum of 0.9m setback from the splayed corner.
14. Applicants must demonstrate that the use of a zero lot line will not adversely affect the privacy and solar access of an adjoining property, and is in accordance with the principles in **Figure 4-10**.

15. An easement for support, maintenance and repair of the zero lot line wall (and any services along the side of the dwelling) is to be provided within the adjoining property side setback. The easement shall be created prior to issue of a construction certificate and be a minimum of 0.9m wide. No overhanging eaves or services will be permitted within the easement. The *S88B instrument* supporting the maintenance easement is to be worded so that Council is removed from any dispute resolution process.
16. Setbacks for battleaxe lots in absence of a street facing elevation or lot boundary fronting land zoned for a public purpose are to be as defined in **Figure 4-11**.
17. The upper floor of dwellings on battleaxe lots must be setback so as not to impact adversely on the existing or future amenity of any adjoining land on which residential development is permitted, having regard to overshadowing, visual impact and privacy
18. Where the battleaxe lot has direct frontage to land zoned for a public purpose, the front setback controls in **clause 4.4.3** are to apply to the lot boundary adjoining the public purpose zone, and side and rear setbacks are to apply to lot boundaries determined relative to the front setback boundary.
19. The upper floor of dwellings on battleaxe lots must be setback so as not to impact adversely on the existing or future amenity of any adjoining land on which residential development is permitted, having regard to overshadowing, visual impact and any impact on privacy.

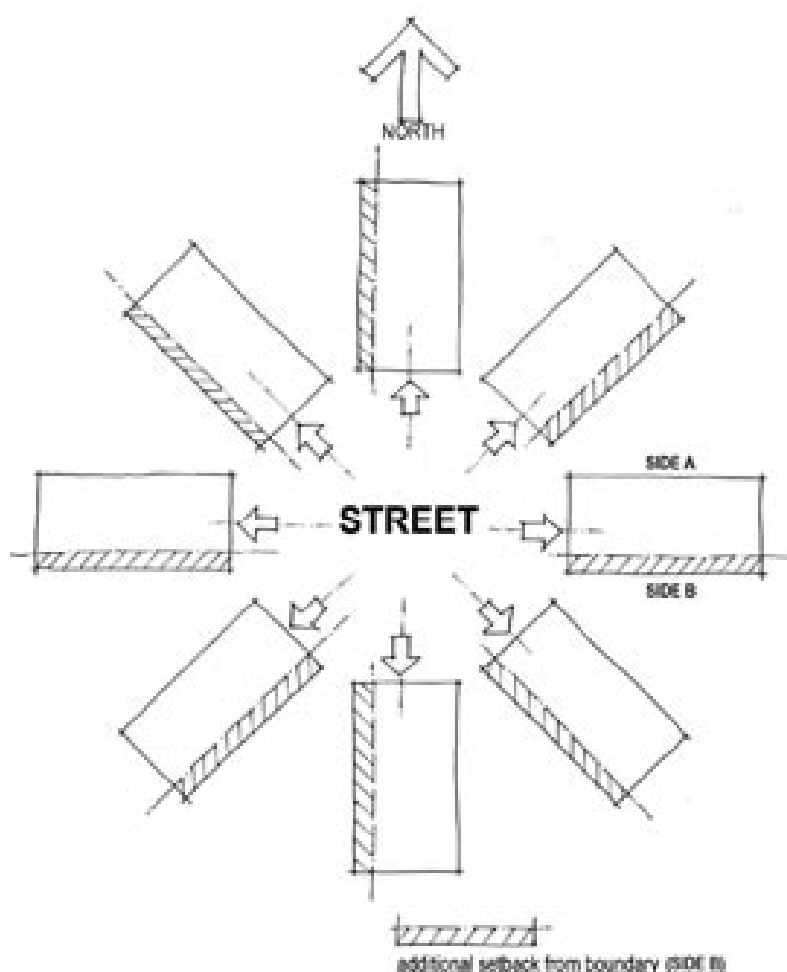


Figure 4-9: Upper level setback location principles

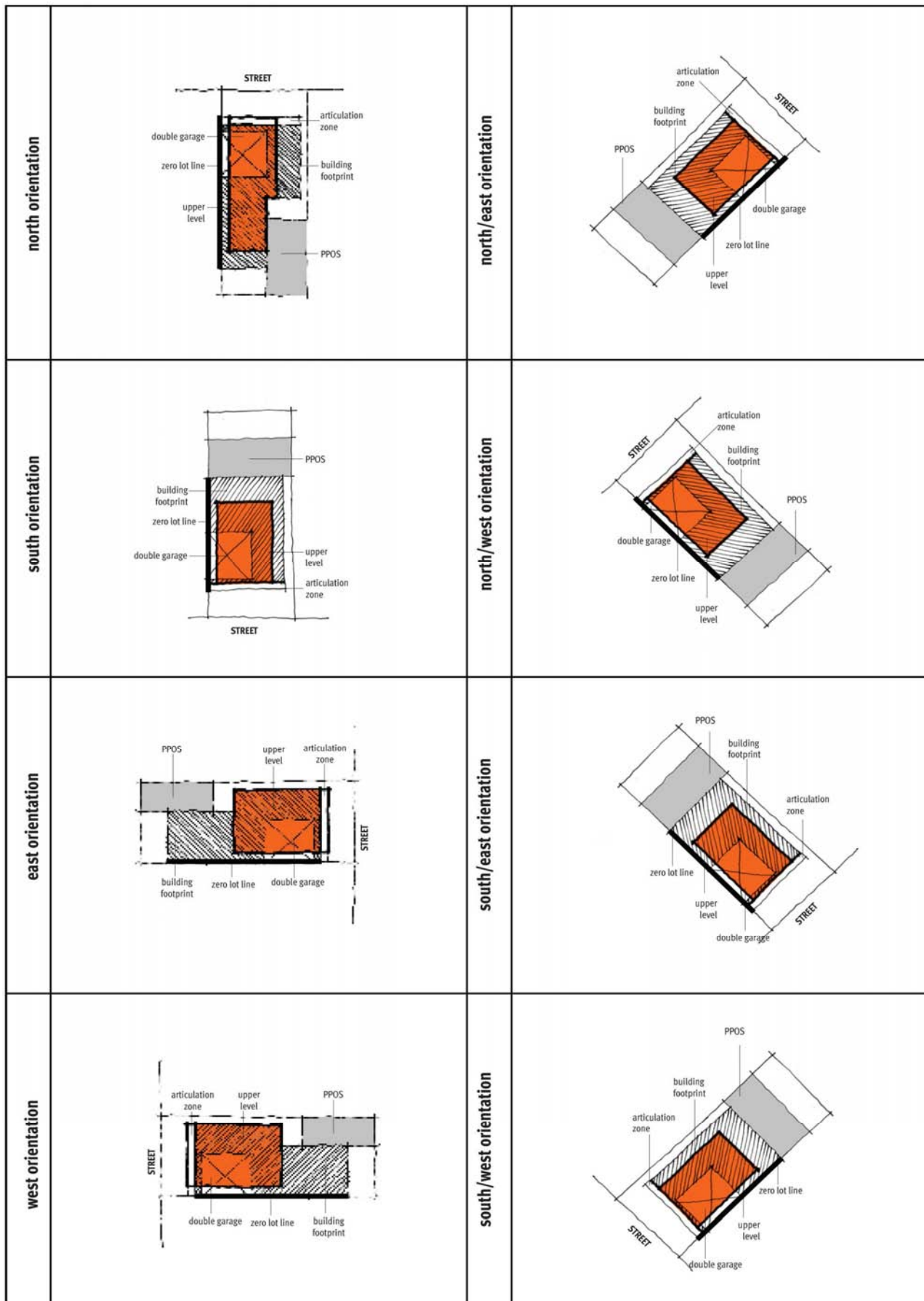


Figure 4-10: Dwelling and open space siting principles for different lot orientations

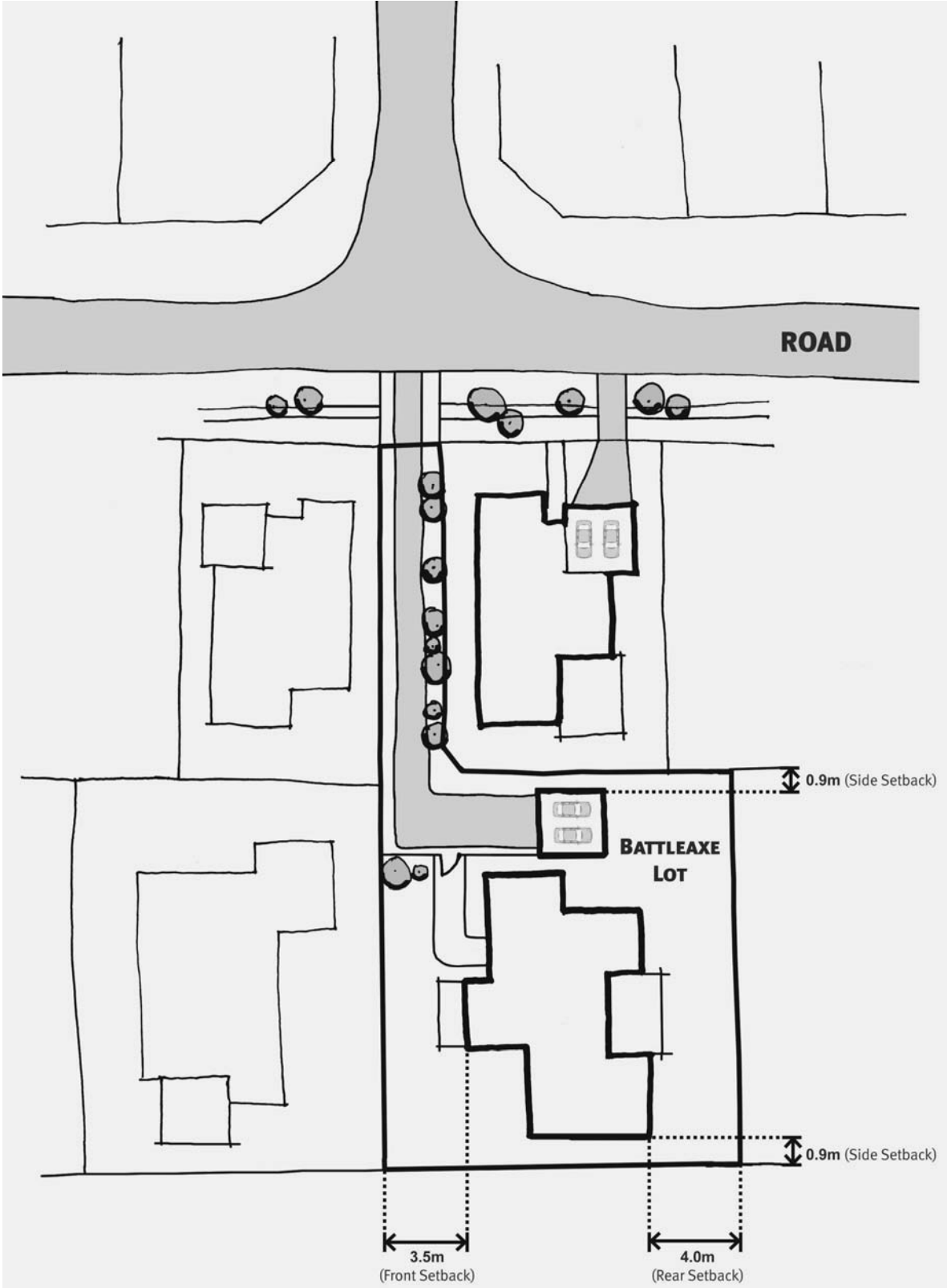


Figure 4-11: Battle axe setbacks

4.4.5 Dwelling Height, Massing and Siting

Objectives

- a. To ensure development is of an appropriate scale to protect residential amenity.
- b. To ensure building heights achieve built form outcomes that reinforce quality urban and building design.
- c. To protect residential amenity.

Controls

1. Dwellings are to be generally a maximum of 2 storeys high. Council may permit a 3rd storey if it is satisfied that:
 - the dwelling is located on a prominent street corner; or
 - the dwelling is located adjacent to a neighbourhood or local centre, public recreation or drainage land, a golf course, or a riparian corridor; or
 - the dwelling is located on land with a finished ground level slope equal to or more than 15%, and is not likely to impact adversely on the existing or future amenity of any adjoining land on which residential development is permitted, having regard to overshadowing, visual impact and any impact on privacy; or
 - the third storey is within the roof line of the building (i.e. an attic).
- Note:** Reference should be made to clause 4.3 of the relevant Precinct Plan for statutory height limits.
2. The ground floor level shall be no more than 1m above finished ground level.
 3. All development is to comply with the maximum site coverage as indicated in **Table 4-8**.
 4. Dwellings on a battle-axe-lot are to be a maximum of 2 storeys high.

Table 4-8: Maximum site coverage controls

Lot width	5m – 10m	>10m – 15m	>15m	Environmental living zone
Site Cover (Maximum)	65% of lot area	Single storey dwellings: 60% Two storey dwellings: 50% at ground floor and 30% at upper floor	Single storey dwellings: 50% Two (or more) storey dwellings: 50% at ground floor and 30% at upper floor	Single storey dwellings: 35% Two (or more) storey dwellings: 25% at ground floor and 15% upper floors

4.4.6 Landscaped Area

Objectives

- a. To encourage the use of native flora species and low maintenance landscaping.
- b. To contribute to effective stormwater management, management of micro-climate impacts and energy efficiency.
- c. To ensure a balance between built and landscaped elements in residential areas.

Controls

1. The minimum landscaped area within any residential lot is to comply with **Table 4-9**.

Table 4-9: Minimum landscaped area

Lot width	5m – 10m	>10m – 15m	>15m	Environmental living zone
Landscaped Area (Minimum)	15% of lot area	25% of lot area	30% of lot area	Single storey dwellings: 55% of lot area Two (or more) storey dwellings: 60% of lot area

2. Plans submitted with the development application must indicate the extent of landscaped area and nominate the location of any trees to be retained or planted.
3. Surface water drainage shall be provided as necessary to prevent the accumulation of water.
4. Use of low flow watering devices is encouraged to avoid over watering. Low water demand drought resistant vegetation is to be used for the majority of landscaping, including native salt tolerant trees.

Note: *Figure 4-12 illustrates areas of a site that can contribute towards the provision of landscaped area, private open space and principal private open space.*

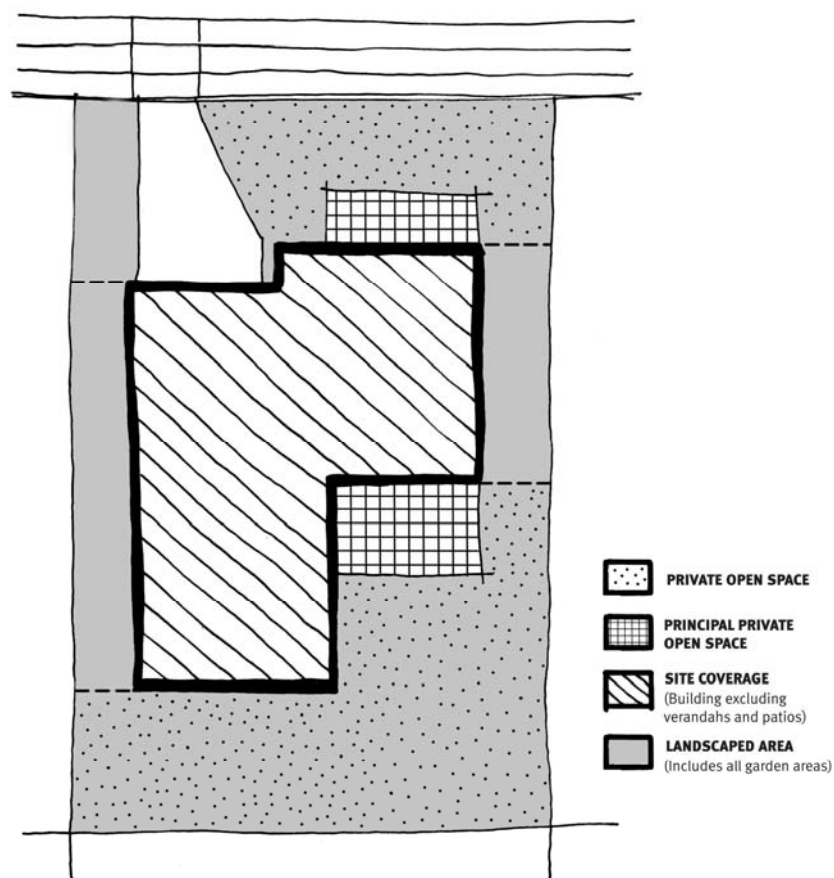


Figure 4-12: Landscaped area, private open space and principal private open space

4.4.7 Private Open Space

Objectives

- a. To provide a high level of residential amenity with opportunities for outdoor recreation and relaxation.
- b. To enhance the spatial quality, outlook, and usability of private open space.
- c. To facilitate solar access to the living areas and private open spaces of the dwelling.

Controls

1. Each dwelling is to be provided with an area of Private Open Space (POS) that contains an area of Principal Private Open Space (PPOS) consistent with the requirements of **Table 4-10**.
2. The location of PPOS is to be determined having regard to dwelling design, allotment orientation, adjoining dwellings, landscape features, topography.

Table 4-10: Principal Private Open Space

Lot width	5m – 10m	>10m – 15m	>15m	Environmental Living and Large Lot Residential zones
Principal Private Open Space (Minimum)	16m ² with a min. dimension of 3m; or 10m ² per dwelling if provided as a semi private balcony or rooftop with a min. dimension of 2.5m.	20m ² with a min. dimension of 4m.	24m ² with a min. dimension of 4m	24m ² with a min. dimension of 4m

3. 50% of the area of the minimum required PPOS should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June).
4. Development shall not prevent 50% of the minimum required PPOS of adjacent properties from receiving at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June).
5. The PPOS is required to be conveniently accessible from the main living area of a dwelling or alfresco room and have a maximum gradient of 1:10. Where part or all of the PPOS is permitted as a semi-private patio, balcony or rooftop area, it must be directly accessible from a living area.
6. PPOS is only permitted at the front of the dwelling where this is the only means of achieving the solar access requirements of control 4 above. PPOS at the front of a dwelling must be designed to maintain appropriate privacy and be consistent with the streetscape design controls in **Clause 4.4.2**.

4.4.8 Garages, Storage, Site Access and Parking

Objectives

- a. To control the number, dimensions and location of vehicle access points. To reduce the visual impact of garages, carports, and parking areas on the streetscape.
- b. To provide safe, secure and convenient access to parking within garages, carports and parking areas, with casual surveillance of private driveways from dwellings and from the street.
- c. To minimise conflict between pedestrians and vehicles at the junction of driveways and footpaths.
- d. To provide predominantly on site parking for residents and visitors.

Controls

1. 1-2 bedroom dwellings will provide at least 1 car space.
2. 3 bedroom or more dwellings will provide at least 2 car spaces.
3. At least one car parking space must be located behind the building façade line where the car parking space is accessed from the street on the front property boundary.

Note: a car space may include a garage, carport or other hard stand area constructed of materials suitable for car parking and access. The required car parking spaces specified above may be provided using a combination of these facilities, including use of the driveway (within the property boundary only) as a parking space.

4. Vehicular access is to be integrated with site planning from the earliest stages of the project to eliminate/reduce potential conflicts with the streetscape requirements and traffic patterns, and to minimise potential conflicts with pedestrians.
5. Driveways are to have the smallest configuration possible (particularly within the road verge) to serve the required parking facilities and vehicle turning movements and shall comply with AS2890.
6. The location of driveways is to be determined with regard to dwelling design and orientation, street gully pits and trees and is to maximise the availability of on-street parking.

Notes:

Clause 3.2.1(7) requires plans of subdivision to nominate driveway locations and preferred building envelopes. The design of dwellings should refer to the approved subdivision plans and be consistent with the nominated driveway locations to the greatest practical extent.

Controls for driveways and access to corner lots are contained in **clause 3.2.7** and **Figure 3-12**.

7. Driveways are not to be within 1m of any drainage facilities on the kerb and gutter.
8. Planting and walls adjacent to driveways must not block lines of sight for pedestrians, cyclists and motorists.
9. Driveways are to have soft landscaped areas on either side, suitable for water infiltration.
10. Garages are to be designed and located in accordance with the controls in **Table 4-11**.
11. Single garage doors should be a maximum of 3m wide and double garage doors should be a maximum of 6m wide.
12. Minimum internal dimensions for a single garage are 3m wide by 5.5m deep and for a double garage 5.6m wide by 5.5m deep.
13. Detached garages are not to exceed an internal area of 40m².
14. Garage design and materials are to be consistent with the dwelling design.
15. Garage doors are to be visually recessed through use of materials, colours, and overhangs.
16. Three car garages are only permitted in the Environmental Living and Large Lot Residential zones where:

- At least one of the garage doors is not directly visible from a public road; or
- One of the car spaces is in a stacked configuration; or
- The total width of the garage is not more than 50% of the length of the building facade.

17. All garages, site access and parking are to be designed in accordance with Liverpool DCP 2008 unless this DCP specifies otherwise.

Table 4-11: Controls for garages

Lot width	5m – 10m	>10m – 15m	>15m	Environmental Living zone
Garages	Lots 5m-7m: Single rear loaded garage only (rear loaded tandem garages permitted) No frontloaded garages are permitted Lots >7m-10m: Double rear loaded garages permitted or Frontloaded tandem garages permitted	<i>Lots >10m-12.5m:</i> Single or tandem front facing garages only Or Rear facing single, tandem or double garages permitted	Front facing single, tandem or double garages permitted Or Rear facing single, tandem, double or triple garages permitted	Front or rear facing single, tandem or double garages permitted. Triple garages permitted where at least one garage door is not visible from the street or where the total width of the garages is less than 50% of the total width of the building façade.
		<i>Lots ≥12.5m-15m:</i> Front facing single, tandem or double garages permitted Or Rear facing single, tandem or double garages permitted		

4.5 Additional controls for certain dwelling types

4.5.1 Residential development adjacent to transmission easements

Objectives

- To minimise the visual and amenity impacts of transmission lines on surrounding residential areas.
- To provide for passive surveillance of land within and adjacent to transmission easements.
- To maintain the privacy of dwellings adjacent to the easements.

Controls

1. Dwellings are to be set back as far as possible from the transmission easement.
2. Fencing that complies with the controls for front fences in **clause 4.3.5** is to be used on the property boundary facing the easement.
3. Side and rear fencing within easements is to allow for maintenance access to and along the easement.
4. Landscaping is to permit visual surveillance of the easement from dwellings.
5. The orientation of dwellings is to permit casual surveillance of the easement, while maintaining the privacy of occupants.
6. Balconies on upper floors facing the transmission easement are encouraged.
7. The Principal Private Open Space for the dwelling is to be screened from view from the transmission easement, preferably by being located behind the building line.

4.5.2 Attached dwellings

Additional controls for attached dwellings are outlined below, and should be read in conjunction with those in **clause 4.4**.

Objectives

- a. To ensure that the development of attached dwellings is consistent with the character of the residential areas in the Precinct.

Controls

1. The maximum length of the building in a row of attached dwellings is 30 metres.
2. The minimum gap between rows of attached dwellings is 5 metres.
3. It is preferred that garages for attached dwellings are located at the rear of the lot. Where attached dwellings have frontage to a collector road, all vehicle access and parking is to be located at the rear of the lot.

4.5.3 Secondary dwellings and dual occupancies

Controls for secondary dwellings or dual occupancies are in part determined by whether the secondary, principal or dual occupancy dwelling is proposed at the time of the application or at some point in the future to be strata subdivided. Strata subdivisions create the need for separate or common property dwelling entries, parking and open space to service each dwelling.

The Glossary at **Appendix A** of this DCP provides further explanation and examples of secondary dwelling or dual occupancy types. The controls that follow apply to all forms of secondary dwellings and dual

occupancies and are separated into those applying to Type 1 secondary dwellings (not strata subdivided from the principal dwelling) or Type 2 secondary dwellings (strata subdivided or capable of being strata subdivided from the principal dwelling).

Objectives

- a. To enable the development of a diversity of dwelling types within low density residential areas.
- b. To contribute to the availability of affordable housing.
- c. To promote innovative housing solutions that are compatible with the surrounding residential environment.

Controls - Secondary dwellings

1. Secondary dwellings are to comply with the controls in **clause 4.4**, except where the controls in this clause differ, in which case the controls in this clause take precedence.
2. Secondary dwellings are to comply with the key controls in **Table 4-12**.
3. The maximum site coverage control for upper floors in **clause 4.4.5** may be exceeded by the combined upper floor coverage of the secondary dwelling and principal dwelling, providing it does not exceed the maximum site coverage permitted by **clause 4.4.5** for the ground floor, and providing that:
 - The privacy of the principal dwelling and dwellings on adjoining land is not compromised; and
 - Solar access requirements for living areas and principal private open space can be met.
4. The finishes, materials and colours of the secondary dwelling are to complement the principal dwelling in its construction features.
5. Windows and private open spaces must not overlook the private open space of any adjacent dwellings (aside from the principal dwelling). Windows to side boundaries must either have obscured glazing, be screened or have a minimum sill height of 1.7m above floor level.
6. Secondary dwellings and associated garages may have a zero lot setback to one side boundary and may be attached to another garage/secondary dwelling on an adjoining lot, particularly where the secondary dwelling is associated with an attached or semi-detached dwelling.
7. Where the secondary dwelling is built to a zero lot line on a side boundary, windows are not to be located on the zero lot wall unless that wall adjoins a laneway, public road, public open space or drainage land.
8. Garages with secondary dwellings above are to be set back 1.5m from the rear boundary. Cantilevered balconies above the ground floor may encroach into this setback.
9. A secondary dwelling must have a minimum separation of 4m from the first floor of the principal dwelling on the lot.
10. Type 2 secondary dwellings are to be located at the rear of the lot only where the lot has access from a rear lane.

11. Type 2 secondary dwellings must comply with separation controls nominated in Australian Standards and the National Construction Code.
12. Type 2 secondary dwellings are not permitted where the principal dwelling is an attached dwelling, unless:
 - The secondary dwelling is located above a rear loaded garage; and
 - The secondary dwelling has direct access to a public road or laneway; and
 - Garbage and mail facilities are accessible by residents and by service vehicles.
13. Type 2 dwellings are to have balconies or living areas that overlook laneways for casual surveillance.

Table 4-12: Key controls for secondary dwellings

Element	Type 1 (no subdivision)	Type 2 (strata sub-divided)
On-site car parking	No additional car parking space required.	One additional dedicated on-site car parking space. Car parking space to be located behind building facade line of principal dwelling. Car parking space not to be in a stacked configuration.
Private open space	No separate private open space required.	Balcony accessed directly off living space having minimum size of 8.5m ² plus minimum 10m ² ground level service yard with space for clothes drying facilities or All ground level private open space is to be part of 'common property' and accessible by occupants of the principal dwelling and secondary dwelling.
Subdivision	Subdivision from principal dwelling not permitted.	Strata title subdivision only from the principal dwelling on the land
Access	No separate direct access to a street, lane or private access way.	Access to be separate from the principal dwelling and is to front a public street, lane or shared private access way or Combined access for the principal dwelling and secondary dwelling to be through communal land as shown on the strata plan.
Services and facilities	No separate services or facilities required.	Provision for separate services, such as mail delivery and waste collection, and an on-site garbage storage area which is not visible from public street. To be located on a street frontage that is able to be accessed by garbage collection and mail delivery services.

Controls – Dual occupancies

1. Dual occupancies are to comply with the controls in clause 4.4, except where the controls in this clause differ, in which case the controls in this clause take precedence.

2. The maximum site coverage control for second storeys in clause 4.4.5 may be exceeded by the combined 2nd storey coverage of both dwellings in a dual occupancy, providing it does not exceed the maximum site coverage permitted by clause 4.4.5 for the ground floor.
3. The second storey site coverage control may be exceeded consistent with control 2 above providing that:
 - The privacy of the principal dwelling and dwellings on adjoining land is not compromised; and
 - Solar access requirements for living areas and principal private open space can be met.
4. The design of both dwellings in a dual occupancy development is to be consistent in construction features, finishes, materials and colours.
5. Detached dual occupancy dwellings are not to include zero lot lines for the second dwelling where the second dwelling is located at the rear of the lot.
6. Dual occupancy development is not permitted on a lot that contains an attached dwelling.
7. Dual occupancy dwellings are permitted at the rear of lots (i.e. behind a dwelling that has frontage to a principal street, whether attached or detached to that dwelling) only where:
 - Each dwelling has direct pedestrian and vehicle access to a public road; and
 - Garbage and mail facilities are accessible by service vehicles and by the occupants of the dwellings.
8. Dual occupancy development referred to in control 7 above is preferred to be located on corner lots.
9. Where the dual occupancy dwellings are to be strata subdivided:
 - private open space is to be provided for each dwelling in accordance with **clause 4.4.7**; or
 - shared private open space is to be provided equivalent to 15% of the site area and shown as communal space on the strata plan, and a minimum area of private open space of 10m² with a minimum dimension of 2.5m is to be provided for each dwelling.
10. The minimum landscaped area on a lot containing a dual occupancy development is to be 20% of the site area.
11. Where practical for front loaded driveway access, shared driveway crossings of the nature strip are to be provided to service both dwellings.

4.5.4 Multi dwelling housing

Objectives

- a. To ensure that the design of multi-dwelling housing is consistent with the character of residential areas within the Precinct.
- b. To ensure the quality of multi-dwelling housing is of a high quality and contributes to the amenity of residents.

Controls

1. Multi-dwelling housing is to be located on sites with a minimum street frontage of 30m and a minimum depth (from front to rear) of 25m.
2. Multi-dwelling housing sites are to have direct frontage to a public road (i.e. not on battle-axe lots).
3. Multi-dwelling housing is to comply with the controls in **Table 4-13**.
4. The controls for adaptable dwellings in **clause 4.6.1** also apply to multi-dwelling housing. Adaptable dwellings are preferably to be single storey and be located on the street frontage.
5. A landscape plan is to be submitted with every application for multi-dwelling housing.

Table 4-13: Key controls for multi dwelling housing

Element	Controls
Site coverage (maximum)	50%
Landscaped area (minimum)	30% of site area
Communal open space	15% of site area
Private open space (POS)	Min. 10m ² per dwelling with min. dimension of 2.5m
Front setback (minimum)	4.5m
Corner lots secondary street setback (min)	3m
Side setback (minimum)	2m
Rear setback (minimum)	4m (excluding rear loaded garages) 1m (rear loaded garages)
Zero lot line (minimum)	Not permitted
Internal building separation distance (minimum)	5m (unless dwellings are attached by a common wall)
Car parking spaces	1 car parking space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling, plus 1 visitor space per 5 dwellings. Car parking spaces to be behind building line or garages fronting the street to be set back a minimum of 1m from the building setback Where garages front the street, the maximum width of a garage door is 6m and each garage is to be separated by a dwelling façade or landscaped area.
Garages and car parking dimensions (minimum)	Covered: 3m x 5.5m Uncovered: 2.5m x 5.2m Aisle widths must comply with AS 2890.1

4.6 Controls for residential flat buildings and shop top housing

The controls in **clause 4.4** do not apply to residential flat buildings and shop top housing, unless specifically referenced in the provisions that follow. The following clauses set out the controls for these types of housing, in addition to those contained in *SEPP 65 – Design Quality of Residential Flat Development*.

4.6.1 Residential flat buildings and shop top housing

Objectives

- a. To establish a high quality residential environment where all dwellings have a good level of amenity.
- b. To encourage a variety of housing forms within residential areas.
- c. To ensure the provision of housing that will, in its adaptable features, meet the access and mobility needs of any occupant.

Controls

1. Residential flat buildings are to:
 - be located on sites with a minimum street frontage of 30m, and
 - have direct frontage to an area of the public domain (including streets and public parks), and
 - not adversely impact upon the existing or future amenity of any adjoining land upon which residential development is permitted with respect to overshadowing impact, privacy impact or visual impact.
2. All residential flat buildings are to be consistent with:
 - the guidelines and principles outlined in SEPP No. 65 – Residential Flat Development; and
 - the primary controls set out in **Table 4-14**, which take precedence over the above where there is any inconsistency.
3. In all residential flat building developments containing 10 dwellings or more, a minimum of 10% of all apartments are to be designed to be capable of adaptation for access by people with all levels of mobility. Dwellings must be designed in accordance with the *Australian Adaptable Housing Standard (AS 4299-1995)*, which includes 'pre-adaptation' design details to ensure visitability is achieved.
4. Where possible, adaptable dwellings are to be located on the ground floor. Dwellings located above the ground level of a building may only be provided as adaptable dwellings where lift access is available within the building. The lift access must provide access from the basement to allow access for people with disabilities.

5. The development application must be accompanied by certification from an accredited Access Consultant confirming that the adaptable dwellings are capable of being modified, when required by the occupant, to comply with the *Australian Adaptable Housing Standard (AS 4299-1995)*.
6. Car parking and garages allocated to adaptable dwellings must comply with the requirements of Australian Standards for disabled parking spaces.
7. A landscape plan is to be submitted with every application for residential flat buildings.

Table 4-14: Key controls for residential flat buildings and shop top housing

Element	R2, R3 zones (shop top housing only)	R3, R4 zones (residential flat buildings)	B1, B2, B3 and B4 zones
Site coverage (maximum)	50% of site area	50%	N/A
Landscaped area (minimum)	30% of site area	30% of site area	N/A
Communal open space	15% of site area where the development includes 4 or more dwellings	15% of site area	15% of site area. This control is able to be varied where the applicant demonstrates the development has good access to public open space or where the area of private open space is more than the minimum specified below.
Private open space (POS)	Min. 8m ² per dwelling with min. dimension of 2m	Min. 10m ² per dwelling with min. dimension of 2.5m	Min. 8m ² per dwelling with min. dimension of 2m
Front setback (minimum)	Determined by ground floor setback	6m Balconies and other articulation may encroach into the setback to a maximum of 4.5m from the boundary for the first 3 storeys, and for a maximum of 50% of the façade length.	<i>Residential flat buildings:</i> 4.5m to building façade line <i>Shop top housing:</i> 0m for first floor 4m for floors above first floor
Corner lots secondary street setback (minimum)	3m	6m	<i>Residential flat buildings:</i> 4.5m to building façade line <i>Shop top housing:</i> 0m for first floor 4m for floors above first floor
Side setback (minimum)	2m	Buildings up to 3 storeys: 3m Buildings above 3 storeys: 6m	Refer to Part 6 .
Rear setback (minimum)	4m (excluding garages)	6m	8m
Zero lot line (minimum)	Not permitted	Not permitted	Permitted on side boundaries only
Habitable room/balcony separation distance (minimum)	12m	12m	Refer to Part 6 .
Car parking spaces	1-2 bedrooms: 1 space (min) 3 bedrooms or more: 2 spaces (min) – may be provided in a ‘stack parking’ configuration. Garages to be set back 1m behind the building line	1 space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling. May be in a ‘stack parking’ configuration. Car parking spaces to be located below ground or behind building line 1 visitor car parking space per 5 apartments Bicycle parking spaces: 1 per 3 dwellings	1 space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling. May be in a ‘stack parking’ configuration. Car parking spaces to be located below ground or behind the building 1 visitor car parking space per 5 apartments (may be above ground) Bicycle parking spaces: 1 per 3 dwellings

Element	R2, R3 zones (shop top housing only)	R3, R4 zones (residential flat buildings)	B1, B2, B3 and B4 zones
Garages and car parking dimensions (min)	Covered: 3m x 5.5m Uncovered: 2.5m x 5.2m Aisle widths must comply with AS 2890.1		

4.7 Other development in residential areas

The residential zones within the Precinct Plan permit a range of non-residential land uses which, depending on their scale, suitability, location and design, may be compatible with adjoining residential uses. Reference should be made to the Precinct Plan for the permissibility of specific non-residential uses in each zone, including the zoning table in Part 3 and the local provisions in Part 6. For some land uses, the local provisions in Part 6 specify additional requirements that must be met for Council to grant consent to these uses.

The Precinct Plan recognises that allowing non-residential development in the residential zones is appropriate providing controls are in place to minimise the negative impacts of noise, loss of privacy, traffic, and parking on residential amenity.

The controls for non residential development consist of:

- General requirements, which apply to all non-residential development in residential zones.
- Specific provisions covering land uses such as child care centres, neighbourhood shops, educational establishments and places of public worship, in addition to, or overriding, the general requirements.

Notes:

In the event of an inconsistency between the general and specific provisions in this section of the DCP, the specific controls will prevail.

These controls are not intended to apply to home occupations.

Council may require the submission of additional information to demonstrate that the development will not adversely affect the existing or future amenity of the surrounding residential area. Such information may include a noise impact assessment, advice on traffic generating potential and parking provision, solar access and evidence that the proposed land use will contribute to the amenity, character and liveability of the residential area in which it is to be located. Applicants should consult with Council prior to submitting a development application to determine specific information requirements.

4.7.1 General requirements

Objectives

- a. To establish appropriate controls to minimise the adverse effects of non-residential development on surrounding residential development.
- b. To maintain consistency in development standards between non-residential and residential land uses and ensure that buildings are similar in height, bulk and scale to surrounding buildings.
- c. To ensure that non-residential development is appropriately located.
- d. To avoid concentrations of non-residential uses in any particular area where the cumulative impact on residential amenity would be unacceptable.

Controls

1. Site analysis information as required by **clause 4.2** is to be submitted with all applications for non-residential development in residential zones.
2. Except as provided for in the specific controls below, non-residential development on residential zoned land is to be located on allotments that have a frontage width of greater than 15 metres.

Note: *The relevant Precinct Plan specifies minimum site area development standards for some non-residential land uses within residential zones.*

3. Non-residential development on residential zoned land is to comply with the requirements of **clause 4.3** of this DCP in relation to residential amenity and sustainable building design.
4. For all non-residential development, the controls relating to lots with frontages greater than 15 metres in the following clauses of this DCP apply:
 - **Clause 4.4.1** Front setbacks;
 - **Clause 4.4.4** Side and rear setbacks;
 - **Clause 4.4.5** Dwelling height, massing and siting; and
 - **Clause 4.4.8** Garages, site access and parking.
5. Non-residential development is not permitted on battleaxe allotments.
6. The maximum site coverage of buildings is 60% of the total site area.
7. The minimum landscaped area for non-residential development is 20% of the total site area of the allotment.
8. Provision of car parking for non-residential uses will be assessed by Council on an individual basis, and with reference to standards that apply elsewhere in the Local Government Area, that may establish relevant parking requirements, but must be sufficient to meet demand generated by staff and visitors.
9. Where a non-residential use is proposed as part of, or in association with, a dwelling (eg. a home business):

- Parking and storage areas are to be located behind the building façade or be screened from view from the street by landscaping and set back at least 1 metre from the front property boundary.
 - Parking and storage areas are not to encroach on the private open space or landscaped area of the dwelling.
10. Where there is an inconsistency between the general requirements of this clause and the specific controls in **clauses 4.7.3 to 4.7.6** the specific controls prevail.
11. Council will have particular regard to the effects of non-residential development in the residential zones. Council will consider whether:
- the proposed development will be out of character with surrounding residential development, particularly in relation to the height and/or scale of any proposed buildings;
 - the proposed development will contribute to an undesirable clustering of that type of development, or non-residential uses in general, in the area;
 - an undesirable effect on the amenity of the surrounding area will be created;
 - the proposed use will draw patronage from areas outside of the surrounding neighbourhood, and the extent to which that patronage might impact on the amenity of residents through factors such as traffic generation, noise or the overall scale of the non-residential use;
 - a noise nuisance will be created;
 - the development will generate traffic out of keeping with the locality;
 - adequate facilities are provided for the purposes of parking, loading and deliveries;
 - adequate provision is made for access by disabled persons.
12. Non-residential development in residential zones should be similar in bulk, scale, height and siting to the surrounding buildings.
13. Finishes, materials, paving and landscaping are to be consistent with those of surrounding residential development.
14. Storage of materials and equipment is to be contained within internal storage areas or outdoor storage areas that are suitably screened, fenced and landscaped.

4.7.2 Exhibition Homes and Exhibition Villages

Objectives

- a. To ensure that exhibition homes and exhibition villages operate with minimal impact on surrounding residential areas.
- b. To ensure that exhibition homes and exhibition villages operate for a limited time after which they revert to a conventional residential environment.

Controls

1. Any subdivision of land shall be in accordance with the requirements for dwellings in this DCP and the relevant Precinct Plan under the Growth Centres SEPP.
2. Any proposed street within an exhibition village may be held as one lot within the development until the cessation of the operation of the exhibition village. Subdivision and dedication of roads to Council must be completed prior to the use of dwellings for residential accommodation.
3. Exhibition villages should be located on Collector Roads or as close to Collector Roads as possible, with vehicle access from a Collector Road.
4. Exhibition homes/ exhibition villages are not permitted:
 - where access is from a street with a carriageway width of less than 9.0 metres.
 - on streets which are cul-de-sacs.
5. Car parking for exhibition homes shall be provided off street. However, on-street car parking may be considered where there are no privately occupied dwellings opposite or adjoining the individual exhibition homes.
6. Internal streets may be closed out of hours of operation only where the streets are not yet dedicated as public roads.
7. During the operation of an exhibition home/ exhibition village additional measures to maintain the privacy of adjoining residential development may be required.
8. The hours of operation shall be limited to 7am to 7pm each day.
9. Buildings used for such uses as providing home finance, materials display or take-away food and the like shall cease to operate when the exhibition home/ exhibition village ceases unless separate approval is obtained to enable the continued operation of these uses.
10. Temporary buildings used for providing home finance, materials display or take-away food shall be removed and the site made good.
11. When the use of the dwelling ceases to be an exhibition home, any garage that has been used as a sales office is to be reinstated as a functioning garage with an appropriate garage door and associated driveway, prior to the occupation of the dwelling for residential purposes.

12. When the exhibition village/home ceases to operate, all signs and structures etc associated with the exhibition home/village shall be removed to ensure the site has a residential appearance.
13. Security lighting shall be provided in such a way to minimise any adverse impact on adjoining residential areas.
14. The operation of the exhibition village (including the use of designated off-street car parks) shall not cause offensive noise or affect the acoustic amenity of adjoining residents.
15. Waste disposal facilities shall be provided. These shall be located adjacent to the driveway entrance to the site.
16. Any structure involving waste disposal facilities shall be located as follows:
 - Set back one metre from the front boundary to the street.
 - Landscaped between the structure and the front boundary and adjoining areas to minimise the impact on the streetscape.
 - Not be located adjacent to an adjoining residential property.
17. All works affecting public roads, including new driveways, access roads and intersection works are to be in accordance with the requirements of this DCP and the relevant Council's Engineering Specifications.
18. Landscaping of streets is to be in accordance with the requirements of this DCP, and street landscaping is to be maintained for the duration of operation of the exhibition home/village. Dedication of public roads to Council will be subject to satisfactory provision and maintenance of street landscaping.
19. Dwellings located near future sources of noise are to incorporate appropriate noise attenuation measures when designed and constructed, to ensure that future residents are afforded an appropriate level of amenity.
20. Details of proposed signage are to be submitted with the Development Application. Signage is to be located on public roads at or near the entry to the exhibition home/village. Internal signage within the exhibition village is to be visible only from within the village (not from surrounding residential properties). When considering applications including signage, Council will refer to controls in other Council policies and planning controls that may be applicable.

4.7.3 Child Care Centres

Objectives

- a. To ensure all communities have access to a local child care centre and to minimise travel distances to and from child care facilities.
- b. To provide communities with child care centres that are appropriate in size and scale to the surrounding neighbourhood and to reduce excessive built form within residential streetscapes.
- c. To ensure the appropriate location and operation of child care centres in order to minimise any adverse impact on the amenity of residential areas.
- d. To ensure that child care centres provide a safe, healthy and active environment for children of all ages.

Controls

- The following controls apply to child care centres in residential zones:

Control	Requirements
Distance Separation Requirement	1km from any existing, approved or proposed child care centre, 100m from high voltage transmission lines, mobile phone towers, radio telecommunication facilities, restricted premises, sex services premises. 85m (measured at site boundary) of service stations and gas storage tanks
Minimum Allotment size	900m ²
Minimum Frontage width	26m
Minimum Lot Depth	30m
Maximum site coverage	50%
Minimum landscape area	30%
Max no. of storeys	1 storey building or ground floor for children's rooms only
Floor to ceiling height	Minimum 2.4 metres
Capacity	Max. 40 children Min. 5 places for under 2 year olds
Open Space <ul style="list-style-type: none"> Minimum unencumbered indoor play space / licensed child (irrespective of age) Minimum unencumbered outdoor play space / licensed child (irrespective of age) Play areas 	Reference should be made to the Children's Services Regulation 2004 and other supporting information for these standards.
Setbacks (min/m)	
• Primary Front (Building)	6m
• Primary Front (Landscape setback)	2m
• Fronting Open Space	1m
• Side (Building)	2m
• Rear (Building)	4m ground floor 8m upper floors
• Corner Lots (Street Frontage)	3m
• Min. Setback for storage facilities	4m
Car parking spaces	<p>1 car parking space per employee (reduced rates of provision may apply where the child care centre is within walking distance of a bus stop or train station).</p> <p>1 of the car parking spaces shall be designed for people with a disability.</p> <p>For the purposes of this calculation the number of employees is based on the following ratios of staff to children:</p> <ul style="list-style-type: none"> 1:4 in respect of all children who are under the age of 2 years, and, 1:8 in respect of all children who are 2 or more years of age but under 3 years of age, and 1:10 in respect of all children who are 3 or more years of age but under 6 years of age.
Visitor Car Parking	1 space per 6 children

Site Selection and Location

2. Child care centres are not appropriate on the following land:
 - Land that has direct frontage to an arterial road, sub-arterial road or transit boulevard (refer to **clause 3.2.5**);
 - opposite “T” intersections or on bends where sight distances are limited and may create dangerous conditions for vehicle entry to and exit from the site;
 - on cul-de-sacs;
 - flood liable land or land affected by local overland flooding (refer to **clause 2.3.1**);
 - bushfire prone land (refer to **clause 2.3.6**); or
 - land that requires significant cut or fill, where retaining walls would create a safety hazard for children.
3. In order to limit impact on neighbouring properties child care centres should:
 - Be located in close proximity to other non-residential uses such as community facilities, schools, neighbourhood halls, churches and public recreation areas;
 - be located in close proximity to transport routes and public transport nodes and corridors (collector roads are the preferred location for child care centres).
 - if practical, be located on sites that have minimal common boundaries with residential neighbours;
 - locate play areas as far as possible away from neighbours' living rooms and bedrooms; and
 - be sited on allotments that can provide sufficient buffering so as to minimise noise and loss of privacy.

Matters for consideration

4. Council will consider the following matters when assessing development applications for child care centres:
 - Whether the development maintains the privacy and amenity of adjoining developments;
 - The extent to which the design of the proposed development, including any signage, is consistent with the desired character of the residential area in which it is located;
 - The appropriateness of the location of the development, including its location in relation to other existing or proposed child care centres;
 - The size of the land where the development is proposed; and
 - The provision of and location within the development site of car parking.

Documents to be Submitted with Development Application

5. Development Applications are to be accompanied by the following, which are to be prepared by an appropriately qualified person or organisation:
- **Acoustic Report** – to address the impact of noise generation from the child care centre on the surrounding area;
 - **Landscape Plan and associated documentation** – to identify existing vegetation and community plant species and the proposed landscaping treatment of the development;
 - **Traffic Report/Statement** - to address the impact of a child care centre on the local road system and address traffic safety issues and address traffic safety issues; and
 - **Location Analysis** – to indicate all existing and proposed child care centres within a 2km radius of the proposed child care facility and to address the locational matters in the controls above.

4.7.4 Educational Establishments and Places of Worship

Objectives

- a. To ensure appropriate provision and equitable distribution of educational establishments and places of public worship within the Precinct.
- b. To ensure that buildings are not out of character with the type, height, bulk and scale of surrounding buildings.
- c. To encourage the appropriate location of facilities to create community focal points, centres of neighbourhood activity and enhance community identity.
- d. To mitigate the impacts of noise, privacy, increased traffic and nuisance on surrounding residential development.
- e. To foster iconic and landmark building design within each Precinct.

Controls

1. Places of worship are to be located within centres or co-located with other community facilities in residential areas so as to create a community focal point, to share facilities such as parking, and to minimise impacts on residential areas.
2. Places of public worship and educational establishments are preferably to be located on land with frontage to a collector road. Corner sites are preferred.
3. In assessing applications, Council will consider the following:
 - the privacy and amenity of adjoining developments;
 - the need and adequacy for provision of buffer zones to surrounding residential development;

- urban design;
- location;
- the size of the land where the development is proposed;
- traffic generation and the impacts of traffic on the road network and the amenity of nearby residents;
- the availability of parking;
- the scale of buildings and their capacity; and
- hours of operation and noise impacts.

4. A traffic and transport report/statement is to accompany the Development Application addressing the impact of the proposed development on the local road system and defining car parking requirements.

Note: Due to the high level of traffic generation and peak nature of traffic volumes accessing these types of land uses, assessment of traffic impacts and pedestrian requirements is required and mitigation measures may need to be incorporated in the design. Such measures may include pedestrian crossings, speed control devices, pedestrian refuges on streets to which the development fronts and the provision of bus and drop off bays. School zones will require additional safety measures such as school crossings, 40 km/h school speed zones and flashing lights in accordance with Roads and Maritime Service requirements.

5. A landscape plan and associated documentation is to be submitted with the Development Application identifying existing vegetation and community plant species and/or existing design elements of the site layout, and the proposed landscaping treatment of the development.
6. Car parking spaces shall be provided on site in accordance with **Table 4-15**, unless the applicant can demonstrate to the satisfaction of Council that lower rates of parking are reasonable for the particular development.

Table 4-15: Car parking requirements for places of public worship and educational establishments

Land use	Parking requirement
Places of Public Worship	1 space per 6 seats, plus 1 bicycle and 1 motorcycle space per 25 car parking spaces in excess of the first 25 car parking spaces
Schools	1 space per staff member Plus 1 space per 100 students Plus 1 space per 5 students in Yr 12 (based on estimated capacity for year 12 students to be specified in the Development Application) A pick up / drop off facility of sufficient size to accommodate the forecast demand identified through a traffic and parking report. The resultant layout of the facility to be to the satisfaction of Council.
Tertiary and Adult Educational Establishments	1 space per 5 seats Or 1 space per 10m ² of floor area (whichever is greater)

7. For certain uses, the provision of overflow parking may be necessary particularly where such developments incorporate halls used for social gatherings. Overflow parking areas could be provided on open grassed areas and need not be formally sealed or line-marked. Proposed overflow parking areas are to be clearly shown on plans submitted with the Development Application.
8. Development must be designed to minimise the possibility of noise impacts to the occupants of adjoining or neighbouring dwellings.
9. Where it is likely that a development may cause an adverse noise impact on nearby residential areas, an acoustic report will be required to be submitted to council with the Development application,
10. Development must comply with Office of Environment and Heritage noise guidelines in clause 4.3.4.
11. Where appropriate, buffers should be put in place to limit noise impacts on the surrounding area. Extensive noise walls along most or all of a property boundary are not appropriate and other measures should be used to mitigate noise.
12. Sources of noise such as garbage collection, machinery, parking areas and air conditioning plants are sited away from adjoining properties and screened/ insulated by walls or other acoustic treatment. Noise levels are not to exceed specified limits at the most affected point of the property boundary.
13. The general hours of operation for places of public worship and educational establishments are between 7am and 9pm.
14. Variation to the approved hours of operation may be approved by Council subject to other requirements or a merit assessment.

Note: Legislation covering noise impacts and hours of operation is the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment (Noise Control) Regulation 2000 (Noise Control Regulation)*. Applicants should also refer to the Office of Environment and Heritage website (<http://www.environment.nsw.gov.au>) for more information regarding noise control.

4.7.5 Neighbourhood Shops

Objectives

- a. To ensure the appropriate provision of retail uses to serve the needs of the local community.
- b. To minimise the impacts of retail activities on surrounding residential areas.
- c. To ensure that retail activities in residential areas do not detract from the function or viability of nearby centres.
- d. To ensure the appropriate location of neighbourhood shops.

Controls

1. Neighbourhood shops in the R2 zone may only be developed on an allotment of land with a frontage width of 15 metres or more.
2. Neighbourhood shops in the R2 zone are to be located:
 - adjoining land zoned RE1 or SP2 or that is separated from land zoned RE1 or SP2 only by a public road, or
 - with frontage to a collector road, or
 - within 90 metres of public transport stop, or
 - adjoining an educational establishment or a community facility or separated from an educational establishment or a community facility only by a public road.
3. The minimum lot size for neighbourhood shops is 500 square metres.
4. For neighbourhood shops, the controls relating to lots with frontages greater than 15 metres in the following clauses of this DCP apply:
 - **Clause 4.4.1** Streetscape and architectural design,
 - **Clause 4.4.1** Front setbacks,
 - **Clause 4.4.4** Side and rear setbacks,
 - **Clause 4.4.5** Dwelling height, massing and siting, and
 - **Clause 4.4.8** Garages, site access and parking.
5. Shops fronts are to encourage active and interactive street frontages that are sympathetic to the streetscape with similar materials to adjoining buildings to be used.
6. Any area of land between the front property boundary and the building alignment, exclusive of approved driveways and parking areas, is to be landscaped to the satisfaction of Council.
7. Address and entry points for any residential use on the same allotment of land are to be separate from the retail use access points and be readily identifiable.
8. Design of the building frontage, front and side setbacks are to include safe and convenient pedestrian facilities such as weather protection, shade, seating and landscaping.
9. On corner sites, shop fronts are to wrap around the corner and zero setbacks are permitted.
10. Entrances are to be visible from the street and well lit.
11. The site should not gain direct access to:
 - A road with clearway or other parking restrictions; or
 - A restricted access road (sub-arterial, arterial or transit boulevard).

12. Any proposed development should not to create a traffic hazard. However, corner sites are preferred in terms of reducing potential for impacts on neighbouring properties, and for allowing side access for customer parking and deliveries.
13. One car parking space is to be provided for every 30m² of Gross Floor Area,
14. Parking spaces are to be provided on site or in dedicated on street parking constructed to Council's standards.
15. The design of the building and parking areas is to provide suitable access for people with disabilities and service deliveries.
16. Bicycle parking must be provided in a location that is secure and accessible with weather protection for employees.
17. Car parking must be clearly signposted to indicate its availability from the street.
18. Plant and equipment (particularly cooling or heating plant), is to be located so as to not cause noise annoyance to neighbours. A noise impact assessment may be required to be prepared and submitted to Council.
19. Waste storage areas must be designed to minimise visual impact and should be screened and properly positioned so as to not to attract pests and cause odour problems for neighbours.
20. All goods storage is to be internal.

4.7.6 Seniors Housing

Objectives

- a. To ensure that the design of seniors housing is consistent with the character of surrounding residential areas.

Controls

1. Applications for seniors housing are to comply with the controls in **clause 4.5.4** of this DCP for multi-dwelling housing, or controls for residential flat buildings in **clause 4.6**, as appropriate to the proposed development.

Note: *SEPP (Housing for Seniors or People with a Disability) 2004 is the primary environmental planning instrument controlling seniors housing. Applicants considering development of this kind should refer to that SEPP for specific controls and to determine the permissibility of seniors housing.*

5.0

Centres Development Controls

5.1 Introduction

This Part of the DCP outlines principles, objectives and design controls to achieve quality, consistency and coordination in the development of the Local and Neighbourhood Centres. It applies to land identified in the **Location of Centres** figure in the relevant Precinct's Schedule.

Note: *Controls specific to certain centres may be contained in the Precinct Schedule and apply in addition to the controls in this part.*

The objectives of this Part of the DCP are to:

- a. Create vibrant, functional centres that are a focus for community activity and interaction;
- b. Establish design principles that achieve high quality coordinated urban design outcomes and high standards of amenity;
- c. Encourage social interaction and the development of places that are safe and desirable for all users;
- d. Provide flexible controls to accommodate change within the centres over time;
- e. Ensure that development in centres takes advantage of access to public transport.

5.2 Development principles

The following development principles apply to all centres to which this part of the DCP applies. The principles should be considered by applicants for all applications for development in centres. The controls in **clause 5.3** are based on these principles, and where an application does not comply with the controls, Council will consider whether the proposed development is consistent with the relevant development principles when determining the application.

5.2.1 Function and land use mix

- a. The maximum retail floor area within each centre is to be as specified in the relevant Precinct's Schedule and to ensure that the centre functions in accordance with its position in the regional centres hierarchy.
- b. A range of retail, commercial, entertainment, recreation and community uses is encouraged to serve the needs of the wider community and promote active and vibrant centres.
- c. Mixed use developments containing residential uses on upper floors are located in the centre to take advantage of access to transport and services, and to increase levels of activity within the centre.
- d. Employment opportunities are maximised within the centre.

- e. The ground floor of all buildings is occupied by retail, commercial, community, entertainment or other active uses, particularly fronting the main street and all open space.
- f. Fine grained and intensive retail and commercial uses that present an active street frontage are located along the main street.
- g. Building design integrates internal spaces (i.e. the interior of shops and other businesses) and the public domain (i.e. the streets, plazas and parks), and facilitates active use of footpaths by cafes and the like.
- h. The needs of health and aged care providers, facilities for young people, civic and emergency services are met within the centres.

5.2.2 Design layout

- a. A main street acts as the focal point for the retail and commercial activity in the centre and is of a width and design that encourages pedestrian activity and a low speed traffic environment.
- b. Large format retail premises (such as supermarkets and discount department stores) have pedestrian access to the main street, and do not present blank walls or inactive facades to the main street.
- c. The importance of car parking to the viability of retailing is recognised, but does not dictate the location and orientation of retail premises at the expense of an active public domain.
- d. The core retail areas and fringes are clearly defined by the mix of land uses and intensity of development that integrates with surrounding residential areas.
- e. Facilities including loading, waste storage, servicing and other infrastructure are to be co-located as much as possible to maximise the efficient use of space while ensuring these facilities do not adversely impact on the amenity of surrounding sensitive land uses.
- f. An interconnected street block network with small block sizes and mid-block connections maximises pedestrian movement and connections to key destinations including parks, plazas and transport nodes.
- g. Noise and amenity considerations inform the layout and location of various uses, particularly residential uses.
- h. The street network emphasises sight lines to local landscape features, places of key cultural significance, civic buildings and public open space.
- i. Opportunities for crime are minimised through appropriate design and maintenance, in accordance with the principles of Crime Prevention Through Environmental Design in **clause 2.5**.

5.2.3 Public domain

- a. The streetscape creates a high amenity pedestrian environment through solar access, shade and shelter, good natural light, landscaping and footpath design, and management of vehicular traffic.
- b. Parks and plazas are a focal point for people, businesses and community activities and are designed to ensure adaptability and flexibility in use and function over time.
- c. High standards of design and landscaping, based on consistent public domain design standards, promote the character and attractiveness of the centre and create a sense of ownership and pride for businesses and residents.
- d. Activities that activate the streets, the park and plaza draw people to the centre not only to shop, but for entertainment and recreation, such as markets, concerts and outdoor community events.

5.2.4 Built form

- a. A range of building heights are permitted, up to maximum heights to control amenity and overshadowing, to create a varied skyline.
- b. Building heights transition around the fringes of the centre to integrate the built form with adjacent residential areas.
- c. Building heights and setbacks are related to street widths and functions to promote a comfortable urban scale of development.
- d. Building separation and orientation considers privacy and amenity, particularly for residents.
- e. Building heights take into account view lines and solar access to the public domain.
- f. Streets and open spaces are defined by buildings that are generally built to the street edge, have a consistent street wall height and provide a continuous street frontage, particularly along the main street and fronting the town square.
- g. A high quality built form and energy efficient architectural design promotes a 'sense of place' and contemporary character for the centre.

5.2.5 Transport

- a. The centre is pedestrian and public transport orientated with walking and cycling taking priority over vehicles, while allowing for vehicle movement and access in a low speed traffic environment.
- b. The main street carries sufficient traffic volumes, and has provision for on-street parking, to support retail and commercial uses that front it.

- c. Streets are wide enough to ensure pedestrians, cyclists and vehicles can move around the centre, to encourage activity on the street and to enable a clear relationship between development on either side of the road.
- d. Traffic signals and pedestrian crossings facilitate easy movement of pedestrians throughout the centre.
- e. The street layout allows easy access to and within the centre while allowing for regional traffic to bypass the centre.
- f. Where applicable, rail transport is integrated with other transport modes through an efficient interchange.
- g. Vehicle access to parking and loading areas is via secondary streets rather than the main street or other active streets. Separate parking and loading vehicle accesses are preferred.

5.3 Development controls

5.3.1 Streetscape and architectural design

Objectives

- a. To achieve high standards of streetscape amenity and building design, and a coordinated streetscape.
- b. To encourage pedestrian activity in the streets of the Centre and other public spaces.
- c. To clearly define the character of the main street and other elements of the public domain.

Controls - active frontage and street address

- 1. Active street fronts, built to the street boundary, are required on the ground level of all retail and commercial development fronting the main street and where applicable, public open space, as identified in the **Desired future layout of the Centre** figure in the relevant Precinct's Schedule.
- 2. All applications for development in centres are to include a masterplan showing:
 - The location of the proposed development site in the context of the overall centre, and relative to key features of the centre including the main street and other public spaces such as parks, squares and plazas.
 - How the proposed development fits into the future layout of the centre as shown on the **Desired future layout of the Centre** figure in the relevant Precinct's Schedule. Where the proposal varies from the desired future layout, the applicant is to demonstrate consistency with the development principles in **clause 5.2**.
 - Proposed vehicle and pedestrian access that is consistent with the **Traffic circulation and parking** figure in the relevant Precinct's Schedule. Where consistency with the **Traffic**

circulation and parking figure is not possible (such as in early stages of the development of the centre prior to construction of key roads) the applicant is to demonstrate consistency with the development principles in **clause 5.2**.

3. Residential, commercial and retail uses on the upper floors are to be designed to overlook streets and other public places to provide passive surveillance.
4. The ground and first floor of all buildings on active street frontages are to be built to the front property boundary (ie. a zero front setback) to define the street edge. If the first floor contains residential uses, internal spaces may be set back where balconies are built to the property boundary.
5. The primary means of pedestrian access to retail, commercial and upper floor residential uses is to be from the street rather than from the rear or internal areas of the building. Building entries should be prominent, clearly identifiable and accessible.
6. Vehicle access to basement level parking or parking located behind buildings must not be from active street frontages.
7. All large format retail premises and decked parking areas are to be sleeved with uses that provide an active frontage to the street.
8. Blank walls visible from the public domain are to be avoided.
9. Retail shops are to have a variety of shop frontage widths and articulation.
10. Restaurants, cafes and the like are encouraged to provide openable shop fronts and to make use of footpath areas on active streets.
11. On corner sites, active shop fronts are to wrap around the corner and address both street frontages.
12. Developments that have multiple street frontages are to provide entrances to internal/upper floor uses on each street frontage.
13. In mixed-use buildings, separate access from the street is required for retail, commercial and residential uses.
14. Entrances are to be visible from the street and well lit.
15. Security shutters and grilles are not encouraged and any proposed security devices are to be transparent or at least 80% open.
16. All buildings on active street frontages are to include awnings above the ground floor for the full length of the street frontage.
17. Parking is to be screened by buildings, from the main street and other streets with active frontages, or be below ground.

Controls – building facades and awnings

18. Building facades at street level on active frontage streets are to have a minimum of 80% glazing and be open to the street.

19. Translucent or obscured glazing is not permitted on active street frontages.
20. Signage and advertising material are not to obscure glazing.
21. At night, internal lighting is to fall onto the footpath, or under-awning lighting is to be provided.
22. Solid elements are preferably to be finished with rendered masonry, tiles or face brick.
23. Coordinated colour schemes are required, and colours and materials are to be consistent with adjoining buildings and the general character of the street.
24. Façade articulation is encouraged above the ground floor through the incorporation of balconies, openings and other design elements that modulate the façade, providing rhythm and interest.
25. Articulated corners are to be provided to building facades on active street frontages, as identified in the **Desired future layout of the Centre** figure in the relevant Precinct's Schedule. Articulated elements may include verandahs, awnings, upper level balconies, use of materials or roof designs that accentuate the corner. Articulation elements are to address both street frontages.
26. Design of corner buildings on the ground floor is to facilitate free pedestrian movement. Open corners at ground level are encouraged.
27. Building height, massing, materials and parapet/roof expression should be used to accentuate corner elements. Council may consider proposals on street corners that do not meet relevant height controls where the design of the building accentuates the corner, creates a landmark and is well designed.
28. Any awning over a public footpath will require a Public Road Activity Approval to be issued by the Consent Authority.
29. Awnings should be a minimum height of 2.7m (3.2m desirable) above footpath level and generally consistent in form with adjacent awnings.
30. The front fascia of the awning is to be set back a minimum of 500mm from the kerb of the street carriageway, including at street corners.
31. Awnings are generally to project horizontally from the building façade and be horizontal along the length of the façade. Stepped awnings are appropriate on sloping streets.
32. The design of awnings is to be consistent with adjoining buildings. Awnings that are significantly different in terms of materials, finishes and dimensions will not be permitted.

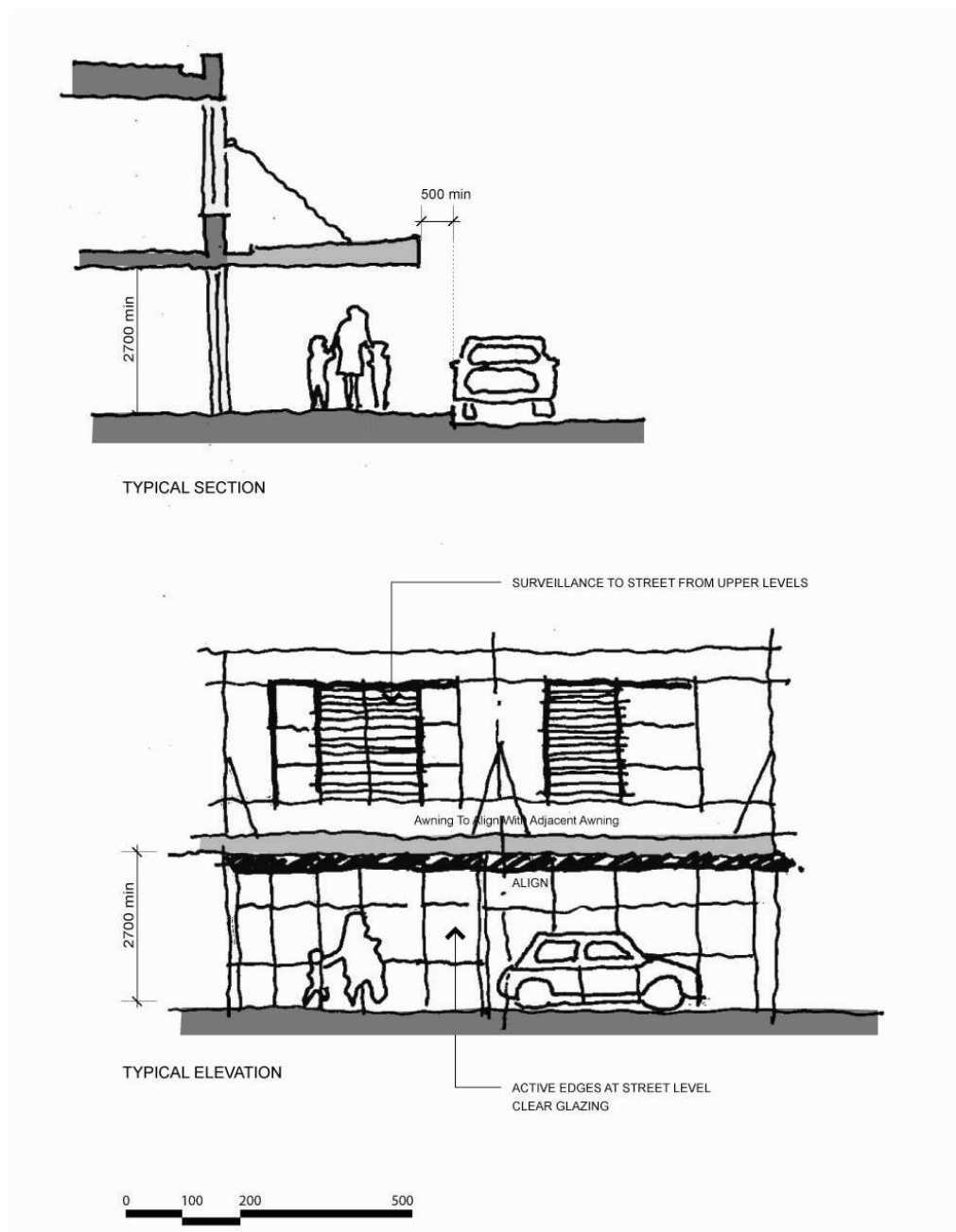


Figure 5-1: Awnings

33. Development applications within the centre that propose works in public streets to be undertaken by the developer are to be consistent with any public domain strategy or similar document that applies to the centre.
34. All signage and advertising is to be designed in a co-ordinated manner (refer to **clause 5.3.4** for detailed controls).

Controls – Landscape design and public spaces

35. Parks and plazas are to act as a focal point for the centre and community activities and are to be designed to ensure adaptability and flexibility in use and function over time.

36. Plant selection should take into account the following:
- species which complement remnant native vegetation,
 - level of on-going maintenance,
 - potential impacts on road and footpath pavements,
 - focus on hardy, drought tolerant, easily maintained species,
 - scale in relation to the function of the area,
 - solar access and shade, and
 - contribution to the character of the local centre.
37. Street tree and open space planting is to provide generous shade for pedestrians in summer and allow for sunlight penetration to street level in winter.
38. All paving materials must conform to relevant standards for durability, non-slip textures, strength and surface treatment to withstand use by light automobiles, service vehicles, pedestrians and bicycles.
39. Paving materials should also be certified colour stable for a period of at least 20 years to ensure a reasonable match to existing paving when damaged sections are replaced.
40. All paved areas should be adequately drained and follow 'best practises' in installation, including sub-surface preparation and stormwater management.
41. All paved areas must be properly designed to facilitate use by the elderly and disabled.

5.3.2 Solar access, weather protection and energy efficiency

Objectives

- a. To encourage energy efficient building design and operation that complies with statutory benchmarks in sustainable development.
- b. To minimise energy and resource consumption during construction and operation.
- c. To consider local climatic conditions and ensure that the design of centres maximises amenity and activity within the public domain during a wide range of weather conditions.

Controls

1. Parks and plazas are to receive sunlight on a minimum of 50% of their site area between 11am and 2pm on June 21st.
2. Building envelopes are to allow for north-south streets to receive 2 hours sunlight between 9am-3pm on June 21st on a minimum of 50% of the eastern or western footpaths; and
3. Building envelopes are to allow for east-west streets to receive 2 hours of sunlight between 9am-3pm on June 21st on a minimum of 50% of the southern footpaths.
4. Continuous awnings are required to be provided along the ground floor street frontage on active street frontages in accordance with **Figure 5-1** and all buildings fronting public open space or squares.
5. The design of awnings is to comply with the controls in **clause 5.3.1**, and:
 - Ensure that the solar access controls in controls 1, 2 and 3 above are achieved.
 - Ensure that protection from rain and summer sun is provided to a minimum of 75% of footpath areas.
6. The design and orientation of buildings is to consider prevailing south-westerly winds in winter, and active frontages are to be located to maximise shielding from strong winds by buildings.
7. Uses that are likely to occupy footpaths should be generally located on the southern or western sides of active streets to take advantage of winter sun and protection from winter winds.
8. Loading, parking and service areas are preferably to be located on the southern or western sides of buildings, except where the western or southern side of a development site adjoins an active street.
9. Residential development within centres is to be generally oriented with living areas and balconies facing north.
10. Residential development within centres is to be designed to maximise natural cross-ventilation.
11. Large expanses of west-facing glazing, or open shop-fronts facing west, are to be avoided unless the glazing or shop-front is shielded from afternoon sun in summer and cold winter winds by other buildings or awnings.
12. Each retail or commercial tenancy is to be separately metered or sub-metered for electricity, gas and water (hot and cold).
13. Hot water is to be supplied from solar or heat pump systems. Where these systems can not deliver sufficient hot water to meet demand (eg. If the roof area is insufficient), gas water heating is preferred.
14. Rainwater collected from roof areas is to be used for non-potable uses including toilet flushing, laundries and cleaning.

15. All new and refurbished Retail, Commercial and Mixed Use development over the value of \$5 million, shall achieve a minimum Greenstar rating of 4 stars as per the applicable Green Building Council of Australia “as built” rating tool.
16. To achieve ESD objectives for new development referred to in control 15:
 - An accredited Greenstar Professional from Green Building Council of Australia (GBCA) is to be engaged on the project.
 - A schedule of achievable Greenstar credits prepared and certified by the accredited Greenstar Professional is to be provided at the lodgement of the Development Application.
 - Proposed Greenstar measures must be shown on the Development Application documents.
 - Certificates from suitably qualified structural, hydraulic and mechanical consultants must be provided certifying the ability to incorporate the Green Star commitments at the lodgement of the Development Application.
17. External pedestrian circulation areas are encouraged, rather than internal mall-type buildings. Development that includes internal pedestrian circulation areas should be designed to enable natural ventilation and lighting when weather conditions are appropriate. This may include measures such as openable windows, louvres, skylights and openings on the building perimeter to facilitate natural air circulation. Temporary, moveable or adjustable shade structures are encouraged to provide protection to outdoor or semi-indoor pedestrian circulation areas.
18. Retail and commercial tenancies are to be capable of natural ventilation and have access to natural light.
19. External glazing or shade structures to commercial and retail development shall be capable of controlling solar ingress into internal spaces. Where necessary, solar ingress control systems shall be dynamically operable via climate control systems for individual tenancies.
20. Materials used for construction shall have low Volatile Organic Compounds (VOC) emissions content.
21. Timber building materials should be sourced from sustainable suppliers such as products certified by the Forestry Stewardship Council (FSC).
22. For construction of developments with a value more than \$10 million, a Construction Environmental Management Plan is to be submitted prior to the issue of a construction certificate, detailing:
 - Measures to reduce the consumption of materials and resources during construction.
 - The use of recycled or reclaimed materials in construction.
 - Construction waste minimisation measures, including opportunities to re-use materials on site.
 - Measures to minimise the use of water and maximise water re-use during construction.

- The embodied energy of the main construction materials, options considered to reduce the embodied energy of materials and (if applicable) the reasons for not choosing materials with the least embodied energy.
- Training, monitoring and reporting on the compliance of construction contractors with the requirements of the CEMP.

5.3.3 Building bulk, scale and design

Objectives

- To ensure a high standard of building design.
- To ensure that buildings are appropriate to the scale and character of the centre.
- To provide for appropriate air circulation and solar access, and to maintain view corridors to and through the centre.

Controls

- The maximum allowable depth of residential building envelopes is 22m (max 18m glass line to glass line).
- Floors above the second floor are to be set back a minimum of 4 metres from the boundary of the property with any public street.
- Larger upper floor setbacks from the street may be required to:
 - achieve adequate solar access at street level;
 - maintain the privacy of dwellings;
 - maintain view corridors; or
 - minimise the bulk of the building.
- Zero side setbacks are required on the ground floor and first floor and the side wall shall contain no windows or other openings (except where the side setback is to a public street, where the façade controls in **clause 5.3.1** apply).
- Zero side setbacks are permitted for the upper floors providing the side wall contains no windows or other openings (except where the side setback is to a public street, where the façade controls in **clause 5.3.1** apply).

Note: Control 2 above prevails in relation to setbacks to secondary streets in floors above the second floor.

- Where windows, balconies or other openings are to be provided on upper floors, the minimum side setback for upper floors is 6 metres from the side property boundary and the minimum separation distance between habitable rooms or balconies is 12 metres.
- For floors above the fourth floor, the minimum separation distance between buildings is to be 18 metres.

8. Roof forms should not result in excessive bulk or overshadowing.
9. All plant and lift over-runs are to be concealed within roof forms to minimise visual impact.
10. The use of roof areas for private / communal open space and gardens is encouraged. Such spaces should be designed to minimise privacy impacts on neighbours.
11. For development in close proximity to a rail corridor, balconies and windows are to be designed so as to prevent objects being thrown onto Railcorp's facilities (refer to the relevant National Construction Code and the Railcorp Electrical Standards).
12. Floor to ceiling heights are to be a minimum of:
 - Ground floor of all buildings (regardless of use): 3.6m
 - First floor for retail and/or commercial use: 3.3m
 - All other retail and/or commercial floors: 3.3m
 - All other residential floors: 2.4m.

5.3.4 Signs

Objectives

- a. To ensure that signs and advertising structures are unobtrusive and coordinated in their appearance and design, and complement buildings and the streetscape.
- b. To limit the purposes for which signs may be erected to those that identify businesses and buildings.

Controls

1. Signs are to be designed and located to:
 - Be visually interesting and have a high level of design quality,
 - Be integrated with the architecture and structure of the building on which they are located;
 - Be consistent with the scale of the building or the property on which they are located.
 - Consider existing signs on the building, adjoining buildings or elsewhere in the streetscape, and not obscure views of existing signs or the potential for signs to be viewed on adjoining premises;
 - Not cover glazed surfaces;
 - Project minimally from the building.
2. Signs are not to be supported from, hung from or placed on other signs.
3. The preferred locations for business or building identification signs are shown on **Figure 5-2** and include:
 - Fascia signs, located on the front or side fascia of an awning;
 - Under-awning signs;

- Flush wall mounted signs (e.g. above windows or doors);
 - Projecting wall signs, where there is no awning or the fixture of the sign to the awning is not appropriate due to the style of the awning.
4. Awning fascia signs are not to project within 500mm of the kerb.
 5. The minimum clearance from the footpath to the bottom of any sign (apart from flush mounted wall signs) is 2.4 metres.
 6. Projecting wall signs and under-awning signs are to be perpendicular to the building façade and horizontal.
 7. Above awning signs (signs that are attached to the top of an awning) are not permitted.
 8. Flush mounted building identification signs are permitted above the first floor on the building parapet only where they are integrated with the design of the building and where they do not project more than 100mm from the building. The maximum area of the sign face is 3m².
 9. The maximum number of signs on each façade of any retail or commercial tenancy is three, and only one sign of each type (fascia, under-awning, projecting wall or flush mounted) is permitted on each façade.
 10. Under-awning or projecting wall signs are to be a minimum of 3.5 metres apart.
 11. Signs are not to project beyond the dimensions of the structure to which they are affixed or obscure windows or other openings.
 12. Free standing signs (signs that are not affixed to a building) are not permitted on active street frontages.
 13. Flashing, animated or bright neon signage is not permitted.
 14. Any illuminated signage must comply with AS 4282 – Control of the obtrusive effects of outdoor lighting.
 15. All buildings are to have clearly displayed and legible street numbering.
 16. The location of signs is not to obscure views of traffic signs or traffic signals, or have the potential to cause confusion with traffic signs or signals (e.g. signs that look like traffic signals or stop signs located near a public road).

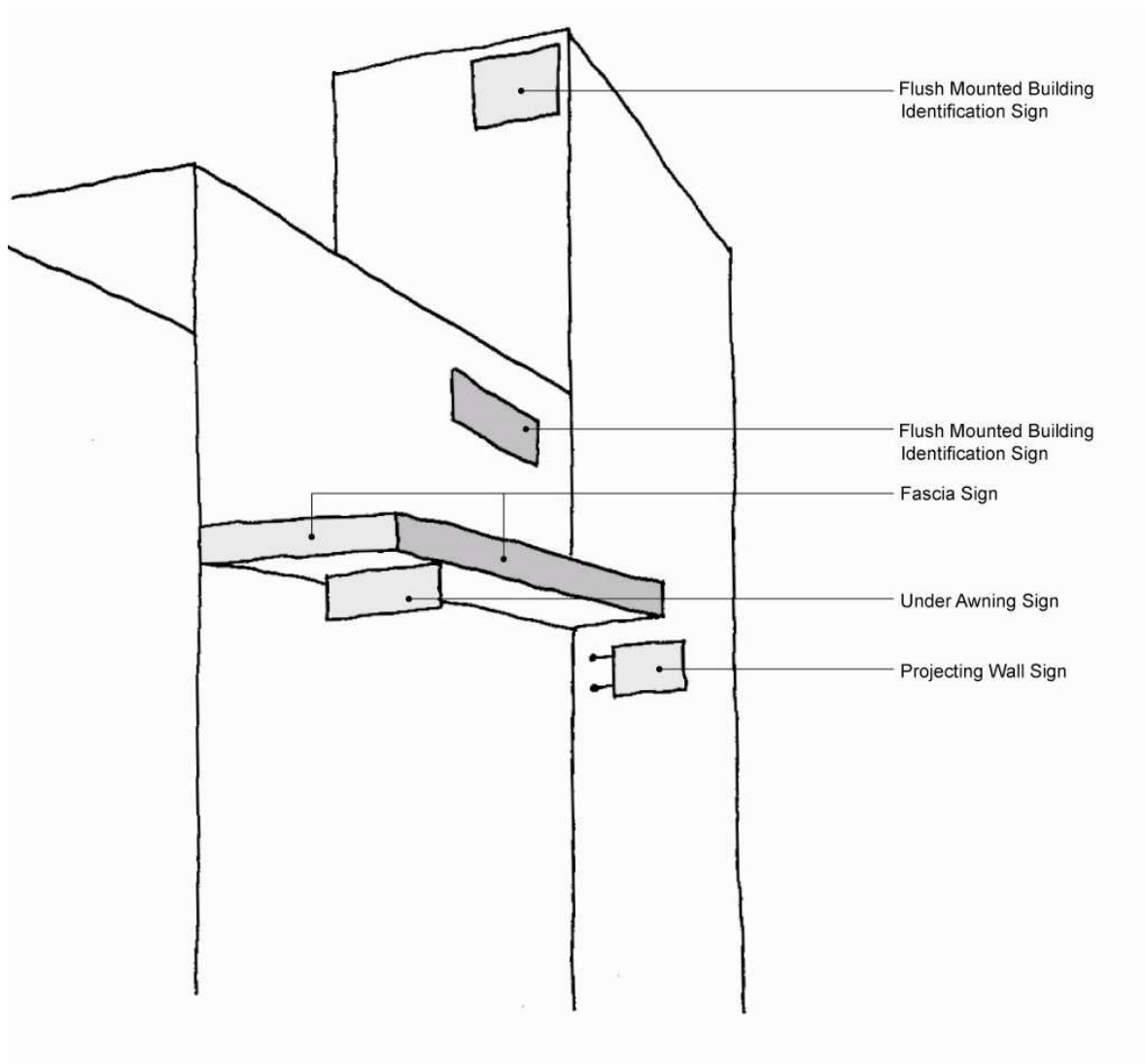


Figure 5-2: Preferred locations for signs

5.3.5 Acoustic and visual privacy

Objectives

- a. To ensure that appropriate standards of amenity and privacy are maintained for residents in the centre.
- b. To ensure that noise sources such as road and rail traffic do not impact on the amenity of residents or detract from the character of the centre.

Controls

1. Development in the centres must comply with the Office of Environment and Heritage and Council noise attenuation requirements and the controls for visual and acoustic privacy in **clause 4.3.4**.

2. A combination of the following measures is to be used to mitigate the impacts of rail or road traffic noise within centres:
 - setbacks and service roads;
 - internal dwelling layouts that are designed to minimise noise in living and sleeping areas;
 - changes in landform;
 - higher than standard fencing constructed with a suitably solid mass; and
 - locating courtyards and principal private open space areas that will comply with the criteria in **clause 4.3.4** away from the noise source.

5.3.6 Safety, surveillance and maintenance

Objectives

- a. To provide for a safe and attractive local centre with high levels of activity and amenity.
- b. To ensure that the design quality and amenity of the centre is maintained.

Controls

1. The principles of Crime Prevention through Environmental Design (CPTED) in **Clause 2.5** are applicable to all development within centres.
2. Balconies, terraces and other private open spaces are to be oriented to public open spaces to optimise casual surveillance.
3. The design of all buildings, fences and landscape elements shall take sight lines, both horizontal and vertical, into consideration to minimize blind spots and promote a sense of security.
4. All streets, alleys, bike paths and pedestrian walkways must be adequately lit at all times.
5. Lighting is to be installed on all circulation routes and major pedestrian thoroughfares, including under-awning lighting on all awnings.
6. Large open areas such as parking lots and public open spaces are to be floodlit.
7. Lights should be positioned so that they highlight landmarks and other special building features.
8. Lighting fixtures must be sturdy, durable, vandal resistant and easily maintained.
9. Fixtures visible from the public domain should be mounted at a height of at least 2.7 metres, and their appearance should complement the architectural and landscape character of the location.
10. The installation of lighting should take into account and minimise its impacts on surrounding commercial premises and residential properties.
11. Durable and easily cleaned materials should be selected in all areas exposed to the public, and all masonry surfaces to a height of 3 metres should be protected with an approved anti-graffiti treatment.

12. Fencing and street plantings should be designed to achieve a balance between screening and security/surveillance.
13. Traffic facilities are to be installed to enhance pedestrian safety.
14. Safety features such as tactile surfaces and handrails are to be provided in appropriate locations.

5.3.7 Site servicing

Objectives

- a. To ensure that servicing of premises within the centre is efficient.
- b. To minimise the amenity impacts of servicing activities including loading/unloading, waste storage and collection.

Controls

1. Services and structures such as transformers, waste collection, storage and deposit areas, and loading bays are generally to be located to the rear of the property. Where this cannot be achieved services must be integrated into the overall design of buildings and landscaping of the street front through screening measures.
2. Service areas are not permitted on active street frontages or adjacent to public parks, plazas or squares.
3. Service/delivery vehicles should access service and loading areas using secondary streets (refer to the **Traffic Circulation and Parking** figure in the relevant Precinct's Schedule for preferred access roads and locations).
4. The following controls relate to the screening of services:
 - All services, transformers, storage and deposit areas, and wheeled rubbish bins must be effectively screened from view.
 - Screening walls or plant masses shall be at least 1.8 metres high, and Council may require higher screens where required to achieve appropriate standards of amenity.
 - All screening shall be designed to allow free and easy access to the facilities, as required to permit maintenance and checking by all relevant parties, including service authorities, Council officials, tenants and property owners.
 - Screening wall materials and plants shall be selected which have no adverse impacts on the operation of the facilities.
4. Service access is permitted from rear lanes, side streets and right of ways for the use of parking, loading docks and waste collection areas.
5. Adequate space should be provided for the movement, unloading and loading of service vehicles. All service vehicles should enter and exit any loading area in a forward direction.

6. Structures shall be painted according to the required standards of the relevant service authority, in colours that limit their visual impact.
7. All air conditioners must be located in areas where any noise and dripping condensation will have minimal impact on the public domain. No roof or wall mounted air conditioners shall be visible from public areas.
8. Television antennas and other telecommunication devices are not to be visible from the street.

5.3.8 Traffic circulation, parking and access

Objectives

- a. To ensure that vehicular traffic (including cars, public transport and service vehicles) is able to access the Centre, including retail destinations, service areas and railway stations or other transport interchanges.
- b. To minimise conflicts between the pedestrian oriented areas of the centre and those areas required for vehicular traffic.
- c. To minimise the land area required for car parking and to encourage the efficient utilisation of car parking for multiple purposes.

Controls

1. The pattern of vehicle movement and access to car parking is to be in accordance with the diagram at the **Traffic Circulation and Parking** figure in the relevant Precinct's Schedule.
2. On-site car and bicycle parking is to be provided in accordance with the standards set out in **Table 5-1**, or standards that apply elsewhere in the Local Government Area, for land uses not listed below. Design of driveways and car parks is to be in accordance with Liverpool DCP 2008 unless this DCP specifies otherwise.

Table 5-1: Car parking requirements in centres

Land use	Car parking requirements
Business premises/office premises	1 space per 40m ² GFA
Retail premises (less than 200m ² GFA)	1 space per 30m ² GFA
Retail premises (greater than 200m ² GFA)	1 space per 22m ² GFA
Food and drink premises	1 space per 30m ² GFA
Residential development	Refer to clause 4.6.1 .

Note: Business premises / office premises & retail premises are to provide bicycle parking in accordance with the NSW Government Planning Guidelines for Walking and Cycling.

3. Opportunities for shared parking provision for complementary uses within centres are to be provided. In particular, shared parking provision to cater for rail commuters and retail uses is encouraged. Where retail development is proposed within walking distance (800 metres) of a train station, applicants are to discuss parking arrangements including the potential for shared commuter and

retail parking with Railcorp and provide any relevant information as part of the development application.

4. In mixed use developments, dedicated on site parking is to be provided for the residential component of the development in accordance with the controls in **clause 4.6.1**, except where applicants can demonstrate to Council that a lower rate of car parking can meet the demand generated by the residential component. Applicants should consider whether car parking provided for non-residential components of the development could contribute to meeting demand from the residential component, particularly where peak demand generated by the different land uses occurs at different times of the day.
5. Secondary streets, rear lanes and right of ways are to be used to provide access to parking areas, loading docks and waste collection areas. Lanes will need to accommodate heavy vehicles where access to loading areas and waste collection is required.
6. On-street parking is to be provided on all streets to create a buffer between pedestrian and street traffic and promote casual surveillance.
7. Basement, semi-basement or decked parking is preferred over large expanses of at-grade parking.
8. At grade or decked parking areas are to be located behind building lines. Notwithstanding this, Council will consider transitional arrangements for parking where an application is supported by a staging plan that indicates compliance with the above desired parking location principles upon ultimate development.
9. Outdoor parking areas are to be screened and landscaped to minimise their visual dominance within the centre.
10. At grade car parks must contain shade tree plantings using tree species and spacing of trees to demonstrate that tree canopies are capable of covering 50% of the car space surface area (excluding car park travel lanes). Submitted plans are to illustrate the estimated extent of tree canopies at maturity.
11. Bicycle parking is to be in secure and accessible locations. Bicycle parking for employees is to have weather protection.
12. The parking area per vehicle is to be in accordance with AS 2890:1. Provision for service vehicles is to be in accordance with AS2890.2.
13. The main street and streets that have active frontages are to be designed generally in accordance with **Figure 5-3**, and are to have the following minimum dimensions:
 - Footpaths (from back of kerb to the boundary of the road reserve) are to be a minimum of 4.5 metres wide. Additional width may be necessary at public transport facilities such as bus stops.
 - Carriageways are to be a minimum of 6.5m wide with sufficient capacity for kerbside parking/cycle lanes and at least one traffic lane with a minimum width of 3.5 metres.

14. The design of the main street and other town centre streets is to effectively transition from the design required within the town centre to the design required in the surrounding urban areas (refer to **Figure 3-3** to **Figure 3-6** for typical street designs in residential areas)
15. Where the kerb side lane is a dedicated parking lane (ie. not used as a traffic lane during peak periods), the kerb and footpath is to extend into the parking lane at signalised intersections and key pedestrian crossing locations.
16. Specific road cross-sections for certain streets may be contained in the relevant Precinct Schedule, and prevail over the controls above where there is any inconsistency.

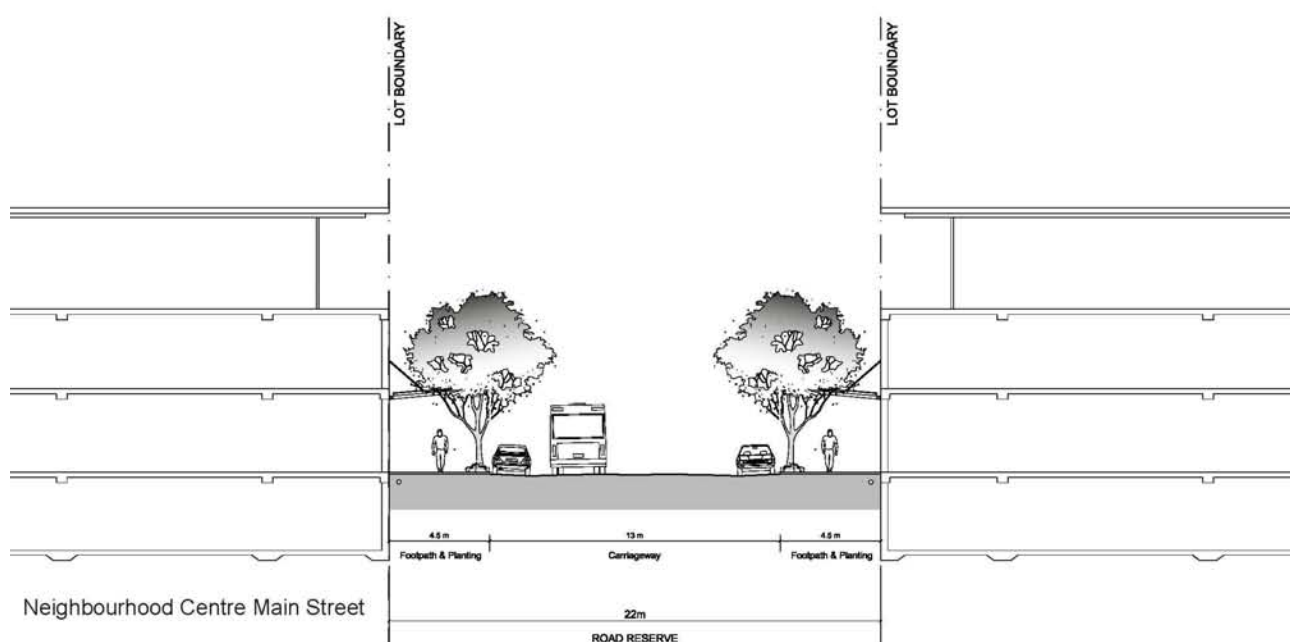


Figure 5-3: Design of main streets

6.0

**Employment Lands
Subdivision and
Development Controls**

6.1 Land to which this Part applies

This Part applies all land to which a Precinct Plan with Employment Land zones applies. The Employment Land zones are:

- IN1 – General Industrial
- IN2 – Light Industrial
- B5 – Business Development
- B7 – Business Park

6.2 Subdivision

6.2.1 Lot Subdivision

Objectives

- a. To allow for a range of allotment sizes that caters for a diversity of land uses and employment opportunities within the Precinct.
- b. To ensure allotments are oriented and aligned to enable buildings to appropriately address streets and the public domain.
- c. To ensure that development does not unreasonably restrict the orderly development of adjoining land and land within the catchment

Controls

1. Lots are to be relatively regular in shape, although lot sizes are to be diverse to meet a range of land uses. These may range from those requiring wide street frontages and a minimum depth to those that require narrower frontage but a greater depth. Irregular shaped allotments with narrow street frontages are to be avoided.
2. Lots should be orientated and aligned:
 - so that future buildings face public roads to increase visual surveillance and to avoid streetscapes with loading docks and long blank walls;
 - to facilitate energy efficient building design;
 - to enable buildings to have frontage to landscaped areas and riparian corridors;or aligned to comply with standards that apply elsewhere in the Local Government Area.

3. Vehicle access points to lots shall be located to ensure unimpeded sight lines and to maximise on-street parking capacity.
4. Subdivisional roads should incorporate a road hierarchy that will accommodate the anticipated traffic volumes and vehicle types and be practical and legible for users.
5. Where a residue lot is created, the applicant must demonstrate that future development of that residue lot can meet the controls in this DCP.
6. The development application must demonstrate the relationship between existing and finished land levels on the development site and adjoining lands.
7. The development application must demonstrate that any overland flow across the site will be appropriately managed as part of the development and that connection by adjoining developments to the trunk drainage network will not be impeded by the development.

6.2.2 Strata or Community Title Subdivision

1. All landscaping, access areas, visitor parking and directory board signs not forming part of an individual unit are required by Council to be included in any strata plan of subdivision as common property.

6.2.3 Battle Axe Lots

1. Battleaxe lots are not permitted on land zoned B5 Business Development or B7 Business Park.
2. Battleaxe lots may be proposed in the IN1 General Industrial zone and IN2 Light Industrial zone only where the applicant can demonstrate to Council's satisfaction that it is not possible to create lots with a road frontage due to factors such as existing cadastral patterns, the location of existing roads or topography.
3. The minimum allotment dimensions for battle axe lots must be in accordance with **Figure 6-1**.
4. There shall be a maximum of two lots per battle axe handle. Side access onto the battle-axe handle from adjoining lots will not be permitted.
5. All battle axe handles should be provided with a minimum hard paved (preferably concrete or bitumen) carriageway of 7m.
6. For a shared battle axe handle a concrete pedestrian path of 1.2m wide that is set 1m off from the adjacent kerb face on one side of the handle is to be provided.
7. A 1.2m high safety fence is to be provided between the face of kerb and the concrete path to prevent any incursion by pedestrians into the path of vehicles.
8. A minimum 8m x 8m splay must be provided at each end of the handle. Larger splays will be required where truck-turning movements cannot be accommodated within this minimum splay. A truck swept path plan must be provided at subdivision DA stage to assist Council officers in determining the required minimum splay required.
9. Drainage within battle axe handles must be managed by stormwater treatment devices to Council's satisfaction.

10. Land within battle axe handles that is not required for vehicle or pedestrian carriageways is to be landscaped.

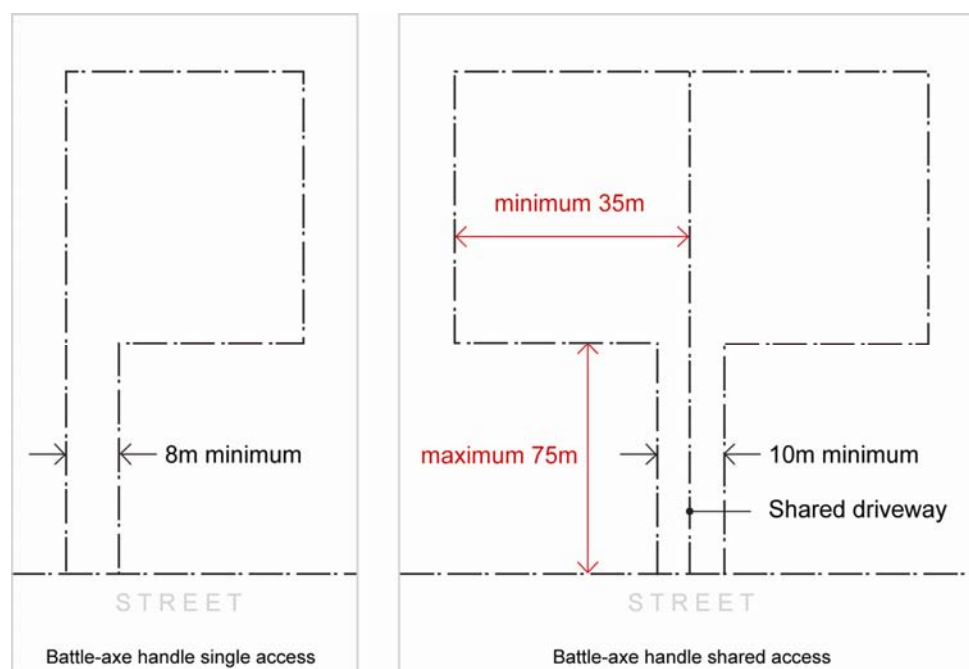


Figure 6-1: Battle axe lot dimensions

6.3 Landscape Design

Objectives

- a. To ensure a balance between built form and landscaped elements
- b. To encourage landscaping as a means of screening industrial development.
- c. To enable landscaping to contribute to energy efficiency water management and amenity for employees.
- d. To encourage a high standard of landscape design that enhances the streetscape and amenity of the zone.

6.3.1 Streetscape and Allotment Frontages

1. Streets in industrial zones are to be designed and constructed in accordance with the typical cross section at **Figure 6-2**.
2. The streetscape design is to integrate vertical elements (trees, light poles and allotment signage) to provide consistency of elements and materials across the zone.
3. Service lids and above ground structures are to be minimised in street frontages.
4. Street tree planting is to be implemented at the subdivision stage in conjunction with the development to ensure plantings are visually consistent in height, spread and form across the zone.

5. The selection of plant species for street tree planting must be in accordance with **Appendix C**.

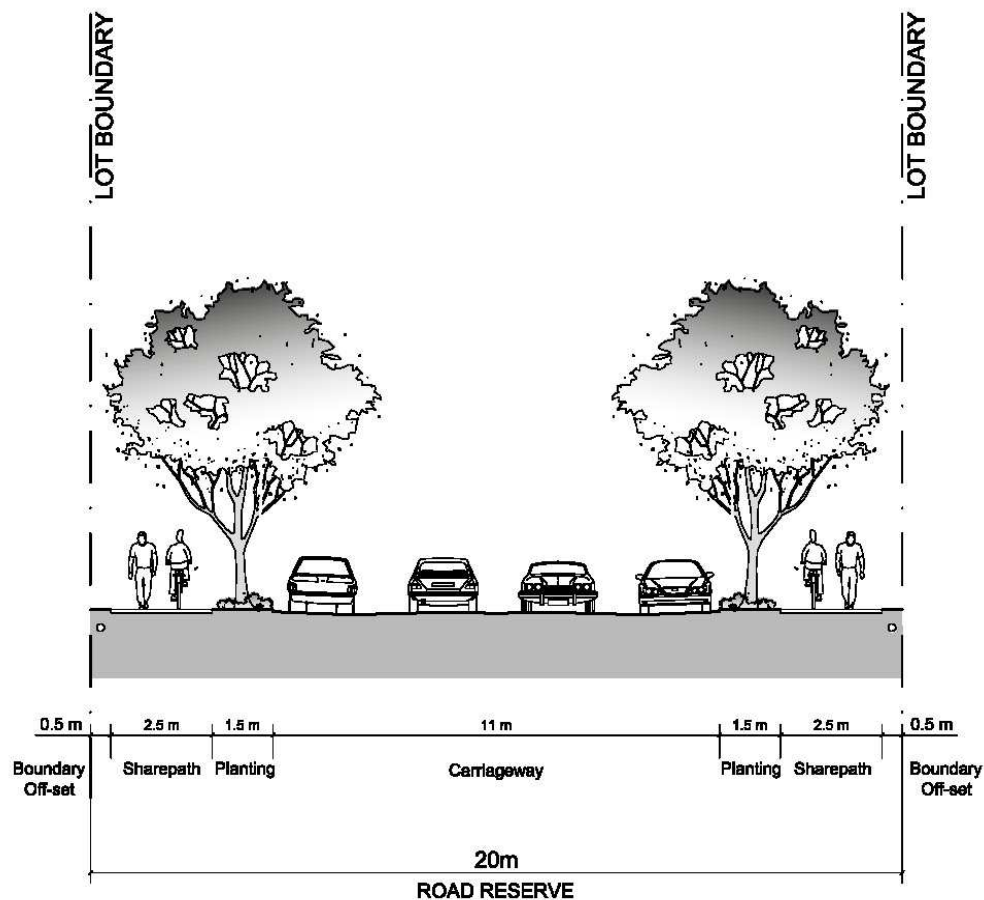


Figure 6-2: Typical industrial street

6.3.2 Allotment Landscape

1. A Landscape Plan must be prepared for all new industrial subdivisions and new buildings.
2. Landscaped areas are required between buildings (ie. within the building separation zone).
3. Allotment landscape design is to be integrated with site planning and building design to:
 - reduce the perceived scale of built form from the street;
 - reduce visual impact and the extent of continuous building facades.
 - highlight architectural features and complement façade articulation;
 - identify site and building entries, car park entries and parking areas, in coordination with signage;
 - mitigate adverse site conditions through buffering of western sun, provision of shade, wind protection, and screening of poor views;
 - maximise northern sun exposure; and
 - integrate usable and attractive external seating and amenity areas for staff incorporating paved areas, soft landscape, and shade planting (and canopies where necessary).

4. Landscaping should incorporate hard and soft landscape elements including pavements, retaining walls, low walls and terracing, trees, garden bed planting, and turfed areas.
5. Indigenous species from the area are encouraged for all landscape plantings however, non native species may be considered in limited use to external courtyard areas to achieve seasonal climate management. Trees should be a minimum height of one metre at the time of planting. Mass plantings may use a variety of sizes.
6. Landscaped areas are to be provided with an automatic trickle irrigation system installed below mulch level. The system is to be supplied by rainwater collected from the site.
7. Landscaped areas are to be separated from vehicular access areas by an appropriate edge, preferably a raised kerb.
8. Landscaped areas are to be separated from storage areas by an appropriate edge, preferably low walls. Signage and management strategies are to be put in place to ensure that storage activities do not impact on, or extend into, landscaped areas. No storage is allowed in landscaped areas.

6.3.3 Landscaping of Car Parking Areas

1. Landscaping of car parking areas is to comply with **Table 6-1** below:

Table 6-1: Landscape car parking

Large canopy tree plantings	Maximum intervals of 25m (9 parking bays)
Tree plantings	Minimum 2m bay of deep soil condition
Car parking bays	Raised kerb barrier (rounded adjoining accessways) and native groundcover planting.

2. Allotment car parking areas are to be effectively landscaped to:
 - reduce their visual impact;
 - reduce heat generation and glare from hard paved surfaces;
 - provide shade for parked vehicles; and
 - maximise potential for soft drainage (non-piped) to soft landscaped areas or collection zones.
3. Car park lighting design is to be coordinated with the tree layout.
4. Dividing zones between parking bays should be landscaped as applicable to specific site conditions:
 - where pedestrian access will generate desire lines across the dividing zone, pedestrian trafficable wearing surface is required (eg. stabilised gravel);

- where pedestrian access is not required and some infiltration drainage may be provided, mass planted landscape areas (requiring flush kerb edge and wheel stops to car parking bays) must be provided; and
 - where a major drainage role is envisaged and pedestrian access is not required, a gravel surfaced trench with collection pipework draining to on site storage or stormwater must be provided.
5. Clearly defined and appropriately surfaced pedestrian access links from parking areas to building entry points must be provided, incorporating kerb crossing ramps as required.
 6. Car park landscaping is to be provided with an automatic trickle irrigation system installed below mulch level. Irrigation services provision must be implemented before car park surfacing. The system is to be supplied by the rainwater tanks on site.
 7. Retaining wall elements must be no greater than 3m in height. All retaining walls must be screened by vegetation.
 8. The mature height of any vegetation adjacent to a pedestrian crossing shall be less than 0.6m to ensure sightlines.

6.3.4 Communal Areas

1. Development for the purposes of Industries or Light Industries, with a gross floor area greater than 500 square metres, is to provide a communal area for employees.
2. The area shall be suitably landscaped and accessible from the main office component of the development.
3. The communal area is to have a minimum dimension of 3 metres.
4. Small pockets of open space designed to enhance the appearance of the development will not be counted in the communal area allocation, neither will car parking areas, manoeuvring areas, or landscaped setback areas.
5. In locating communal areas, consideration should be given to the outlook, natural features of the site, and neighbouring buildings.
6. Communal areas shall be embellished with appropriate landscaping, shade, paving, tables, chairs and the like.
7. Communal areas shall be relatively flat and not contain impediments which divide the area or create physical barriers which may impede use.
8. Solar access to communal open spaces is to be provided. Communal areas must receive a minimum of 2 hours direct sunlight between 11am and 3pm on the 21st of June.
9. Appropriate shading is to be provided, preferably using trees, so that communal spaces are useable during summer.

6.4 Built Form and Streetscape

6.4.1 Setbacks

Objectives

- a. To achieve attractive streetscapes by ensuring that buildings present an acceptable scale and bulk when viewed from the public domain.
- b. To provide appropriate setbacks to the proposed use and characteristics of the location of the land.
- c. To define building envelopes within each allotment by specifying minimum setbacks.

Controls

1. All buildings in zones to which this part applies are to be set back a minimum of 7m from the front property boundary unless otherwise specified in a Precinct's Schedule.
2. No building or hardstand area (concrete or bitumen pavement) other than a public utility undertaking or a driveway shall be erected within the minimum setback area.
3. All setback areas should be landscaped and maintained in accordance with the landscape provisions in **clause 6.3**.
4. Pedestrian access should be provided to all landscaped setback areas for maintenance and security purposes.

6.4.2 Building Design and Siting

Objectives

- a. To activate streets and the public domain with building frontages.
- b. To provide a variety of building orientations and create defined streetscapes that respond to site conditions.
- c. To ensure that building design enhances the existing and future desired built form character by encouraging innovation and quality architectural design.

Controls

1. Blank building facades facing the primary street frontage are not permitted.
2. The built form and architecture of buildings located at street corners should enhance its location and positively respond to and emphasise the street corner.
3. Building orientation and siting should respond to natural elements such as topography, wind and sunlight.
4. The layout and orientation of buildings should minimise lengthy or deep areas of car parking along the street front.

5. Buildings should provide effective sun shading for windows, wall surfaces and building entries, (other than loading docks) by the use of design elements such as overhanging eaves and awnings, undercrofts, colonnades and external sun shading devices including screens.
6. Building design should be integrated with landscape elements.
7. The bulk and scale of the building should minimise impact on views to features such as local open space and creek lines.
8. Building facades should be articulated by elements such as:
 - external structures, finishes, etchings and recessed patterns;
 - decorative features, textures and colours;
 - locating offices and highlighting entries within front facades;
 - emphasised corner elements (particularly on corner sites), customer entries and service access doors;
 - protrusions and penetrations in building elements.
9. Buildings with dual street frontage should be designed to ensure:
 - the building addresses the primary street and secondary street frontages; and
 - distinctive identifying architectural elements are incorporated to provide sufficiently interesting and varied facades;
10. The building design should consider the amenity of any landscaped or communal areas in adjoining properties;
11. The location of roller shutters, loading docks and other building openings should be so that they do not detract from the overall appearance of the building. Where possible, roller shutters and the like should not be located on the primary street frontage;
12. Roof design should be visually interesting and provide for natural lighting, and compatibility with the overall building design. Where visible from a public area, all rooftop or exposed structures (lift motor rooms, plant rooms etc), must be suitably screened and integrated with the building.

6.4.3 External Building Materials and Colours

Objectives

- a. To enhance the visual quality of development through the selection of appropriate materials and colours.
- b. To encourage the use of materials that minimise impact on the environment.
- c. To ensure that any reflective materials are used with sensitivity to neighbouring development, vehicular traffic and public domain areas.
- d. To create identifiable, attractive and safe entrances to buildings.

Controls

1. External finishes should be constructed of durable, high-quality and low maintenance materials.
2. External finishes should contain a combination of materials and/or colours.
3. Any wall visible from the public domain must be finished with a suitable material to enhance the appearance of that façade.
4. Building materials should be selected to minimise reflection.
5. External colours shall not detract from the surrounding area. Fluorescent colours are not permitted.
6. The following should be considered in the choice of building materials in all developments:
 - energy efficiency;
 - use of renewable resources;
 - maintenance cost and durability;
 - recycled or recyclable materials;
 - non-polluting; and
 - minimal PVC content.
7. Where concrete roofs are proposed for the purpose of additional parking, parapeted edges are preferred with appropriate screening to conceal roof top car parking.
8. Materials that are likely to contribute to poor internal air quality and those containing Volatile Organic Compounds (VoCs) should be avoided.
9. Proposed external colours and finishes are to be specified in the Development Application. For applications with a value of more than \$5 million, or applications for buildings with a floor area of greater than 2,500m², a colour schedule detailing external colours and finishes may be required by Council.

6.4.4 Entrance Treatment

Objectives

- a. To create clear and legible entries that address the street.

Controls

1. Entries to buildings should be clearly visible, well sign posted and lit to pedestrians and motorists.
2. Architectural features are to be provided at ground level giving an entrance element to the building and addressing the primary street frontage.
3. All entrance treatments, such as directory boards, must be located on private property, with appropriate positive covenants and restrictions on title to ensure the ongoing management of such treatments.

4. No third party advertising will be permitted on any entrance treatment facility.

6.4.5 Ancillary Buildings, Storage and Service Areas

Objectives

- a. To ensure that ancillary buildings, storage and service areas are considered part of the overall design, and do not detract from the amenity and appearance of the development.
- b. To ensure that site facilities are functional and accessible and are easy to maintain.
- c. To ensure that site facilities are thoughtfully integrated into the development and are visually and physically unobtrusive.
- d. To minimise the impact of service access on pedestrians and industrial, commercial and retail frontage.
- e. To minimise the visual and acoustic impact of site servicing.

Controls

1. Ancillary buildings and storage sheds are to be located behind the setback lines and be consistent with the design of the main building.
2. Details of any proposed ancillary buildings, open storage and services areas must be submitted with all Development Applications.
3. Storage areas should be located within the confines of the primary building. Appropriate screening must be provided where this can not be achieved.
4. Above ground open storage areas visible from the public domain are not permissible.
5. Above ground open storage areas should not compromise truck or vehicle manoeuvring and car parking areas.
6. Vehicular access to loading facilities is to be provided from secondary and tertiary streets.
7. Waste and recycling areas must be provided in accordance with relevant controls specified by the consent authority. These areas must:
 - be integrated with the development;
 - minimise the visibility of these facilities from the street; and
 - be located away from openable windows to habitable rooms.
8. Barrier free access is to be provided to all shared facilities.
9. Shower and changing facilities must be provided in accordance with the National Construction Code and be accessible to all building users.
10. The following information must be provided at Development Application stage for outdoor storage areas:
 - Size of outdoor storage area

- Maximum storage height
 - Types of goods, materials and equipment being stored outdoors; and
 - Details on landscaping and screening structures.
11. Sunken loading docks should be avoided.
 12. A minimum 225mm clearance is required between finished floor level and finished ground level.
 13. Above ground water tanks are preferably to be located behind the front facade of the primary buildings. Where tanks are located in front of the building they must be suitably screened. Materials and finishes of the water tanks must be complementary to the design of the main building. Details (including elevations) of all water tanks must be submitted with the DA.

6.4.6 Development adjacent to residential zoned land

Objectives

- a. To ensure that industrial development has a minimal impact on nearby residential areas.
- b. To ensure that the site planning for any industrial development responds to the site of any current or future residential development within the locality

Controls

1. Industrial development adjacent to residential zoned land is to:
 - Be designed so that heavy vehicle entry and exit points are from side streets or the rear (i.e. streets other than those that separate industrial and residential zoned land).
 - Present active uses to the property boundary that faces the residential zoned land (e.g. showrooms, offices or administration areas).
 - Locate and screen noisy aspects of the development away from the residential zoned land, preferably behind buildings.
 - Have customer and staff vehicle entries to the site on side or rear streets.
 - Have a landscaped zone at the front property boundary with a minimum depth from the front boundary of 5 metres, landscaped to reduce the visual impact of buildings and on-site activities when viewed from adjoining residential areas.
 - Have any customer and staff parking at the front of the property set back behind the landscaped zone.
 - Have a maximum of one free standing business identification sign on the property boundary adjacent to the residential zoned land, with maximum dimensions of 2 metres wide by 3 metres tall, oriented perpendicular to the street.
2. Council will have regard to the following considerations when assessing development applications for industrial uses to which this clause applies:

- the appearance of the development when viewed from the residential area, including the building façade, roof and parapet treatments, outdoor areas including landscaping and parking areas, and signage;
 - The bulk and scale of the proposed building when viewed from the residential area;
 - Impacts on solar access to residential properties;
 - The proposed management of air quality, water quality and noise emanating from the proposed development; and
 - Likely impacts on traffic generation, in particular the potential for heavy vehicle movements to increase in residential areas.
3. Where it is considered that a development may have an adverse noise impact on nearby residential areas or adjoining properties, an acoustic assessment undertaken by a qualified acoustic consultant shall be submitted to Council with the development application. The assessment must be in accordance with NSW Industrial Noise Policy.

6.5 Ecologically Sustainable Development

Objectives

- a. To improve energy efficiency through the design and siting of buildings;
- b. To ensure that developments are environmentally sustainable in terms of energy and water use, and management of waste and discharge.
- c. To encourage the utilisation of materials and construction techniques with low energy inputs in their production for construction energy systems.
- d. To provide a landform that is capable of supporting a range of business and industrial uses that require large scale, level sites for their operation.

Controls - General

1. Development Applications are required to demonstrate consideration of:
 - implementing total water cycle management by including measures that reduce consumption of potable water for non-potable uses, minimise site run-off and promote water harvesting and re-use;
 - utilising recycled materials and renewable building resources;
 - promoting biological diversity through appropriate retention, planting and maintenance of indigenous flora of the area;
 - measures to reduce waste disposal, including contribution of the development to achieving the 60 percent waste reduction target for New South Wales; and

- energy conservation measures that include reducing energy consumption and increasing inherent energy efficiency through design and materials selection, and adopting energy management plans.
2. Development applications involving any landfill/excavation activities must provide an Earthworks Plan that demonstrates how the subject site and land that shares the same drainage catchment may be developed in accordance with this DCP and the Precinct Water Cycle Management Strategy (available from Council).. The plan must provide sufficient detail for Council to determine that the proposal will:
- Function in accordance with the development controls of this DCP and supporting technical studies, relevant sections of Council's Engineering Specification and good engineering practice.
 - Not adversely affect the development potential, integrity and stability of adjoining land and land that shares the same drainage catchment.

Controls – Water Cycle Management

1. On site detention (OSD) of stormwater is required for all development on land to which this part of the DCP applies. The on site detention system is to have a capacity sufficient to detain stormwater to meet the objectives of the Precinct Water Cycle Management Strategy (available from Council) and Council's Engineering Specifications (typically to maintain pre-development flooding conditions post-development and to treat stormwater quality to meet the requirements of **clause 2.3.1**).
2. All Development Applications for new industrial buildings or additions to existing industrial buildings are to include a Stormwater Quality Assessment prepared by a suitably qualified engineer with experience in WSUD and include:
 - Estimation of the Benchmark Average Annual Pollutant Loads and the assessment of the performance of the nominated WSUD measures using an industry standard water quality modeling package;
 - The design of WSUD devices used to achieve the post-development pollutant load standards; and
 - Maintenance schedules of any proposed WSUD device that requires maintenance and/or full replacement including the likely recycling disposal location of any wastes that may be generated.
3. The stormwater drainage system (including surface grades, gutters, pipes, surface drains and overland flowpaths) for the property must:
 - Be able to collect and convey all site runoff to the OSD system in a 100-year ARI event in the post-development critical storm; and
 - Ensure that all runoff from any upstream properties bypasses the OSD storage in all storms up to and including the 100-year ARI event.

4. The required OSD storage can be achieved through either below ground or above ground storage or a combination of below ground and above ground storage and ideally should be integrated with other WSUD measures where possible. Any above ground storage is to be designed in such a manner that amenity, public safety and the integrity of property are not compromised and it does not interfere with overland flow paths or adversely affect flood behaviour.
5. The required upper and lower limits for sizing the OSD shall be informed by the following:

2yr ARI SSR* (m ³ /ha)	2yr ARI PSD** (l/s/ha)	100yr ARI SSR (m ³ /ha)	100yr ARI PSD (l/s/ha)
300	30	594	170

**SSR: Site Storage Requirement – the volume of stormwater required to be stored on site.*

***PSD: Permissible Site Discharge – the allowable rate of stormwater discharge from a development site.*

6. All storage for on site detention must be located outside any overland flow paths.
7. Below-ground OSD tanks will be approved for commercial and industrial developments only with an approved mesh screen and a minimum orifice outlet diameter of 25 mm.
8. Discharge from above-ground OSD basins during storms in excess of the adopted pipe system capacity, is to be via a weir designed to have a maximum depth of flow of 150 mm in a 100 year ARI storm.
9. All above-ground OSD basin outlets and below-ground OSD tank orifices are to be protected by a screening device to minimise blockage.
10. An emergency overland flow path shall be provided for all OSD system in case of extremely large flows or blockage of OSD outlet.
11. All stormwater must drain by gravity to an approved drainage system. Discharge by use of mechanical pump system, or pressurised lines, is not allowed.
12. Development proposals for commercial and industrial zones where HAZCHEM and liquid waste would be stored / produced on-site are to capture all site generated runoff up to the 3 month ARI event within a purpose built device such as a grease trap or retention tank/basin. The device must reduce the risk of runoff polluted by contaminants deposited or spilled on the site from being discharged to the receiving environment. The critical duration storm for the property and the 24 hour duration storm is to be analysed
13. Development shall incorporate water efficient fixtures such as taps, showerheads, and toilets. The fixtures must be rated to at least 3 stars under the National Water Conservation Rating and Labelling Scheme. Where the building or development is water intensive (ie. high water user), specific water conservation objectives must be resolved with Council.
14. Roof stormwater should be collected in tanks or street level reticulation which would serve as a retention system. The water in the retention system is to be available for use for non-potable uses such as the watering of landscaped areas, cleaning, and use in toilets.

15. Development proposals that propose to capture and to reuse runoff from paved surfaces for irrigation and/or wash down purposes are to incorporate treatment measures into the development to ensure that the harvested water is fit for purpose and that contaminants such as litter, sediment and oil are captured prior to re-use.
16. Where stormwater harvesting is proposed for irrigation of passive and active open spaces, the design and management of such systems is to be undertaken in accordance with the NWQMS Australian Guidelines for Stormwater Harvesting (2009). All harvested stormwater must be treated prior to re-use to be 'fit for purpose'.
17. Any proposed rainwater tank should be:
 - Equipped with a 'first flush' diversion system to exclude the initial wash-off (first 5mm of rainfall) from a roof;
 - Connected to toilet, laundry and /or garden irrigation fixtures;
 - Provided with screens on inlets and overflows to reduce mosquito risk.
18. Tanks are to be designed, installed and operated in accordance with the requirements of the NSW Department of Health, Sydney Water and relevant Australian Standards.
19. Recycled water schemes for development that is not a single residential dwelling are to be designed and operated in accordance with NWQMS Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (2006).
20. New buildings with a footprint of greater than 2,000m² are encouraged to consider the installation of part or all of the roof as a green roof.
21. Any garden beds in the roof area should predominantly utilise plants from the preferred species list at **Appendix C**. Plant species endemic to the South West Growth Centre are preferred. Planting beds are to contain a suitable depth of soil to sustain the species selected.
22. A detailed landscape plan of the roof design is to be provided with the development application

Controls – Energy Efficiency

23. Consideration should be given to the feasibility of any measures to substitute grid-source power with environmentally sustainable alternatives such as tri-generation (green transformers), co-generation (i.e. recovery of waste energy) or photovoltaics.
24. New commercial buildings must achieve a minimum 4 star Green Star rating from the Green Building Council of Australia. An Energy Efficiency Report is to be provided to Council as part of the Development Application for the development proposal.
25. New industrial and light industrial buildings must achieve a minimum 4 star Green Star rating from the Green Building Council of Australia. An Energy Efficiency Report is to be provided to Council as part of the Development Application for the development proposal.
26. Development should incorporate energy efficient hot water systems (solar hot water is preferred).

6.6 Fencing, Signage and Lighting

Objectives

- a. To use fencing to define boundaries and provide security, as well as contribute to streetscape and amenity of the zone.
- b. To enhance pedestrian safety, security and amenity within the precinct.
- c. To ensure that signage and lighting supports the visual appearance of the building and the visual appeal of the zone.

6.6.1 Fencing

Controls

1. Low feature walls are encouraged at entry driveways. These walls should be used for retaining purposes, as garden beds or as landscaped features and should be integrated into the overall design of the development.
2. Front and side boundary fences forward of the building line shall consist of open palisade style fencing. Dark or neutral colours are preferred.
3. Side fencing behind the building line may comprise chain wire mesh or similar open style fence, plastic coated in dark green or black.
4. Pre-painted solid metal fencing and other solid fencing is not permissible.
5. Fencing must be set back 1m from the front property boundary.
6. Fencing should be sited so it does not impede sightlines for drivers.
7. Fencing along boundaries should not exceed a height greater than 2.1m, measured from finished ground level.

8. Pedestrian fencing within the road reserve is to be RTA Type 1, without embellishment and black in colour.
9. The use of timber fencing or bollards within public reserves or roads is not permitted.

6.6.2 Signage and Lighting

Controls

1. Signage is to relate to the use occurring on the respective property, and should identify the relevant business name.
2. Business identification signage should be attached to the wall of the main building and be designed to complement the architectural style of the building. Free standing signs will only be permitted where signs are integrated with the landscaping and visual character of the site and surrounding area.
3. Directional signs for car parking areas, loading docks, delivery areas and the like should be located close to the main access of a development site. The design, colouring, type and scale of signage within individual properties should be consistent with signage across the zone as a whole.
4. Signage is only to display corporate logos and company names and is not to occupy more than 10% of any façade or wall of a building, unless it can be demonstrated that characteristics of the site or the building require a larger area of signage.
5. Details of all signage, including free standing, fascia, and wall signs must accompany Development Applications.
6. The design and lux of any internal or spot lighting shall be designed to avoid off-site or traffic safety impacts.
7. No form of moving or flashing signage or lighting is permitted.
8. Signage is not to have a detrimental impact on the visual character of the site or surrounding area.
9. All lighting must comply with AS 1158 – Lighting for Roads and Public Spaces and AS 4282 – Control of the obtrusive effects of outdoor lighting.

6.7 Access and Parking

6.7.1 Vehicular Access

Objectives

- a. To ensure that vehicles can enter and exit premises in a safe and efficient manner in a forward direction.
- b. To minimise the impact of vehicle access points on the quality of the public domain and pedestrian safety.
- c. To provide off-street manoeuvring, loading and docking facilities that are adequate for the operational needs of the activity and use.

Controls

1. All developments are to be designed, constructed and operated to comply with Liverpool DCP 2008 (unless this DCP specifies otherwise) and relevant Australian Standards.

Industrial Areas

1. Applicants are required to submit plans and details of proposed vehicular access and circulation for Council's approval with the Development Application. Details must specifically relate to vehicular movement, layout and turning circles.
2. Adequate vehicular entrance to and exit from the development is to be provided and designed in order to provide safety for pedestrians and vehicles using the site and adjacent roadways.
3. Vehicular ingress and egress to the site must be in a forward direction at all times.
4. Driveway crossovers accesses by heavy vehicles should be a minimum of 9m wide, when measured at the kerb alignment.
5. Turning circles will not be permitted to encroach upon any building.
6. Adequate space is to be provided within the site for the loading, unloading and fuelling (if applicable) of vehicles. These areas are to be screened from the road.
7. All parking areas and access roadways must be provided with a drainage system comprising surface inlet pits. Details of pipe sizes (with calculations) and drainage layouts (including discharge points) must be submitted with the Development Application.

B5 Business Development and B7 Business Park Areas

1. Parking areas are to be located underground or screened from view from the street by buildings where at grade or decked.
2. Vehicular access should be designed to avoid conflicts with pedestrians.

3. Adequate space shall be provided within any development site for the loading and unloading of service vehicles. The standard of loading facilities required will depend upon the nature of the development and the uses to be carried out.
4. Council may require the provision of parking for courier vehicles. Loading facilities should be located at the rear of buildings.
5. Vehicular movements associated with loading facilities and customer/employee parking should be separated and all pedestrian movements should be segregated from vehicular movements to avoid possible conflict and congestion.
6. Ingress to and egress from a site should be located where they will cause least interference with vehicular and pedestrian movement on public roads. Direct access is not permitted from sub-arterial roads, arterial roads or transit boulevards (refer to **section 3.2.5** in relation to temporary vehicular access). Access to parking areas will not be permitted in close proximity to traffic signals, intersections or where sight distance is inadequate.
7. The potential for on-street queuing should be eliminated by the provision of sufficient standing areas on-site for vehicles entering the car parking and loading areas.
8. Provision is to be made for all vehicles to enter and leave a site in a forward direction.

6.7.2 Parking

Objectives

- a. To provide an appropriate level of on-site car and bicycle parking provision in the Precinct.
- b. To minimise the visual impact of on-site parking.
- c. To integrate parking facilities with the overall site planning and landscape.
- d. To encourage the use of other modes of transport including bicycles and public transport.

Controls

1. The provision of parking must comply with the **Table 6-2** unless otherwise specified in the relevant Precinct Schedule.
2. Parking rates for land uses not specified in **Table 6-2** are to be as specified for that land use elsewhere in this DCP, or in other Council policies or planning controls
3. The design of car parks is to comply with Council's Engineering and Design Specifications.
4. Safe and secure 24 hour access to car parking areas is to be provided for building users.
5. Measures are to be implemented to minimise the extent of impervious surfaces within car parks.

Table 6-2: Specific land use requirements for parking

Zone	Car Parking Requirements	Bicycle Parking Requirements
Industries Light Industries	1 space per 70m ² including office space up to 20% of the total building GFA. 1 space per 40m ² GFA of Office space where the office space is greater than 20% of the total GFA.	1 bicycle and 1 motorcycle space per 25 car parking spaces in excess of the first 25 car parking spaces.
Warehouse or Distribution Centres Storage Premises	1 space per 300m ² including office space up to 20% of the total building GFA. 1 space per 40m ² GFA of Office space where the office space is greater than 20% of the total GFA.	1 bicycle and 1 motorcycle space per 25 car parking spaces in excess of the first 25 car parking spaces.

At-grade and multi-storey above ground parking

1. At-grade parking areas are to be located so as to minimise visual impacts from the street, public domain and communal open space areas, using site planning and appropriate screen planting or structures.
2. Parking areas are to be located generally behind front building lines.
3. In the Business Park zone, parking areas must be located behind buildings so as to be screened from view from the street.
4. In the Business Development zone, parking is to be located behind the line of the building façade facing the public road. The area between the street and the car park is to be landscaped to screen the parking area from views from the public road.
5. Multi-storey above ground car parks are to be located behind buildings or, if integrated with the building, be sleeved by active uses on frontages facing public roads where active street frontage controls apply (refer to the relevant Precinct Schedule for these controls).

Industrial Areas

1. Car parking is not permitted within the minimum front setback specified in **clause 6.4.1**.
2. The car parking area should be accessible to all parts of the industrial development which it serves.
3. The use of stack parking is not favoured and may only be permitted in special circumstances.
4. Parking facilities for commercial vehicles must be designed in accordance with Australian Standard 2890.2 to accommodate the following truck sizes:
 - A medium rigid vehicle for development with a gross floor area of less than 300m².
 - A heavy rigid vehicle for development with a gross floor area of more than 300m².

5. Sufficient spaces must be provided for parking for people with disabilities to comply with the requirements of the Building Code of Australia. All developments providing 50 parking spaces or more must provide at least 2% or part thereof of those spaces for disabled drivers, clearly marked and signposted for this purpose and located as close as possible to the building's entrance.
6. All parking areas shall be constructed of hard-standing, all-weather material, with parking bays and circulation aisles clearly delineated.

6.8 Waste Management

Objectives

- a. To maximise opportunities for re-use through source separation and on-site storage.
- b. To minimise waste generation and maximise re-use and recycling
- c. To minimise waste generation through design, material selection and building practices.
- d. To ensure efficient storage and collection of waste and quality design of facilities.

Controls

1. Details of proposed waste management are to be provided as part of all development applications for new buildings and for applications proposing a change of use of a building. For larger developments Council may require a **Waste Management Plan** to be prepared.
2. Facilities to allow source separation and re-use of materials on-site should be provided.
3. Waste collection should be provided on-site at the street frontage with clear access to facilitate pick up.
4. The siting of any stockpile must take into account environmental factors such as slope, drainage, location of watercourses and native vegetation.
5. Sufficient space must be provided for the storage of garden waste and other waste materials on site.
6. Re-use of stockpile materials on-site should be facilitated.
7. Sufficient space for storage of recyclables and garbage should be provided on-site.
8. Adequate space should be provided for the temporary storage of recyclables, garbage and compostable materials in each unit.
9. Waste cupboards should be designed and located so as to be accessible, useable and cater for change of use.
10. The area or room allocated for garbage and recycling is to be of a sufficient size to store standard bins efficiently.
11. Garbage and recycling areas/rooms must be accessible to all users and have unobstructed and efficient access to bins.
12. Areas for the storage of bulky waste (eg. clean up materials) should be provided.

13. Volume reduction equipment should be specified in the Development Application for uses that generate significant volumes of waste.
14. Where the development is large or where the site characteristics warrant, multiple garbage and recycling areas should be provided.
15. External space for compostable materials should be provided and located separate to the garbage and recycling room.
16. Composting facilities should be purpose built and be incorporated into the landscape plan for development.
17. The siting of composting facilities should take into account the potential impact on neighbouring properties.
18. Composting facilities should be adequately signposted to indicate availability of composting facilities on-site.

6.9 Safety and Surveillance

Objectives

- a. To ensure personal safety for workers and visitors to the development.
- b. To ensure design minimises the opportunity for crime and maximises opportunities for passive surveillance.

Controls

1. Buildings should be designed to overlook public domain areas and provide casual surveillance.
2. Building entrances should be orientated towards the street to ensure visibility between entrances, foyers, car parking areas and the street.
3. Appropriate lighting should be provided to all cycle and pedestrian paths, bus stops, car parks and buildings.
4. Development should provide clear sight lines and well-lit routes between buildings and the street, and along pedestrian and cycle networks within the public domain.
5. Landscaping design is to consider and implement the principles of Crime Prevention through Environmental Design (refer to **clause 2.5**).

6.10 Additional Land Use Controls

6.10.1 Neighbourhood Shops

Objectives

- a. To enable the provision of neighbourhood shops in business and industrial zones which serve the daily convenience needs of the local workforce, or for the benefit of the local workforce and businesses.

Controls

1. Development Applications must demonstrate that the size, function and proposed use serves the daily convenience needs of the workforce in the zone, or is for the benefit of the local workforce and businesses.
2. Neighbourhood shops must not detrimentally affect the viability of any other centre within a business zone.

6.10.2 Industrial Retail Outlets

Objectives

- a. To limit the size of industrial retail outlets to minimise the impacts of large scale retailing on industrial areas.
- b. To ensure that adequate and safe car parking and access is provided for customers.

Controls

1. Industrial retail outlets are to occupy a maximum of 40% of the combined floor area of the industrial retail outlet and the building or place where the relevant industry is carried out, or 400m², whichever is the lesser
2. Industrial retail outlets are to be located within the part of the building closest to the street frontage and customer access is to be separate from access to parts of the development used for manufacturing, storage or other industrial uses.
3. Car parking for industrial retail outlets is to be clearly marked as customer parking, and is to be provided at the rate of:
 - 1 space per 30m² of floorspace that is occupied by the industrial retail outlet.
 - 1 bicycle and 1 motorcycle space per 25 car parking spaces in excess of the first 25 car parking spaces.
4. Customer parking is to be located separate to loading and storage areas.

6.10.3 Child Care Centres

Objectives

- a. To enable the provision of child care centres to address the needs of the local workforce within the zone.

Controls

1. Due to the nature of the usage, such developments should be sited on allotments which provide buffering from adjoining developments so as to minimise possible conflicts such as noise and invasion of privacy.
2. In order to ensure or protect the privacy of staff and children adequate noise abatement, site landscaping and fencing may be required. Such landscaping is to be in keeping with adjoining developments.

6.10.4 Sex Services Premises

Objectives

- a. To ensure that sex services premises are not placed in inappropriate locations so that they do not give offence to the community or result in a loss of amenity or create adverse social and environmental impacts.
- b. To separate sex services premises and other incompatible land uses.
- c. Nominate relevant criteria that Council must have regard for in determining Development Applications for sex services premises.
- d. To impose conditions of consent and operation to prevent adverse impacts on adjacent land such as noise, safety, offensive visual impact and anti-social activity.

Controls

1. Controls for sex services premises are specified by the Liverpool Development Control Plan 2008. Applicants proposing sex services premises should consult with Council's DCP to determine controls that are applicable to the development.

Appendix A

Glossary

Note: definitions for terms are also included in the Dictionary contained within the Growth Centres SEPP, and in the event of any inconsistency, the definition in the Growth Centres SEPP takes precedence over the definitions in this DCP.

“Access Streets and Laneways” provide local residential access to a small number of dwellings and serve a shared vehicular-pedestrian-cyclist use. They are intended to encourage a safe, low vehicle speed environment in which the residential function is dominant. Access streets function at the lowest level of the road hierarchy. They generally have development on one side and are located along drainage or open space reserves or along access-denied roads. The construction and dedication of access streets is the responsibility of the developer.

“Articulation zone” includes verandahs, porches, awnings, shading devices, bay windows, pergolas and the like. A carport is not considered part of the articulation zone.

“Active Frontages” are defined as one or a combination of the following:

- entrance to retail;
- shop front;
- glazed entries to commercial and residential lobbies;
- café or restaurant if accompanied by an entry from the street;
- active office uses, such as reception, if visible from the street; and
- public building if accompanied by an entry.

Note: In some instances active frontages may be indicated in residential areas. In these circumstances, the active frontage indicates that the dwelling should be designed to orient building entries, living rooms and glazing towards the active frontage.

“Attic” means a room within the main roof space of a building that has a 1.5m minimum wall height at edge of the room, a minimum 30 degree ceiling slope and does not incorporate or access a balcony.

“Attached dwellings” are defined in the Dictionary to the Growth Centres SEPP and comprise 3 or more dwellings on separate allotments that are joined by at least one common wall. An example layout for attached dwellings is at **Figure 1**.

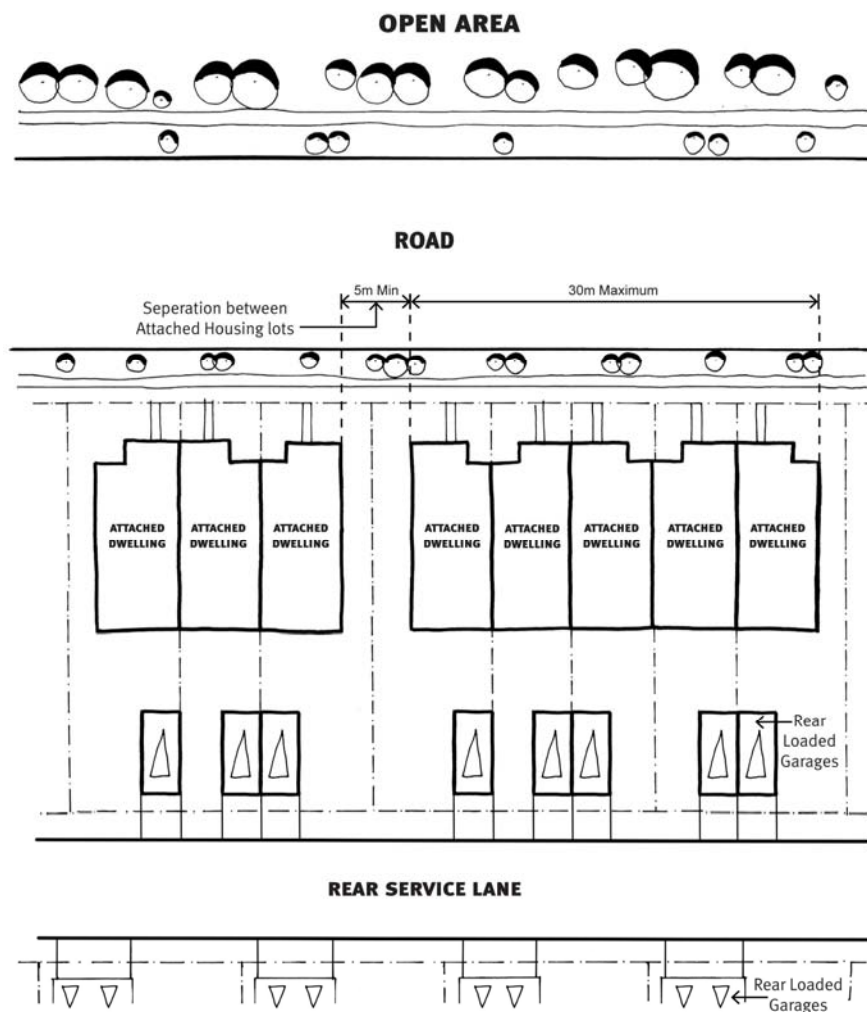


Figure 1: Attached Dwellings

“Arterial roads” are roads marked as such on the **Precinct Road Hierarchy** figure in the relevant Precinct Schedule. They are major roads that carry the majority of inter-regional traffic. Vehicular access from adjacent land is denied to ensure both the efficiency of the road and the safety of road users.

“Building footprint” means the area of land measured at finished ground level that is enclosed by the external walls of a building.

“Camden Growth Centre Precinct Plan” means Appendix 9 to *State Environmental Planning Policy (Sydney Region Growth Centres)* 2006.

“Collector roads” are roads marked as such on the **Precinct Road Hierarchy** figure in the relevant Precinct Schedule. They are the main internal roads that carry local traffic through the residential neighbourhoods to the sub-arterial and arterial roads, and provide access to major attractors within the precinct such as retail, commercial and educational facilities.

Dual Occupancy is defined in the Dictionary to the Growth Centres SEPP. A dual occupancy comprises two dwellings on a single allotment of land (which may or may not be strata subdivided). The dwellings may be attached to each other or separate.

Dual occupancy housing includes:

- the alteration or addition to an existing dwelling-house erected on an allotment so as to create two dwellings;
- the erection of another detached dwelling-house in addition to one already erected on an allotment, but only if not more than two dwellings will be created as a result of the development being carried out;
- the erection of a single building containing two dwellings on one allotment.
- the erection of two detached dwellings on one allotment.

In each example above, the dwellings may or may not be strata subdivided. See **Figure 3**.

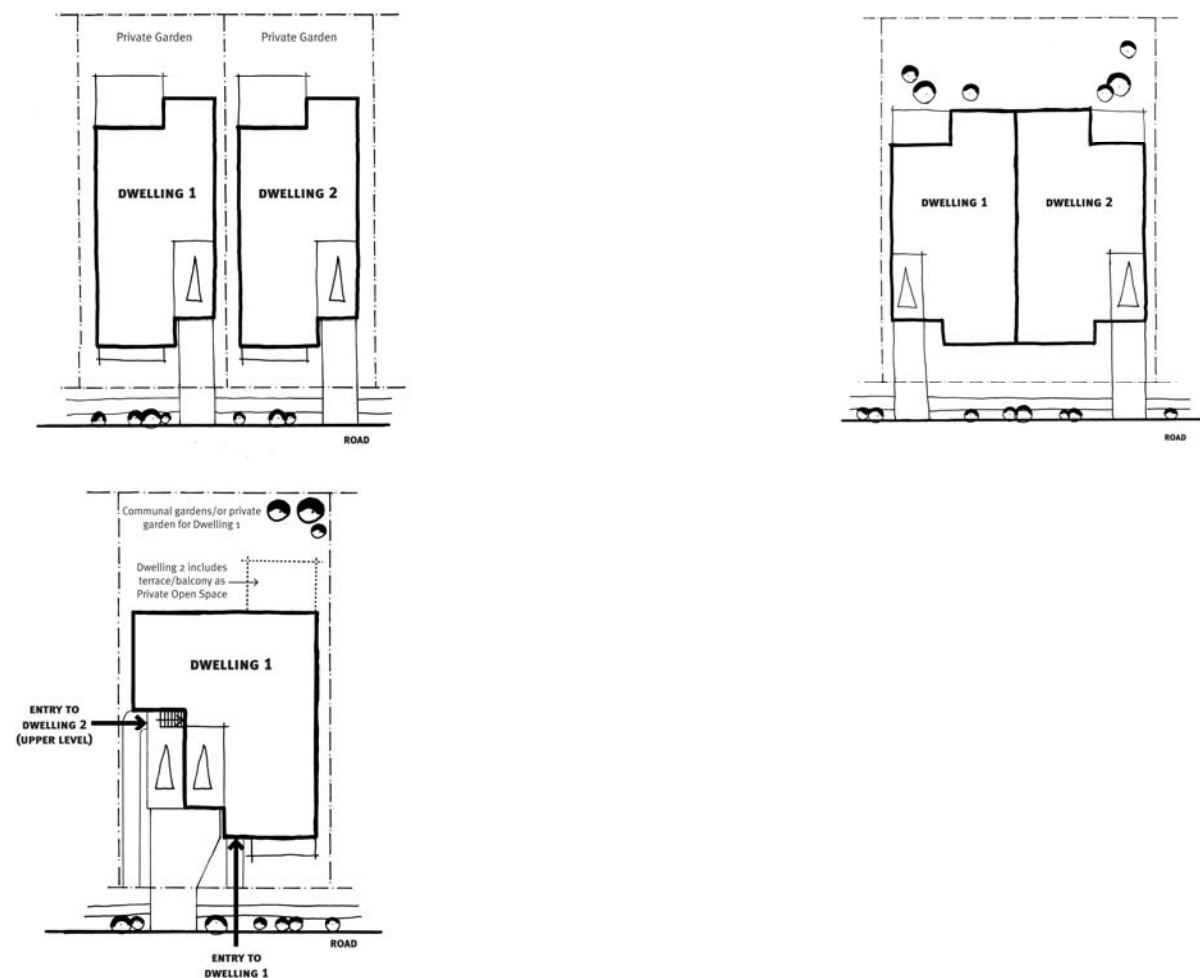


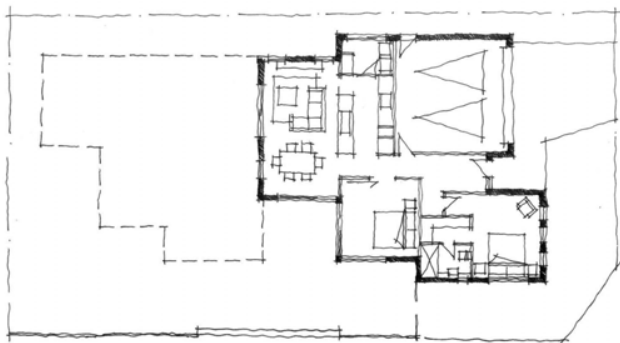
Figure 2: Dual Occupancy Dwellings – detached; attached; two storey

“Dual Occupancy – Lifehouse Dwellings” - The life house is a housing initiative that is designed to facilitate the

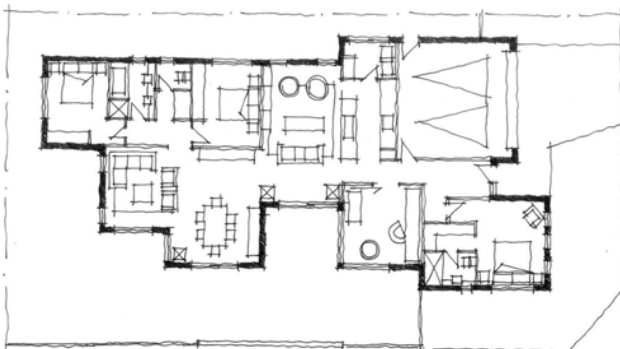
changing lifestyle needs of the home buyer. When built, the Lifehouse can respond to the current need of the resident. In time, as the residents' needs change, the dwelling can grow/downsize according to their needs, without them having to go through the expense of relocating. See **Figure 4**.

Lifehouse dwellings:

- can only occur on corner lots or lots with a rear lane and sufficient frontage width to allow a front-loaded garage, so that separate vehicle and pedestrian access will be possible to each dwelling;
- can be built on a single level, on split level or as two storey dwellings. The development of Stage 2 must comply with separation controls nominated in Australian Standards and the National Construction Code, enabling the final dual occupancy division of Stage 3 to progress without major works.
- must have all stages of the development designed and approved as part of the initial DA regardless of the proposed staging of construction and subdivision.



Phase 1: establish the home



Phase 2: grow to suit occupant



Phase 3: downsize and strata subdivide to suit occupant (Optional)

Figure 3: Lifehouse Dwelling (single level)

“**Dwelling House**” is a building containing one dwelling, on a single block of land. An example of a dwelling house is at Figure 2.

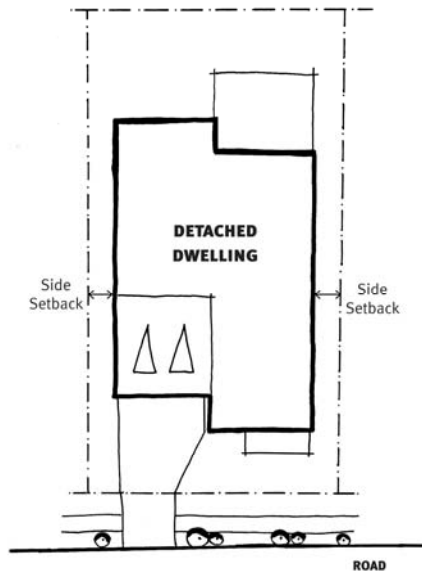


Figure 4: Dwelling house

“**Flood Planning Levels (FPLs)**” are the combinations of flood levels (derived from significant historical flood events or floods of specific AEPs) and freeboards selected for floodplain risk management purposes, as determined in management studies and incorporated in management plans. Flood planning area is the area of land below the FPL and thus subject to flood related development controls. The concept of flood planning area generally supersedes the ‘flood liable land’ concept in the 1986 Manual. Flood Prone Land is land susceptible to flooding by the PMF event. Flood Prone Land is synonymous with flood liable land.

Green roof” is space which is not occupied by structures housing plant, equipment or stairway accesses. The green roof includes a vegetated layer, growing medium, and a waterproof membrane. Potted plants/planter boxes are acceptable as green roofs as long as they provide the minimum 30 per cent requirement of rooftop area as vegetation cover. In addition to the minimum 30 per cent vegetation cover, a green roof can include facilities for renewable energy, water collection infrastructure, walkways, furnishings, and the like.

“**Habitable room**” means any room or area used for normal domestic activities, including living, dining, family, lounge, bedrooms, study, kitchen, sun room, home entertainment room, alfresco room and play room.

“**Non-habitable**” room spaces of a specialised nature not occupied frequently or for extended periods, including bathrooms, toilets, pantries, walk-in wardrobes, corridors, lobbies, photographic darkrooms and clothes drying rooms.

“**Liverpool Growth Centre Precinct Plan**” means Appendix 8 to *State Environmental Planning Policy (Sydney Region Growth Centres)* 2006.

“Landscaped area” means any part of a site, at ground level, that is permeable and consists of soft landscaping, turf or planted areas and the like. It does not include driveways, parking areas, hard paved drying yards or other service areas, swimming pools, tennis courts, undercroft areas, roofed areas (excluding eaves <450mm to fascia board), outdoor rooms, balconies, rooftop gardens, terraces, decks, verandahs and the like.

“Local roads” are roads marked as such on the **Precinct Road Hierarchy** figure in the relevant Precinct Schedule. The function of the subdivisional roads, which may include minor loop roads and culs-de-dac, is to provide access to residential properties.

“Outdoor room”, also known as an ‘alfresco room’ is a semi enclosed space (at least 1 side open) located adjacent a living / dining / kitchen area of a dwelling that sits within the main roof line of a dwelling.

“Principal dwelling” means the largest dwelling house on a lot, measured by gross floor area.

“Principal private open space” means the portion of private open space which is conveniently accessible from a living zone of the dwelling, and which receives the required amount of solar access.

“Private open space” means the portion of private land which serves as an extension of the dwelling to provide space for relaxation, dining, entertainment and recreation. It includes an outdoor room.

“Riparian Corridor” means the riparian protection area as shown on the Riparian Protection Areas map under the Growth Centres SEPP.

“Secondary Dwellings” - Secondary dwellings are defined in the Dictionary to the Growth Centres SEPP. They are dwellings that are on the same parcel of land as another dwelling, but are separate to the principle dwelling, have a separate access and have a maximum internal floor area as specified in the Precinct Plan.

Secondary dwellings must form a part of the DA submission for the main dwelling. A secondary dwelling that has its own separate access and parking can be strata subdivided at the time of DA approval or after the dwelling has been established.

Types of secondary dwelling:

- On grade studio unit (at ground level – See **Figures 5 and 7**) within the principle dwelling lot. This is only permitted within detached dwelling lots;
- Above garage studio units (See **Figures 6, 8 and 9**). This is only permitted on lots that have garages with rear access.
- A Type 1 Secondary Dwelling is one that is not strata subdivided from the principle dwelling.
- A Type 2 Secondary Dwelling is one that is, or is capable of being, strata subdivided from the principle dwelling.

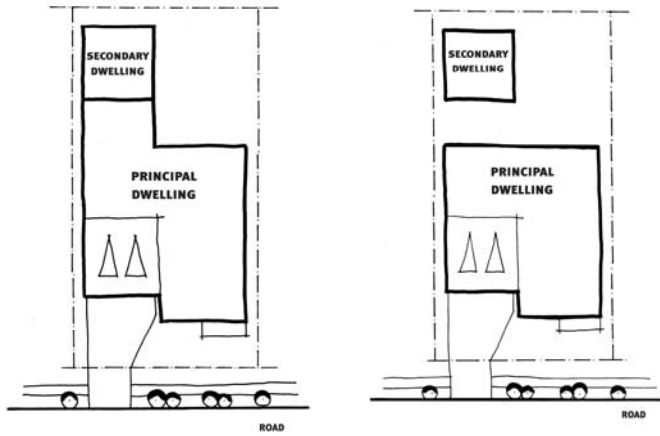


Figure 5: Secondary Dwelling (at ground level)

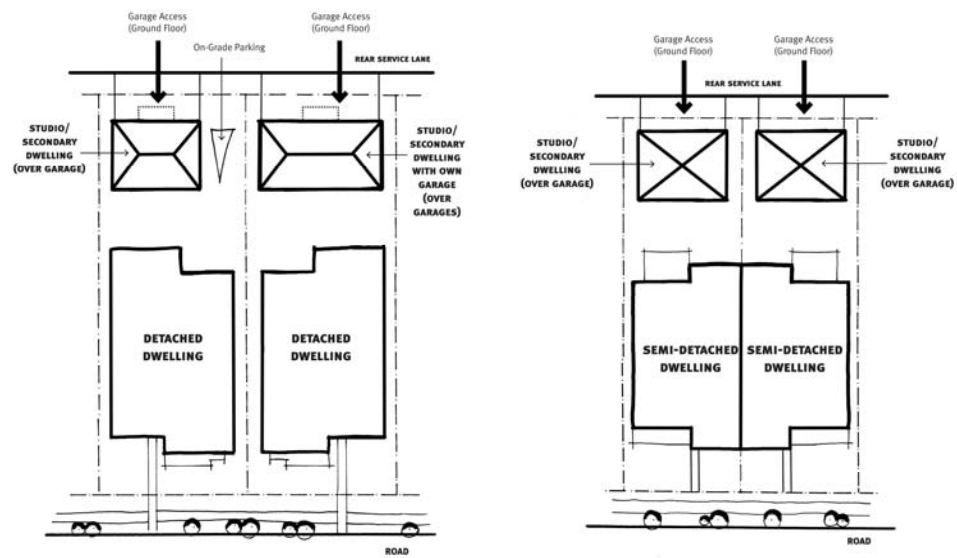


Figure 6: Secondary Dwelling (above garages)

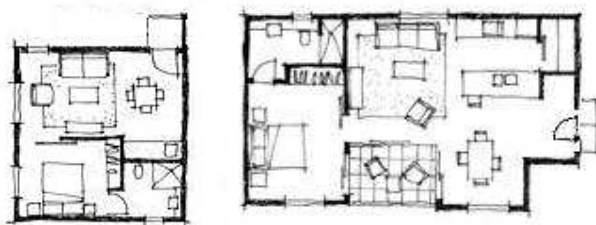


Figure 7: Indicative examples of Type 1 Studios – on ground level

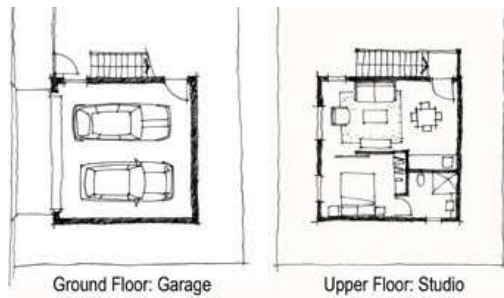


Figure 8: Indicative example of a secondary dwelling above a garage (Type 1 not strata subdivided)

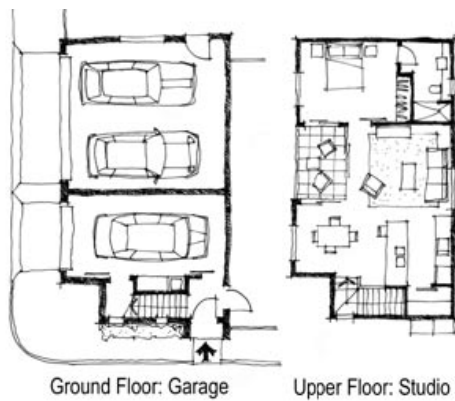


Figure 9: Indicative example of a secondary dwelling above a garage (Type 2 strata subdivided)

“Semi-detached dwellings” is defined in the Dictionary to the Growth Centres SEPP. They comprise two dwellings that share one common wall. Whilst their internal layout may be identical and their external appearance should have continuance of material and style, the external appearance of the two dwellings should not be identical. They should combine to appear as one large house by having varied façade treatment and articulation. Refer to **Figure 10**.

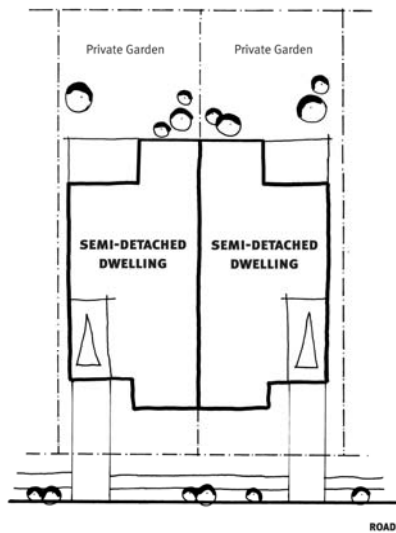


Figure 10: Semi-Detached Dwelling

“Sub-arterial roads” are roads marked as such on the **Precinct Road Hierarchy** figure in the relevant Precinct Schedule. Sub-arterial roads link regional and local traffic routes. Access from private properties is generally denied to these roads (except in special circumstances) for reasons of traffic safety and to maintain the capacity and efficiency of the road system. Council is normally responsible for the acquisition and construction of sub-arterial roads.

“Town Centre Streets” are roads marked as such on the **Precinct Road Hierarchy** figure or elsewhere in the relevant Precinct Schedule. They are specially designed to create a pleasant and comfortable pedestrian environment. Amenity and safety is to be maintained through wide shaded footpaths, traffic calming measures and pedestrian crossings.

“Walking Distance” is typically 400m or a 5 minute walk from a local destination or bus stop, or 800m or a 10 minute walk from a train station.

Appendix B

Salinity Management Guidelines

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The Department acknowledges Douglas Partners Pty Ltd and Sydney Environmental and Soil Laboratory, Blacktown City Council and Landcom for sections of this document taken from the Salinity Management Report for Second Ponds Creek (1998).

1 Introduction

This Salinity Management Guideline contains background information, salinity risk mapping and management recommendations to control the effects of urban dryland salinity for proposed residential development within the Camden and Liverpool Growth Centre Precincts in the South West Growth Centre.

This Management Plan is based on the findings of relevant studies undertaken for Precinct Planning, relevant guidelines and policies in relation to urban salinity management and examples of salinity management plans prepared for other western Sydney urban release areas. In particular, these guidelines adopt the approach taken in the Salinity Management Plan prepared for the Second Ponds Creek release area in north-western Sydney. This guideline includes:

- general information on the causes and effects of urban salinity;
- findings and conclusions from GeoEnviro's Geotechnical, Salinity and Acid Sulphate Soil Investigation for the Austral and Leppington North Precincts (2011).
- Recommendations, measures and general guidelines for site development and construction, covering water management, site development and buildings.

The aim of this guideline is to present practical recommendations about how to manage and, where possible, mitigate the existing saline conditions on site, so as to:

- limit any impact of salinity on roads, buildings, vegetation, underground services, water courses and storages; and
- limit the impacts of development in the precinct on the processes of salinity and the impacts of salinity on the environment.

This guideline is broadly applicable to Precincts to which the Liverpool Growth Centre Precincts DCP 2011 or Camden Growth Centre Precincts DCP 2011 applies. However, more specific assessment of salinity issues for individual Precincts may identify the need for further investigation, more stringent or different controls and management measures for salinity in some situations.

1.1 Background

1.1.1 Proposed Development

Planning for South West Growth Centre is expected to provide for up to 110,000 new homes, developing progressively over the next 25 to 30 years, together with essential facilities and open space. The Precincts will be supported by Town Centres and smaller neighbourhood centres will provide local retail and community services. Several infrastructure upgrades are planned including new road crossings and the South West Rail Link which will improve regional links to surrounding areas.

1.1.2 Salinity Risk Maps

A review of the Department of Natural Resources Map of Salinity Potential in Western Sydney (2002) indicates that much of the South West Growth Centre is prone to salinity risks to varying degrees, including significant areas that are classified as either Moderate or High Salinity Risk. The general risk assessment has been supplemented by specific salinity risk assessments for Growth Centre Precincts that have been released for Precinct Planning. A **Salinity Risk Map** in the relevant Precinct Schedule to the DCP identifies areas of salinity risk in the Precinct.

1.2 The Causes of Urban Salinity

Soils containing salts occur naturally in western Sydney due to underlying geological formations. In undisturbed areas the salts are generally stored below the plant root zone where they have minimal impact. The development of Western Sydney has disturbed the soil profile, altered hydrological processes and, in some areas, led to concentrations of salts on soil surfaces, in building materials, and waterways. Some Precincts are located within an area that is predisposed to developing salinity issues.

Although saline soils and groundwater are a natural part of the Australian landscape, land management practices are now increasingly recognised as significant contributors to the expansion of salt affected areas. In particular, urban salinity is increasingly occurring around populated areas due to clearing and site development.

Salinity occurs when salts found naturally in the soil or groundwater are mobilised. Capillary rise and evaporation concentrate the salt on, and close to, the ground surface. Urban salinity becomes a problem when the natural hydrogeological balance is disturbed by human interaction. This may occur in urban areas due to changes to the water balance, increases in the volume of water into a natural system altering subsurface groundwater flows and levels, exposure of saline soils, and removal of deep rooted vegetation reducing rates of evapotranspiration. Even small changes in sensitive areas can result in the balance being irrecoverably altered and salinisation occurring.

Some building methods may also contribute to the process of urban salinity. In particular, compacted surfaces and filling can restrict groundwater flow and result in a concentration of salt in one area. Cutting into slopes for building can result in saline soils or ground water being exposed and intercepted. The use of imported fill material may be an additional source of salt or the filling may be less permeable, preventing good drainage. These issues may also result in problems with the design and construction of roads. In particular, the building of embankments and the compaction of layers can interfere with groundwater flow. Also the inappropriate positioning, grading and construction of drains can result in surface and groundwater mixing and stagnant pools forming that evaporate leaving salt encrusted ground.

Salinity issues may also arise as the result of cumulative impacts. A common example is from the gradual removal of vegetation across a site, which can contribute to a change in the hydrological regime from reduced evapotranspiration, a consequential rise in the ground water table, and subsequent salinity problems. Where vegetation is gradually removed the water table rises as a result of a smaller volume of water being used by the plants, allowing salts to be mobilised. Of more relevance in an urban landscape is the potential for an increase in water inputs into the hydrological regime. These increased inputs commonly come from watering of gardens and playing fields, infiltration of storm water and sewage and other service leakage.

These inputs may seem minor on their own but their cumulative effects over time produce an elevated groundwater table and eventually high levels of salinity.

Figure 1 (from "Good Housekeeping to Manage Urban Salinity" by the Department of Infrastructure Planning and Natural Resources) illustrates the urban salinity process and identifies situations where salinity problems can develop due to inappropriate planning and design.

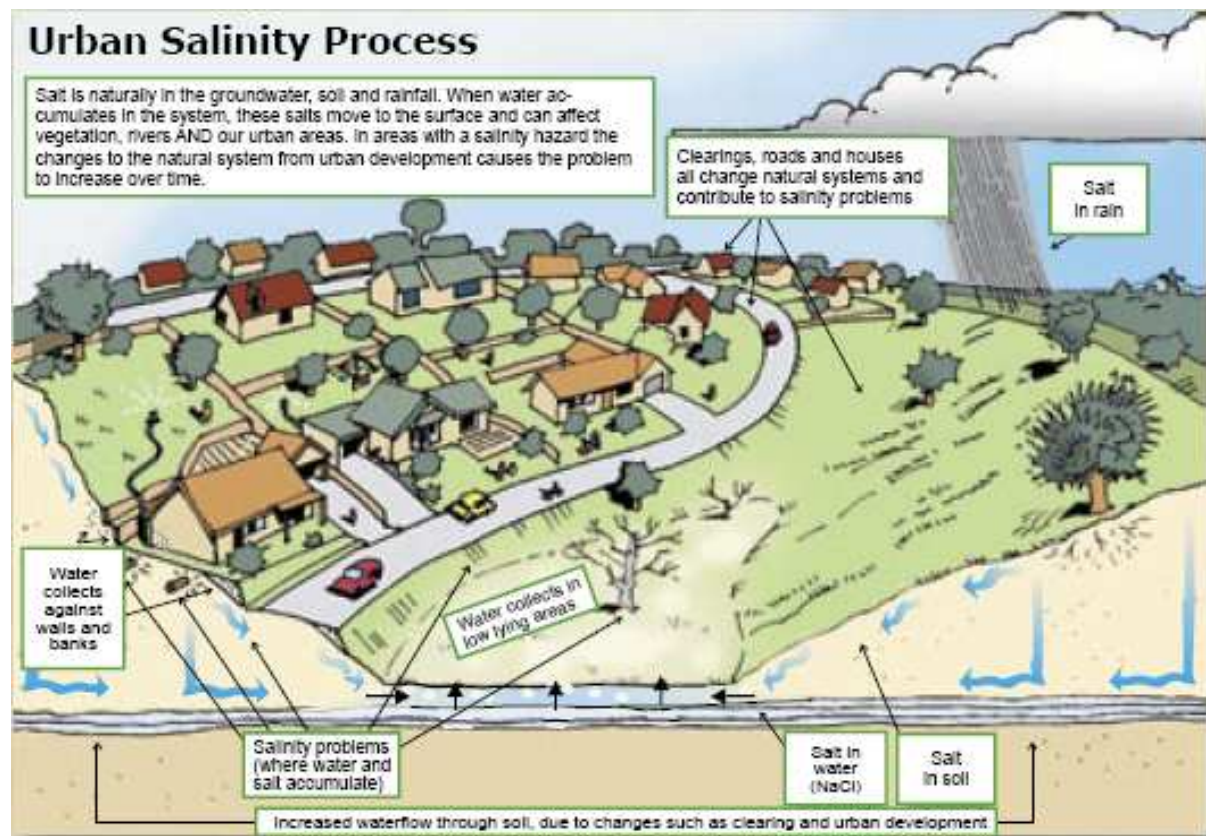


Figure 1: The Urban Salinity Process (DIPNR)

1.3 Effects of Salinity in an Urban Environment

Excess salinity in an urban environment can result in significant problems. It can manifest itself in a number of ways.

The effects of salinity can be observed in damage to building materials, infrastructure including pipework and roads and in death or poor health of vegetation. The effect of urban salinity is the result of both physical and chemical actions of the salt on concrete, bricks and metals. Salt moves into the pores of concrete and bricks and becomes concentrated when the water evaporates and can result in breakdown of materials and corrosion. Evidence of this may include crumbling, eroding or powdering of mortar or bricks, flaking of brick facing and cracking or corrosion of bricks.

High levels of salinity can result in damage to and even death of plants. Signs that vegetation is under stress from salinity include the discolouration and wilting of leaves and the death of less salt tolerant plant species. It may also be hard to establish lawns in areas that are subject to high salinity.

High levels of salinity may also affect soil structure, chemistry and productivity. This can reduce plant growth which in turn alters soil structure, chemistry and nutrient levels. As soils become more saline, plants and micro-organisms decline and soil structure deteriorates.

Water logging may also occur following a decline in nutrient levels. Over time, the alteration of soil structure can lead to the formation of gullies and other forms of soil erosion.

Salinity may also result in the corrosion of steel pipes, structural steel and reinforcement and can damage underground service pipes resulting in significant financial costs.

While limited groundwater was observed during the site investigations, these conditions may potentially change in periods of heavy downpour. Damage to pipes has the potential to exacerbate the problem by further recharging the aquifer.

Salinity can also have a significant effect on buildings and associated infrastructure where cutting and filling exposes buildings/structures to elevated salinity levels. This may include:

- degradation of bricks, concrete, road base and kerbing materials leading to expansion, cracking, strength and mass loss;
- corrosion of reinforcement and loss of structural integrity;
- rising/falling damp; and
- non-structural impacts, such as efflorescence on bricks.

These impacts can be prevented, minimised, or mitigated by the implementation of appropriate management measures as outlined in the Salinity Management Plan in **Section 3**.

2 Salinity Hazard Assessment

Salinity assessments undertaken as part of Precinct Planning are based on broad scale analysis of potential salinity risks including limited field sampling. The findings summarised in this section are indicative only of salinity conditions in the precinct. Further detailed salinity assessment investigation is only required if applicants wish to confirm site specific salinity conditions which may identify appropriate variations to these controls.

Salinity risk varies across the Growth Centres, and is often related to elevation, topography and the presence of watercourses. Saline groundwater is also an issue in most locations, although depth to ground water (below current surface level) varies considerably.

2.1 Salinity Risk Map

A **Salinity Risk Map** is included in the relevant Precinct's Schedule and is divided into:

- Low Risk Areas: The salinity of the area is considered typical of western Sydney. However, due to the broad nature of salinity assessments completed for most Growth Centre Precincts to date, the precautionary measures are to be implemented.
- Moderate or High Risk Areas: The salinity risk of the area is considered typical for creek line, floodplain or other low relief areas in western Sydney. These areas have a moderate or high risk of being affected by salinity and precautionary measures are to be implemented.

Note: *These maps are indicative only and site specific studies may be provided at the DA stage to determine salinity conditions and appropriate management measures which vary from these controls.*

3 Salinity Management Guidelines

3.1 Introduction

The Salinity Management Guidelines contain:

- general measures to consider across the Precincts, which include appropriate management strategies for the management of groundwater, site design and urban development, and measures to be taken at various stages of development; and
- strategies and measures for specific works in the Precinct.

3.2 General Measures

The following general measures apply to all development within the Liverpool or Camden Growth Centre Precincts. Where there is an inconsistency, the specific controls in the following sections take precedence. All development should be in line with the Western Sydney Salinity Code of Practice 2004.

Note that the practices for managing salinity will differ depending on the type of land use that is proposed on the site. For example, practices for land zoned Open Space and Recreation will require different approaches than practices within the Local Centre and residential zones.

Excavation and Filling

1. Excavations in excess of 1.0m should be battered to a 1 vertical to a 1 horizontal. Excavated stockpile material may either be treated immediately on site using 3% by weight of lime, otherwise capped with non-porous clay soils greater than 0.5m thick. Alternatively excavated material may be removed off-site to a landfill for treatment and disposal.
2. Gypsum should be mixed into filling containing sodic soils and cuts where sodic soils are exposed on slopes to improve soil structure and to minimise erosion potential.
3. Any material removed from the site should be carried out by a licensed contractor. This material should be sealed and contained using appropriate lining and capping material.
4. Exposure and disturbance of subsoil material must be reduced by minimising cut and fill. Time of exposure of bare ground (without vegetation) should be kept to a minimum. If extended periods of rain are forecast, the bare ground should be covered with stable fill such as ripped sandstone or stabilised with lime proportioned to 3% by weight.
5. Stormwater runoff from upstream should be diverted away from excavation areas by the use of bunding.
6. Filling areas are to be graded, revegetated and adequate surface drainage infrastructure installed as soon as practical to avoid excessive infiltration, minimise salt leaching, soil erosion and ponding of water on-site.

7. All imported fill should be verified by sampling and testing to ensure the material is non to slightly saline. Moderately to highly saline soil is not acceptable. Supporting information and documentation should be supplied verifying that the subject material complies. The addition of salts in the materials, fill or water used during construction must be limited.
8. Reversing or mixing the soil profile when undertaking cut and fill activities must be avoided. Soils must be replaced in their original order. Excavations deeper than 1m should be backfilled in the same order, alternatively this material may be treated by using lime or used in fill at depths more than 1m from finished level.
9. Batter slopes should be compacted with control of the moisture content to optimum moisture content plus 2 per cent (OMC +2%) or otherwise over-filled, compacted and then trimmed back to the final alignment to minimise infiltration through the exposed filling batters and the potential resulting flushing of salts from the filling. If the latter is to be carried out, the outer zone (3 metres) of the fill should be placed at OMC +2%.

Infrastructure and Drainage

10. Trenching for underground services should be carried out in such a manner that there is minimal rotation and vertical displacement of the original soil profile as the lower soil profile is more erodible.
11. Pipes used for stormwater drainage should be sealed to minimise the risk of leakage. Drainage, sewerage and water infrastructure is to be regularly maintained and repaired to prevent leakages.
12. Concrete of suitable strength and reinforcement cover is to be used for drainage structures and wherever contact with water and increased soil moisture is expected.
13. Watering or irrigation practices are to be managed to avoid excessive infiltration and water logging.
14. Natural drainage patterns and infiltration rates must be maintained as far as practicable. Drainage should not be designed to discharge to groundwater or salinity affected areas that is likely to cause increased water logging adjacent to the road or that concentrated surface runoff.
15. Direct runoff from paved areas into lined stormwater drains rather than along grassed channels as necessary.
16. Groundwater extraction must not occur on the site.

Stormwater

17. During construction, hay bales and other temporary erosion control devices should be placed at appropriate locations in areas where concentrated flows are expected and suitable dish drains should be constructed to retard flow and trap silt particles during heavy runoff. Temporary detention ponds in construction sites should be regularly monitored for water quality and cloudy water should be treated by flocculation with gypsum. This is critical before a storm event.
18. Surface drains should be provided along the top of batter slopes or greater than 2.5 metres height to reduce the potential for concentrated flows of water flows slopes which may cause scour. Well graded

subsoil should be provided at the base of all slopes where there are road pavements below the slope to reduce the risk of water logging.

19. Line or locate any ponds higher in the landscape to avoid recharge where proximity to the water table is likely to create groundwater mounding (refer 3.4 below).
20. Ensure an appropriate ratio of hard (impermeable) and permeable surfaces to avoid rainwater runoff infiltrating the ground in large volumes at any given location.

Vegetation

21. Native vegetation must be retained or restored on site where possible. Revegetation of the site may involve treatment of topsoil material and planting appropriate salt-tolerant water efficient plant species (trees, shrubs, and grasses).

Building Materials

22. In seepage and discharge areas or areas with a high potential sulphate, resistant building materials must be used. Sulphate resistant materials should be used for underground services, roads and paving.
23. For all building materials, the manufacturer's advice must be complied with regarding durability and correct use. Exposure of building materials to corrosive elements in soils should be minimised. Appropriate construction techniques such as suspended slab or piling to encourage ventilation and prevent soil moisture from being forced up the walls of the structure should be used.

Roads

24. Roads must have well designed sub surface drainage. A waterproof seal must be used on roads to minimise evaporation and the concentration of salt.
25. Roads and shoulder areas must be designed to drain surface water such that there is no excessive concentration of runoff or ponding which may result in water logging or additional recharge or groundwater. Road shoulders must also be sealed.
26. Materials and waters used in the construction of roads and fill embankments should be selected to contain minimal or no salt. Where it is difficult a capping layer of either topsoil or sandy materials should be placed to reduce capillary rise, act as a drainage layer and also reduce the potential for dispersive behaviour in the sodic soils.
27. Roads should not intercept known salt affected or water logged areas, and should be designed in a manner that does not impede the sub-soil flow or creates hydraulic pressure causing groundwater discharge.
28. Avoid or minimise the use of on site stormwater detention except where in accordance with a stormwater management strategy adopted for the Precinct.

Note: Council may consider lower development densities to reduce pressure on groundwater in catchment areas, and to reduce the depth of excavation (deeper than 1m) and fill required on sloping lots.

3.3 Residential and Other Buildings

Figure 3 presents diagrammatically a selection of salinity management tips for domestic dwellings.

Based on investigations to date, the following precautionary controls are to be implemented, unless site specific assessments are carried out to support the use of less stringent controls.

1. A high impact waterproof membrane, (not just a vapour proof membrane), should be laid under house slabs. The waterproof membrane must be extended to the outside face of the external edge beam up to the finishing ground level, as detailed in the Building Code of Australia (BCA).
2. For masonry building construction, the damp proof course must consist of polyethylene or poly-ethylene coated metal and correctly placed in accordance with BCA. Ground levels immediately adjacent to masonry walls must be kept below the damp proof course.
3. Appropriate infrastructure should be in place to manage urban water cycle and this includes all water flows such as water supply, stormwater and wastewater. Relevant design considerations are outlined in *“Evaluating Options for Water Sensitive Urban Design (WSUD) - a national guide”* Joint Steering Committee for Water Sensitive Cities, July 2009.
4. For slab on ground construction, a layer of bedding sand at least 50mm thick should be laid under the slab to allow free drainage of water and to prevent pooling of water potentially carrying salts.
5. Concrete floor slabs must comprise of Class 32MPa concrete or sulphate resisting Type SR cement with a water cement ratio of 0.5. Similar concrete should be used for bored piers or footings.
6. Slabs must be vibrated and cured for a minimum 3 days
7. The minimum cover to reinforcement should be 30mm from a membrane in contact with the ground.
8. The minimum cover to reinforcement should be 50mm for strip footings and beams.
9. Admixtures for waterproofing and /or corrosion prevention may be used.
10. Salt tolerant masonry and mortar must be used below the damp proof course
11. Constant monitoring of water pipes to detect any leakages and the repair of damaged pipes as soon as possible after detection
12. Use Copper or non-metallic pipes instead of galvanised iron
13. Ensure any underground services are provided with adequate corrosion protection.
14. On sites where excavation and fill exceeds 1m, Council may require suspended slab or pier and beam construction as an alternative to ‘slab on ground’ construction. This may occur on sloping sites as this will minimise exposure to potentially corrosive soils and reduce the potential cut and fill on site which could alter subsurface flows.

15. Other measures that can be considered to improve the durability of concrete in saline environments should be considered. These include reducing the water cement ratio (hence increasing strength), minimising cracks and joints in plumbing on or near the concrete, reducing turbulence of any water flowing over the concrete and using a quality assurance supplier.
16. It is essential in all masonry buildings that a brick damp course be properly installed so that it cannot be bridged either internally or externally. This will prevent moisture moving into brick work and up the wall.
17. As there are various exposure classifications and durability ratings for the wide range of masonry available, reference should be made to the supplier in choosing suitable bricks of at least exposure quality. Water proofing agents can also be added to mortar to further restrict potential water movement.
18. Bricks that are not susceptible to damage from salt water should be used. These are generally less permeable, do not contain salts during their construction and have good internal strength so that they can withstand any stress imposed on them by any salt encrustation.
19. Design and construction to be carried out in accordance with relevant Australian Standards, Building Codes and current 'Industry Best Practice' in regard to urban salinity.
20. As indicated on **Figure 3**, service connections and stormwater runoffs should be checked to avoid leaky pipes which may affect off site areas lower down the slope and increase groundwater recharge resulting in increases in groundwater levels.

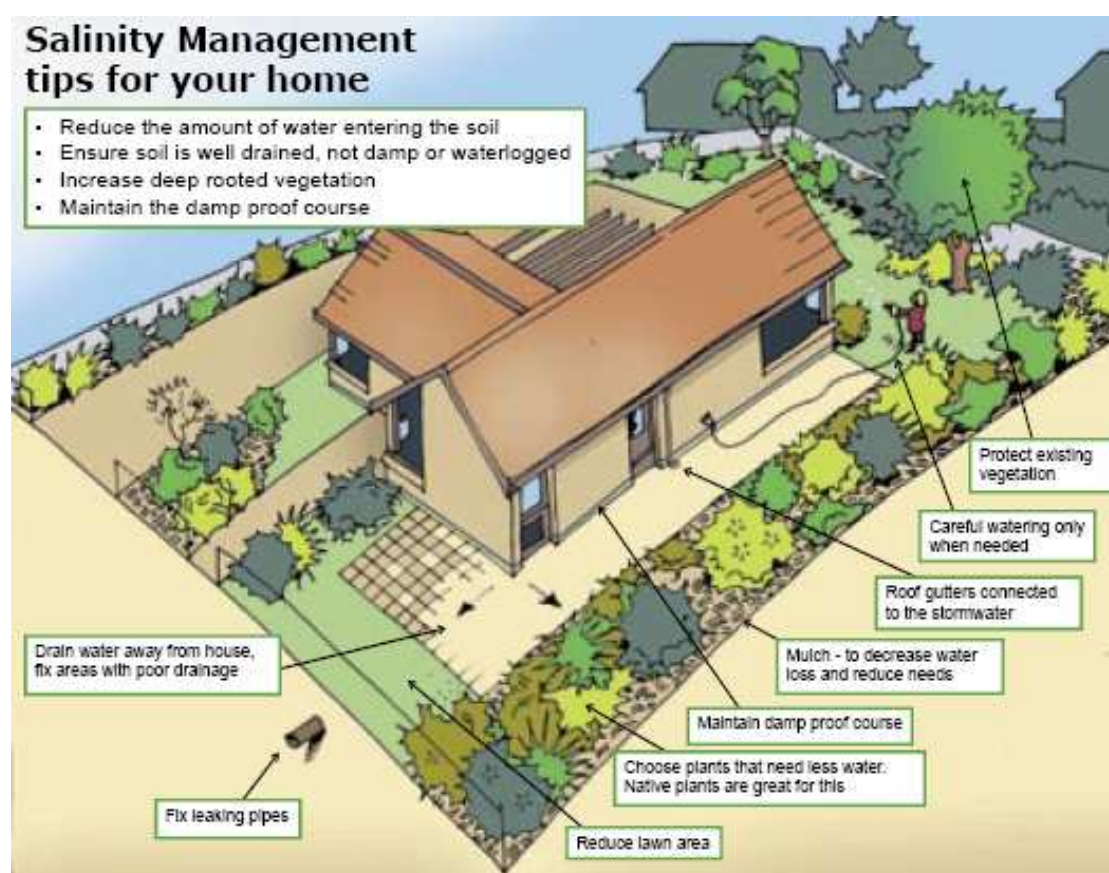


Figure 3: Salinity Management at Home (DIPNR)

3.4 Detention Ponds and Playing Fields

The following management strategies are to mitigate salinity impacts of detention ponds.

1. All excavation works should be minimised by staging the construction into small areas to prevent salinity from developing. Very saline soil is not recommended for use as building platform fill. This material may be buried beneath proposed roadways away from where underground services will be laid. Very saline soil should be placed at depths greater than 1.5m below design level and covered with non to slightly saline fill.
2. Surplus saline soil from construction works may be reused in playing fields. A revegetation scheme which includes introduction of salt tolerant plants should be in place. Amenities buildings, light poles, fences and other associated structures should be appropriately designed to reduce adverse impacts of the saline soil. A capping layer of non saline material with a minimum thickness of 1.5m may be adopted to reduce the impacts of salinity.
3. Detention ponds should be constructed to minimise build up of salts in the groundwater system via infiltration through the base of the ponds. This may be achieved by lining the ponds with synthetic HDPE liners. Clay liners may be considered if justification can be provided on the material selection process and proposed construction methodology. If using a clay lining, the possibility that on site clays may be saline should be investigated before they are used for this purpose. In these situations an impermeable geotech fabric may be preferable.
4. Sodic and dispersive soils can be managed by the addition of lime. Capping of sodic and dispersive soils within the embankments is recommended for protection against erosion.
5. Spillways should be provided in pond embankments to reduce the potential for concentrated flows of water down slopes causing scour.
6. Where mass concrete is required in or around the ponds, a minimum concrete strength of 32 MPa is recommended to limit the corrosive effects of the underlying and surrounding soils. Concrete or masonry elements of lower strength may be susceptible to long term adverse effects of the aggressive or saline soils.
7. Utilise native and deep rooted vegetation in order to minimise soil erosion and limit the rising of the water table.

3.5 Measures for Specific Assets

Table 1 summarises salinity management measures that are to be applied to the planning, design and construction of specific categories of assets in the Precincts.

Table 1: Salinity management measures for specific assets

Asset	Stage	Measure
Infrastructure and Utilities (Road Pavement, Drainage, Pipes, Structures, Pits, Substations, Duct Crossings, Sewer and Water Pipes)	Precinct Planning	<ul style="list-style-type: none"> Consider appropriate site selection to prevent structural degradation; and Avoid low lying areas and areas near creek lines.
	DA	<ul style="list-style-type: none"> Design and size drainage infrastructure to reduce the intensity of local and regional flooding. Ensure appropriate embankment designs. Design systems to avoid the interception of surface flow or groundwater recharge.
	DA/construction	<ul style="list-style-type: none"> Avoid the use of materials such as clay and brass for piping. Ensure sufficient clearance to groundwater. Install appropriate subsoil drainage. Use materials of appropriate strength and cover for reinforcement. Avoid the disturbance of natural drainage patterns where possible. If this is not possible then realign drainage lines as close to natural patterns as possible.
	Post-development	<ul style="list-style-type: none"> Maintain and repair to minimise leakages.
Landscaping and Existing Vegetation	DA/Construction/ Post Development	<ul style="list-style-type: none"> Retain and/or establish the use of native salt-tolerant species, especially if deep rooted to minimise irrigation requirements. Line waterbodies to minimise groundwater discharge. Avoid overwatering of lawns, gardens and parklands. If possible, use 'smart' sprinkler systems or subsoil drip/capillary action systems and maintain them regularly. Carry out site specific investigations into the potential impacts of recycled water use and implement the recommendations of these studies. Ensure that existing riparian corridors are maintained.

Asset	Stage	Measure
Miscellaneous (Floor Slabs, Masonry Walls, Foundations, Carparks)	DA/Construction	<ul style="list-style-type: none"> ▪ Ensure sufficient clearance to groundwater or install subsoil drainage. ▪ Avoid disturbance of the natural drainage pattern. ▪ Damp proof courses and vapour barriers are to be properly installed where applicable and maintained to ensure they are not breached by later additions. ▪ Use admixtures for waterproofing and corrosion prevention. ▪ On ground level, provide a sand/gravel layer of sufficient depth under the slab. ▪ Install appropriate membranes under slabs and ensure that they are extended to the outside face of the external edge beam up to the finished ground level. ▪ Use concrete of appropriate strength and cover for reinforcement. ▪ For floor slabs, ensure that concrete is of the appropriate strength and cover for reinforcement and are properly cured. The following requirements apply: <ul style="list-style-type: none"> ▪ minimum strength of 32MPa where the slab is at ground level ▪ cover must be at a reinforcement height of: <ul style="list-style-type: none"> ▪ 50mm from unprotected ground ▪ 30mm from a membrane in contact with the ground ▪ 50mm for strip footings and beams irrespective of the use of a damp proof membrane ▪ Ensure that damp proof course consists of adequate material and is correctly placed. ▪ Ensure that exposure class masonry units are used below any damp proof course, including for strip footings, and that appropriate mortar and mixing ratios are used. ▪ Select foundation type and material in according with Australian Standards with consideration of soil aggressivity. ▪ Allow for sufficient corrosion of steel or install the appropriate protective systems. ▪ Use permeable paving where practical.

Asset	Stage	Measure
Earthworks (Excavations, Cut and Fill, Re-contouring and Stockpiling)	Construction	<ul style="list-style-type: none"> ▪ Revegetate and provide surface drainage as quickly as practical ▪ Install adequate erosion controls such as silt fences during excavation and until site stabilisation. ▪ Avoid excavation intersecting the groundwater, where possible. ▪ Ensure imported fill is non/slightly saline. ▪ Place cut materials in the original in-situ order, or if this is not possible, bury the most saline soil underneath less saline soil. ▪ Monitor runoff from stockpiles and conduct the appropriate tests to determine whether gypsum should be added. ▪ Ensure that stockpiles have adequate controls in place for erosion, covering and stabilisation.

4 References

Douglas Partners Pty Ltd and Sydney Environmental and Soil Laboratory. 1998. Salinity Management Report for Second Ponds Creek. Report to Blacktown City Council and Landcom.

DPNR. 2002. Salinity Potential in Western Sydney

Geoenviro Consultancy Pty Ltd. 2011. Geotechnical, Salinity and Acid Sulphate Soil Investigation (Austral and Leppington North Precincts. Report to Department of Planning and Infrastructure

SMEC Testing services. SMEC Land Capability and Contamination Report. Report to the Growth Centres Commission. Alex Avenue, Schofields, 16407/3816B, August 2007.)

Western Sydney Regional Organisation of Councils (WSROC). 2003. Western Sydney Salinity Code of Practice

Appendix C

Prescribed Trees and Preferred Species

1 Prescribed Trees and Preferred Species

1. A prescribed tree is identified as:

- having more than 4 metres in height and having a trunk diameter of more than 200 millimetres when measured at height of 1 metre from the ground.
- a tree identified as one of the species listed in **Table 1**.

2. Consent is not required:

- for clearing species listed in **Table 5** or any other species which have been declared as noxious plants under the *Noxious Weeds Act 1993*;
- for the removal of torn limbs or dead wood, such as individual branches, but not including whole trees, or
- for pruning of less than 10% of the canopy or root system up to once every growing season and only of branches less than 100 millimetres in diameter, or
- for pruning of more than 10% but less than 25% of the canopy, where the work will be undertaken by a suitably qualified person and Council has been notified of the work, and up to once every growing season, or
- when inserting root barriers, when this will result in less than 10% of the root system being removed and up to once every growing season,

3. Pruning of prescribed trees is only acceptable if:

- all work complies with the Australian Pruning Standards AS 4373-1996, and
- any pruning will not result in harm to the health of the tree.

Table 1: Preferred Species

Scientific Name	Common Name	Mature Height	Mature Spread	Native
Prescribed Trees (Medium size)				
Acer palmatum Senkaki	Coral Bark Maple	4m	3m	X
Acer palmatum Dissectum Seiryu	Upright Dissectum	4m	3m	X
Acer rubrum	Red Maple	9m	7m	X
Acmena smithii	Red Head Acmena	6m	2m	√
Agonis flexuosa	Willow Myrtle	8m	4m	√
Angophora costata	Dwarf Darni	4m	2m	√
Bauhinia hookeri	Mountain Ebony	10m	5m	√
Brachychiton populneus	Kurrajong	8m	5m	√
Brachychiton rupestris	Bottle Tree	8m	5m	√
Cercis canadensis	Canadian Redbud	12m	3m	X
Cercis chinensis	Chinese Redbud	12m	4m	X
Cercis occidentalis	Californian Redbud	5m	2m	X
Cercis siliquastrum	Judas Tree	15m	5m	X
Cereus grandiflorus	Night Blooming Cereus	5m	2m	X

Scientific Name	Common Name	Mature Height	Mature Spread	Native
<i>Ceretopetalum gummiferum</i>	NSW Christmas Bush	6m	3m	✓
<i>Cupaniopsis anacardiodes</i>	Tuckerro	7m	3m	✓
<i>Elaeocarpus reticulatus</i>	Blue Berry Ash	8m	4m	✓
<i>Eucalyptus</i> (grafted dwarf varieties)	Various, e.g: Wild Fire	1-5m	1-4m	✓
<i>Fraxinus griffithii</i>	Evergreen Ash	6m	4m	X
<i>Fraxinus oxycarpia</i>	Raywood Varieties	10m	5m	X
<i>Ginkgo biloba</i>	Princeton Sentry	10m	3m	X
<i>Gordonia axillaris</i>	Poached Egg Camellia	7m	3m	X
<i>Hymenosporum flavum</i>	Native Frangipani	7m	3m	✓
<i>Jacaranda mimosifolia</i>	Blue Haze Tree	15m	10m	X
<i>Jubaea chilensis</i>	Chilean Wine Palm	8m	4m	X
<i>Juniperus chinensis Keteleeri</i>	Corkscrew Conifer	4m	3m	X
<i>Juniperus chinensis</i>	Spartan Conifer	4m	2.5m	X
<i>Koelreuteria paniculata</i>	Golden Rain Tree	5m	3m	X
<i>Lagerstroemia species</i>	Crepe Myrtle	4m	3m	X
<i>Laurus nobilis</i>	Bay Laurel	6m	3m	X
<i>Leptospermum species</i>	Teatree	2.5m	2.5m	✓
<i>Lirodendron tulipefera fastigatum</i>	Tulip Tree	12m	5m	X
<i>Lophostemon confertus</i>	Brush Box	9m	6m	✓
<i>Magnolia grandifolia</i>	Exmouth Magnolia	7m	3m	X
<i>Magnolia grandifolia</i>	Dwarf Magnolia	4m	2m	X
<i>Magnolia grandifolia</i>	Kay Parris Magnolia	4m	2m	X
<i>Magnolia x soulangeana</i>	Tulip Magnolia	7m	4m	X
<i>Magnolia soulangiana</i>	Saucer Magnolia	6m	6m	X
<i>Melaleuca styphelioides</i>	Prickley Paperbark	6m	4m	✓
<i>Melaleuca decora</i>	White Cloud Tree	5m	2m	✓
<i>Melaleuca linariifolia</i>	Snow in Summer	6m	4m	✓
<i>Nyssa sylvatica</i>	Weeping Blackgum	4m	3m	X
<i>Nyssa sylvatica</i>	Black Tupelo	15m	6m	X
<i>Parrotia persica</i>	Persian Witch Hazel	9m	3m	X
<i>Pistacia chinensis</i>	Chinese Pistachio	13m	4m	X
<i>Prunus, Malus, Pyrus spp</i>	Flowering fruit varieties	3-4m	3m	X
<i>Pyrus calleryana</i> (Flowering Pear)	Aristocrat Pear	6m	3m	X
<i>Pyrus calleryana</i>	Chanticleer Pear	9m	4m	X
<i>Pyrus calleryana</i>	Bradford Pear	6m	3m	X
<i>Pyrus calleryana</i>	Edgedell Pear	5m	3m	X

Scientific Name	Common Name	Mature Height	Mature Spread	Native
Pyrus calleryana	Glens Form Pear	8m	4m	X
Pyrus calleryana	Capital Pear	8m	4m	X
Pyrus betulaefolia	Southworth Dancer Pear	5m	4m	X
Quercus palustris	Narrow Green Pillar	10m	3m	X
Sapium sebiferum	Chinese Tallowwood	7m	3m	X
Syzygium australe	Pinnacle	6m	2m	√
Syzygium paniculatum	Brush Cherry	10m	4m	√
Tristaniopsis laurina	Luscious Water Gum	7m	3m	√
Zelkova serrata	Zelkova	10m	4m	X
Zelkova serrata	Green Vase/ Wine Glass	10m	4m	X
Zelkova serrata	Mushashino	8m	3m	X
Prescribed Trees (large size)				
Angophora costata	Sydney Red Gum	30m	10m	√
Angophora floribunda	Rough Barked Apple	20m	6m	√
Angophora subvelutina	Broad Leaf Apple	18m	6m	√
Araucaria araucana	Monkey Puzzle Tree	35m	8m	√
Araucaria bidwilli	Bunya Bunya Pine	40m	10m	√
Araucaria cunninghamii	Hoop Pine	45m	6m	√
Brachychiton acerifolius	Illawarra Flame Tree	30m	6m	√
Brachychiton discolour	Lacebark Kurragong	30m	6m	√
Caloedendron capense	Cape Chestnut	15m	8m	X
Carya illinoensis	Pecan	30m	10m	X
Cedrus atlantica	Atlas Cedar	30m	8m	X
Cedrus deodara	Deodar Cedar	30m	6m	X
Cupressus funebris	Funeral Cypress	20m	5m	X
Eucalyptus amplifolia	Cabbage Gum	30m	5m	√
Eucalyptus bauerana	Blue Box	25m	4m	√
Eucalyptus benthamii	Camden White Gum	35m	8m	√
Eucalyptus crebra	Narrow leaf Red Iron Bark	30m	8m	√
Eucalyptus fibrosa	Broad leaf Red Iron Bark	30m	8m	√
Eucalyptus tereticornis	Forest Red Gum	40m	8m	√
Eucalyptus viminalis	Manna Ribbon Gum	50m	8m	√
Ficus macrophylla	Moreton Bay Fig	30m	8m	√
Ficus rubiginosa	Port Jackson Fig	18m	6m	√
Flindersia australis	Australian Teak	25m	5m	√
Ginkgo biloba	Maidenhair Tree	30m	8m	X

Scientific Name	Common Name	Mature Height	Mature Spread	Native
<i>Liriodendron tulipifera</i>	Tulip Tree	40m	8m	X
<i>Livistona australis</i>	Cabbage Palm	20m	2m	√
<i>Macadamia integrifolia</i>	Macadamia Nut Tree	15m	5m	√
<i>Magnolia denudate</i>	Yulan Tree	16m	8m	X
<i>Magnolia grandifolia</i>	Bull Bay Tree	18m	8m	X
<i>Phoenix canariensis</i>	Canary Island Date Palm	15m	5m	X
<i>Pinus pinea</i>	Italian Stone Pine	25m	4m	X
<i>Podocarpus elatus</i>	Illawarra Pine	25m	8m	√
<i>Quercus coccinea</i>	Scarlet Oak	15m	3m	X
<i>Quercus palustris</i>	Pin Oak	25m	5m	X
<i>Quercus robur</i>	English Oak	30m	6m	X
<i>Schinus areira</i>	Peppercorn Tree	17m	5m	X
<i>Syzygium luehmannii</i>	Small Leaf Water Gum	20m	8m	√
<i>Ulmus parvifolia</i>	Chinese Elm	12m	5m	X
<i>Washington Robusta</i>	Mexican Fan Palm	25m	3m	X

Preferred Hedges
<p><i>Brunfelsia</i> varieties</p> <p><i>Loropetalum chinensis</i> varieties</p> <p><i>Michelia</i> varieties</p> <p><i>Photonia x fraseri</i> 'Little Red Robin'</p> <p><i>Viburnum odoratissimum</i></p>
Preferred Shrubs
<p><i>Banksia</i> spp</p> <p><i>Bauhinia galpini</i></p> <p><i>Brunfelsia</i> – <i>grandifolia</i>, <i>maliformis</i>, <i>pauciflora</i>, dwarf varieties</p> <p><i>Callistemon</i> spp</p> <p><i>Cordyline fruticosa</i> 'Kiwi'</p> <p><i>Cordyline fruticosa</i> 'Rubra'</p> <p><i>Dodonaea</i> spp</p> <p><i>Doryanthes excelsa</i></p> <p><i>Eucalyptus</i>:dwarf grafted varieties.</p> <p><i>Gordonia axillaris</i></p> <p><i>Grevillea</i>/<i>Erica</i>/<i>Eremophila</i> spp</p> <p><i>Ixora chinensis</i> (Prince of Orange)</p> <p><i>Kunzea</i>/<i>Acmena</i>/<i>Doryanthes</i> spp</p>

<p>Indigofera australis</p> <p>Leptospermum species</p> <p>Loropetalum chinensis</p> <p>Magnolia grandifolia 'Little Gem'</p> <p>Magnolia stellata 'Star Magnolia'</p> <p>Melaleuca 'Revolution Gold'</p> <p>Michelia figo (Port Wine Magnolia)</p> <p>Myoporum montanum</p> <p>Photonia 'Red Robin' and other smaller growth Photonia.</p> <p>Viburnum varieties, eg odoralissimum</p> <p>Syzygium spp.</p>
Sub-Shrubs and Ground Covers
<p>Acacia cognate 'Mini Cog'</p> <p>Anigozanthos "Bush Gems - varieties, eg Bush Haze, Bush Ranger</p> <p>Dianella caerulea</p> <p>Dichondra repens</p> <p>Convolvulus mauritanicus</p> <p>Goodenia hederacea</p> <p>Hardenbergia violacea</p> <p>Kniphofia "Maid of Orleans"</p> <p>Melaleuca pentagona 'Little Penta'</p> <p>Myoporum spp</p> <p>Myoporum parvifolium</p> <p>Plectranthus parvifolius</p> <p>Rhodanthe anthemoides</p> <p>Scaevola aemula</p> <p>Sedum sempervirens</p>
Preferred Herbs
<p>Dianella spp</p> <p>Eremophila debilis (syn. Myoporum debile)</p> <p>Lomandra spp (eg Tanika or Nyalla)</p> <p>Pennisetum alopecuroides</p> <p>Plectranthus parvifolius</p> <p>Scaevola albida</p>

Preferred Grasses
<p>Carex appressa</p> <p>Danthonia racemosa</p> <p>Dianella varieties Imperata cylindrical</p> <p>Lomandra varieties incl 'Tanika' 'Nyalla' etc</p> <p>Sorghum leiocladum</p> <p>Themeda australis</p>
Preferred Climbers
<p>Clematis aristate</p> <p>Gelsemium sempervirens</p> <p>Jasminum spp.</p> <p>Hardenbergia violacea</p> <p>Kennedia rubicunda</p> <p>Mandevilla spp</p> <p>Pandorea jasminoides</p> <p>Trachelospermum jasminoides</p>

Table 2: Salinity Tolerant

Salinity means common salt, toxic to most land plants when present in high levels in the soil. High levels of Salinity equate to high levels of salt in the ground. The following list provides examples of plants that are salt tolerant and can handle salinity conditions reasonably well.

Scientific Name	Common Name
Trees	
Angophora subvelutina	Broad Leaf Apple
Cupaniopsis anarcardiodes	Tuckeroo
Eucalyptus amplifolia	Cabbage Gum
Eucalyptus fibrosa	Broad Leaf Ironbark
Eucalyptus tereticornis	Forest Red Gum
Eucalyptus moluccana	Grey Box
Casuarina glauca	Swamp Oak
Casuarina cunninghamiana	River Oak
Melaleuca decora	White Cloud Tree
Melaleuca linariifolia	Snow storm in Summer
Melaleuca styphelioides	Prickly leaf Paperbark
Metrosideros excelsa	NZ Christmas Tree

Ground Covers	
Hardenbergia violacea	Native Sarsoparilla
Myoporum parvifolium	Creeping Boobiala
Cynodon dactylon	Couch Grass
Shrubs	
Banksia ericifolia	Heath Banksia
Banksia speciosa	Showy Banksia
Banksia spinulosa	Hairpin Banksia
Indigofera australis	Australian Indigo
Melaleuca thymifolia	Thyme Honey Myrtle
Melaleuca nodosa	Ball Honey Myrtle
Myoporum floribundum	Boobialla
Myoporum insulare	Boobialla

Table 3: Littoral Species

Littoral means foreshores, riverbanks and the plants of that habitat. The following suggestions are for areas within or near flowpaths, watercourses or other riparian areas.

Scientific Name	Common Name
Baumea articulate	Jointed Rush
Bolboschoenus fluviatilis	Marsh Club Rush
Carex appressa	Ephemeral Marsh
Cyperus exaltatus	Tall Sedge
Eleocharis sphacelata	Tall Spike-rush
Gahnia sieberiana	Red Fruited Saw Sedge
Isolepis nodosa	Knobby Club Rush
Juncus usitatus	Common Rush
Philydrum lanuginosum	Woolly Frogmouth
Potamogeton tricarinatus	Floating Pondweed

Table 4: Macrophyte Species

Macrophyte means the plants that grow in or near wetlands, shallow lakes and streams.

Scientific Name	Common Name
Baumea articulate	Jointed Twig Rush
Bolboschoenus fluviatus	Marsh Club Rush
Carex appressa	Ephemeral Marsh
Cyperus exaltatus	Tall Sedge
Eleocharis sphacelata	Tall Spike Rush
Juncus usitatus	Common Rush
Phragmites australis	Common Reed
Potamogeton tricarlinatus	Floating Pondweed
Philydrum lanuginosum	Woolly Frogmouth

Note: It is important to note that this plant list is indicative only to provide a guide on the range of suitable plants for the region with consideration of functional, aesthetic, salt tolerance and horticultural requirements. The selection of species is expected to vary over time as a result of species availability, site conditions (driveways, bus stops, pedestrian and vehicle vision, etc), and plant viability.

2 Undesirable species

Table 5: Undesirable Species

Scientific Name	Common Name
Bambusa	Bamboo
Eriobotrya	Loquat
Ficus Elastica	Rubber tree
Ligustrum	Large and small leaf Privet
Musa	Banana plant
Toxicodendron Succedaneum	Rhus or Wax tree
Morus	Mulberry
Arecastrum romanzoffianum Schefflera	Umbrella tree
Persea	Avocado
Ailanthus	Tree of heaven
Lagunaria Patersonia	Norfolk Island hibiscus
genus Cotoneaster	Cotoneaster
genus Erythrina	Coral tree
Cinnamomum camphora Ligustrum spp.	Camphor Laurel
Pinus radiata, Pinus elliotii	Radiata Pine
genus Salix	Willow
Mangifera Indica	Mango tree

Schedule 1

**Austral & Leppington North
Precincts**

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1 Introduction

1.1 Name and application of this Schedule

This Schedule forms part of the Liverpool Growth Centre Precincts Development Control Plan (also referred to as the DCP).

This Schedule applies to all development on the land shown in **Figure 1-1**. This schedule and related amendments to the DCP give effect to the provisions of the DCP for land within the Austral and Leppington North Precincts as shown on the Land Application Map.

Notes:

The Austral and Leppington North Precincts are partly within Camden Local Government Area and partly within Liverpool Local Government Area. Separate DCPs apply for each Local Government Area.

Schedule 2 – Leppington Major Centre, provides additional controls for development within the Leppington Major Centre, which is part of the Leppington North Precinct. Applicants proposing development in the Leppington Major Centre should also refer to Schedule 2.

1.2 Structure of this Schedule

This Schedule should be read in conjunction with the main body of the DCP and is in addition to the main body of the DCP. In the event of an inconsistency between this Schedule and the main body of this DCP, this Schedule takes precedence. **Table 1-1** summarises the structure of Schedule 1 – Austral and Leppington North Precincts.

Table 1-1: Structure of this Schedule.

Part	Summary
1 – Introduction	Identifies the land to which the Schedule applies.
2 – Subdivision Planning and Design	Establishes an overall vision and Indicative Layout Plan for the Austral and Leppington North Precincts. Provides Precinct specific figures that support the controls in Part 2 and Part 3 of the main body of the DCP in relation to the Austral and Leppington North Precincts.
3 – Centres Development Controls	Provides specific objectives and controls that apply to land within the Austral Local Centre and the neighbourhood centres, identified on the Indicative Layout Plan for the Austral and Leppington North Precincts. These controls are in addition to those in Part 5 of the main body of the DCP.
4 – Site Specific Controls	Specific objectives and controls for development in certain parts of the Precincts, including land affected by electricity and gas easements, and land zoned Environmental Living.

Additional notes to readers are provided throughout this document. These notes are not part of the formal provisions of the DCP, but are intended to provide additional guidance and explanation of the provisions. If further guidance is required on the interpretation of provisions in the DCP, readers should refer to the definitions or contact Council for advice.

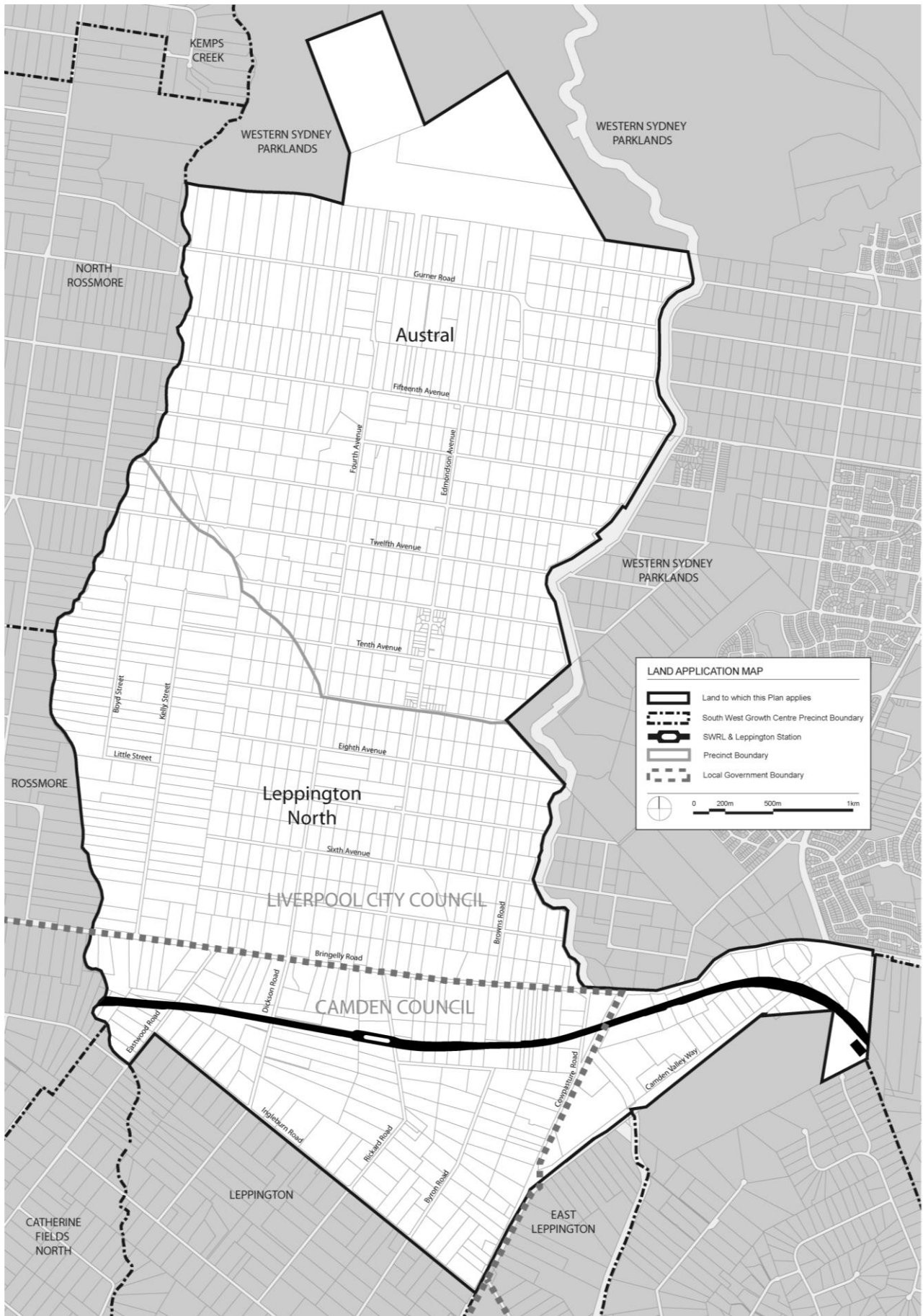


Figure 1-1: Land Application Map

2 Development planning and design

Note: *Apart from the Precinct Planning vision, this part provides Figures only. These figures are for the Austral and Leppington North Precincts and support the objectives, controls and design principles for development planning and design in **Part 2** of the main body of the DCP.*

2.1 The Austral and Leppington North Precincts - Precinct Planning vision

The vision for the Austral and Leppington North Precincts is that a range of housing types will develop to meet the needs of a diverse community, supported by local services, infrastructure, facilities and employment, in an environmentally sustainable manner.

The Austral local centre will be the main focus of activity and daily life for the Precinct, providing for community interaction and delivering services and facilities to meet the needs of all residents. Neighbourhood centres and major community facilities such as schools and sporting fields will provide shopping, jobs, recreation and social opportunities at a more local level for residents. Leppington Major Centre will create opportunities for residents of the Precincts to take advantage of excellent access to public transport, regional level shopping, entertainment and community facilities in a high quality urban environment.

The Precincts will be an integral part of the Camden and Liverpool local government areas and the South West Growth Centre. They will be linked to surrounding suburbs and to major regional destinations such as the Western Sydney Parklands and the regional centres of Liverpool and Campbelltown.

2.2 Referenced Figures

The figures included in this section are those referenced in **Part 2 Precinct Planning Outcomes**, and **Part 3 Neighbourhood and Subdivision Design**, of the main body of the DCP. For some figures, more detailed information relating to the Leppington Major Centre is contained in **Schedule 2**, and should also be referenced for developments in the Major Centre.

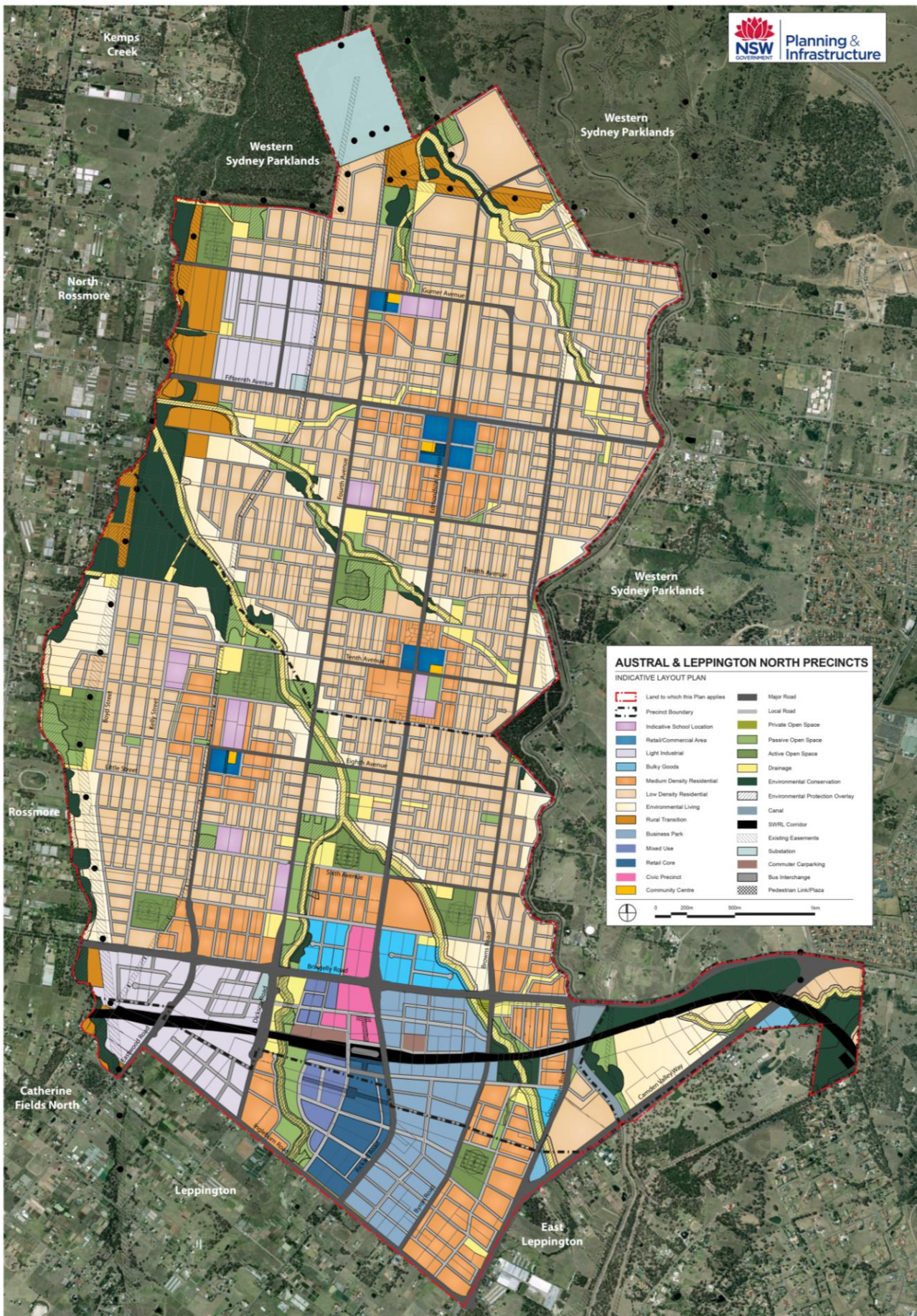


Figure 2-1: Indicative Layout Plan

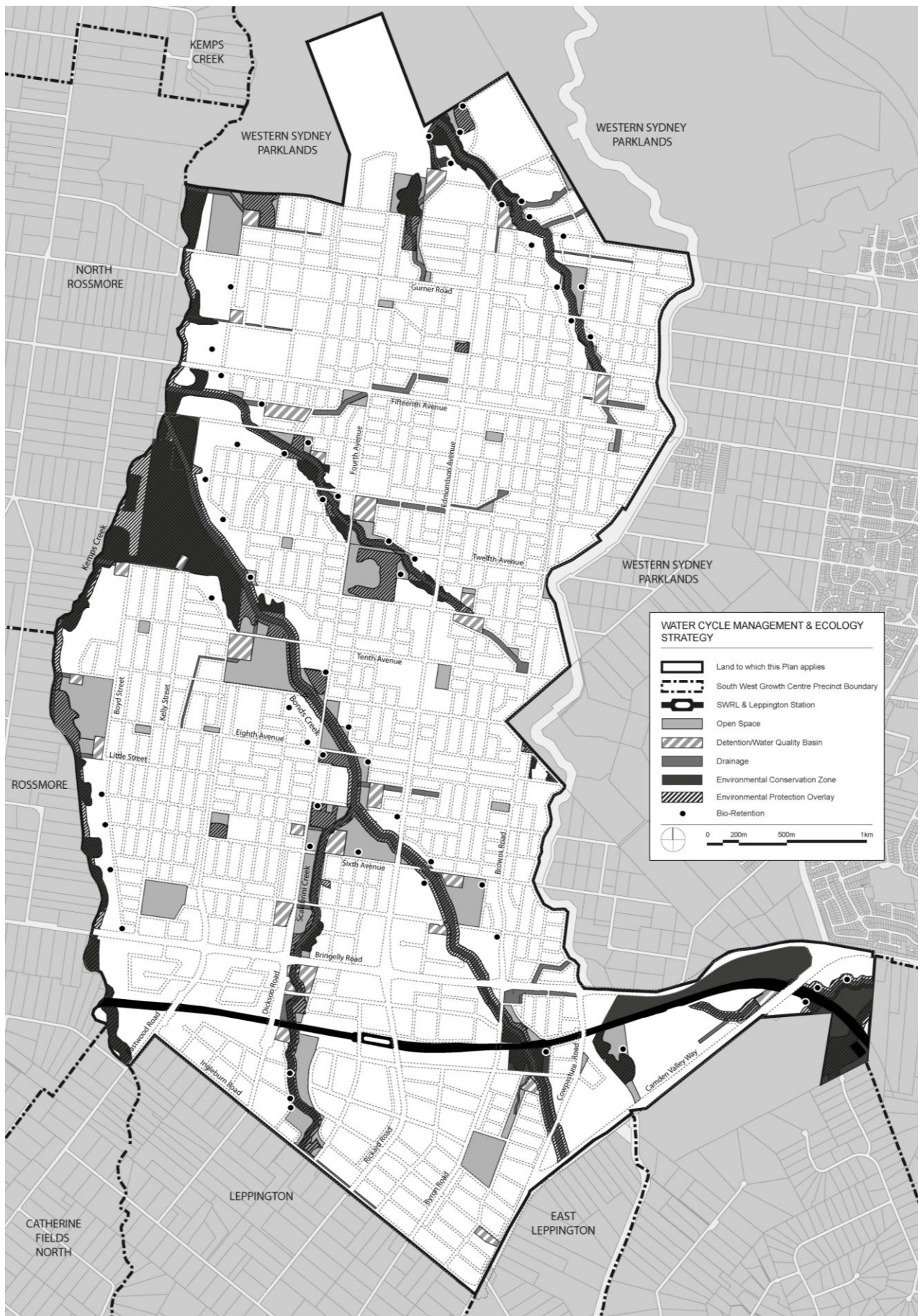


Figure 2-2: Key elements of the water cycle management and ecology strategy

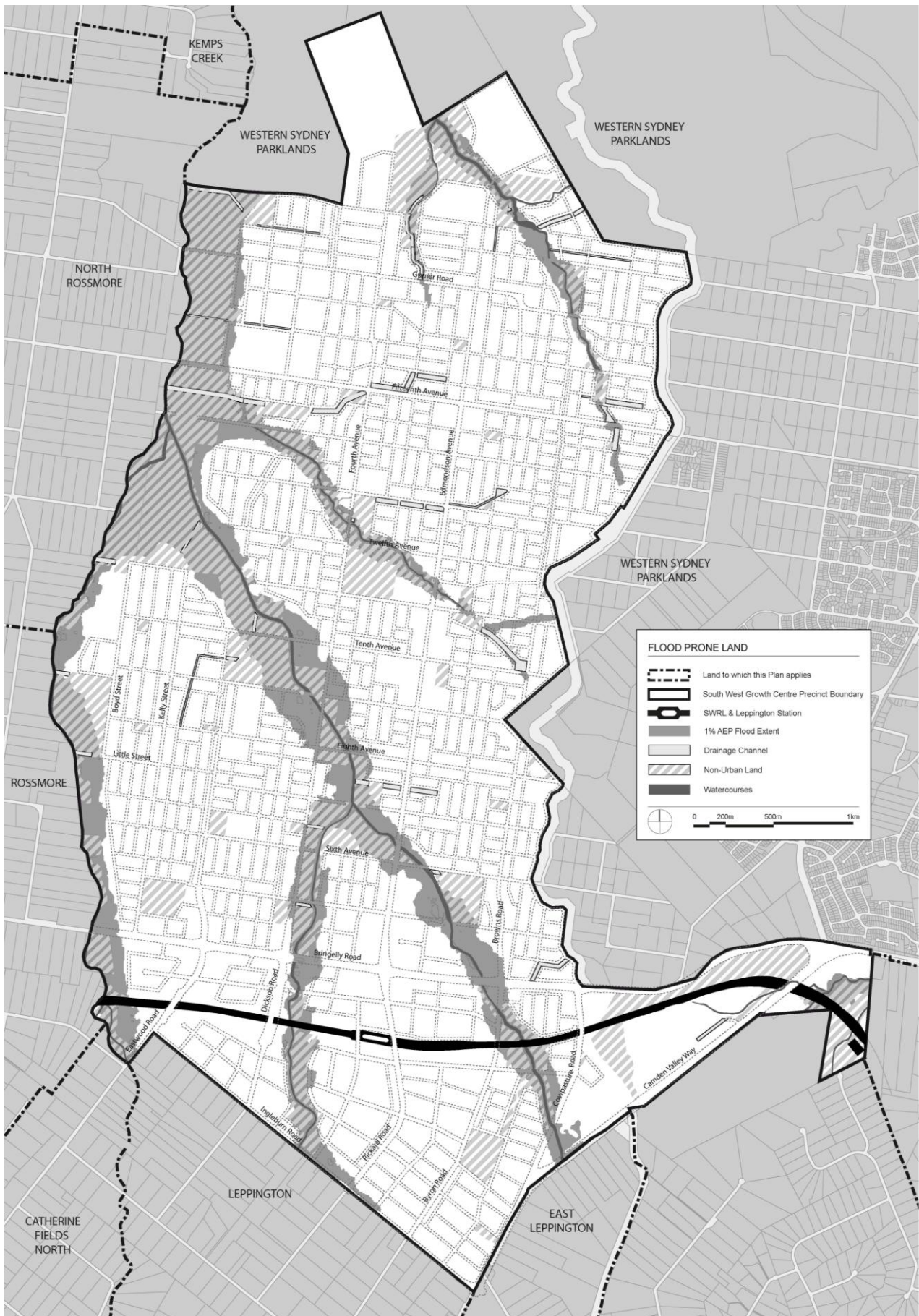
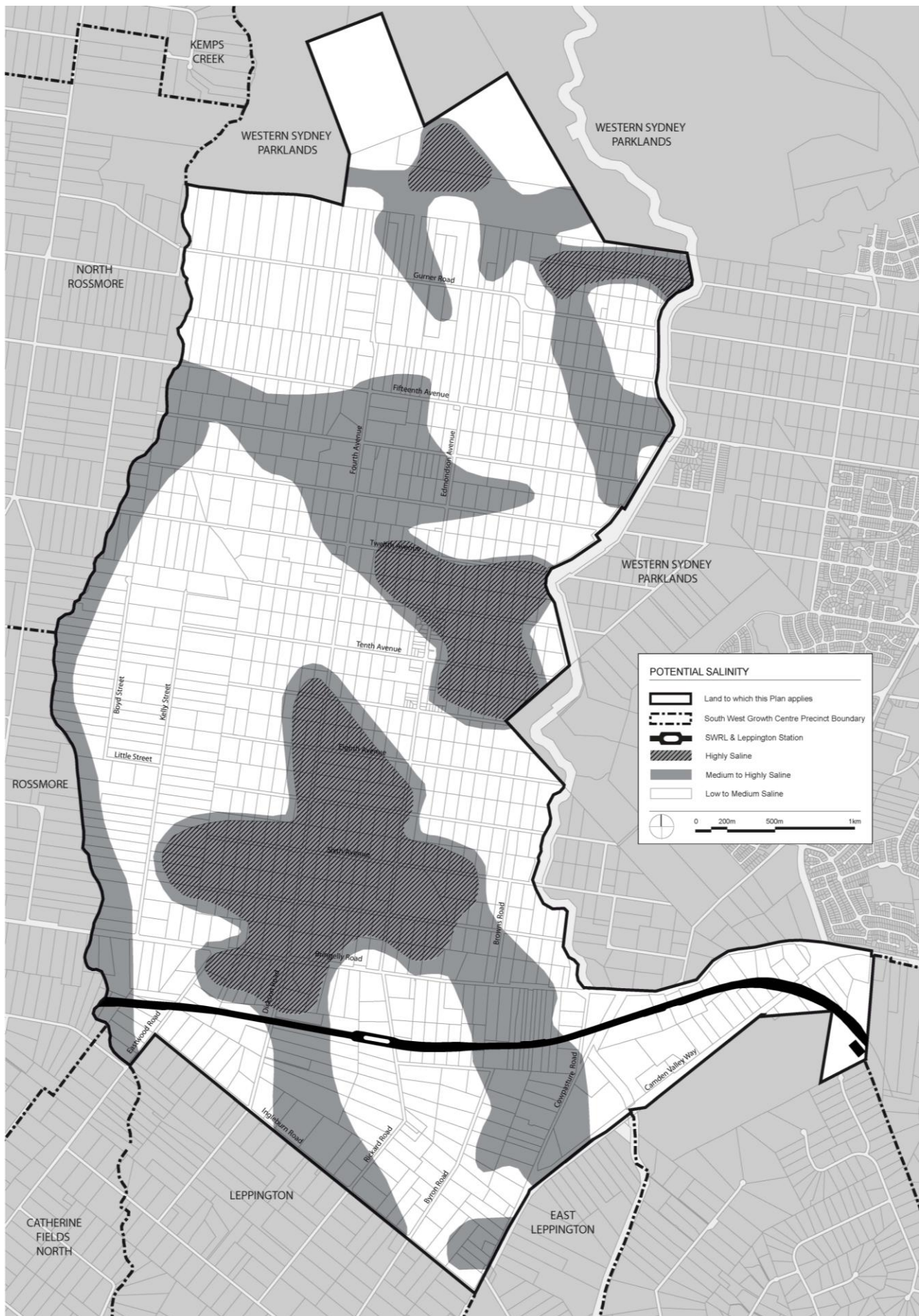


Figure 2-3: Flood prone land



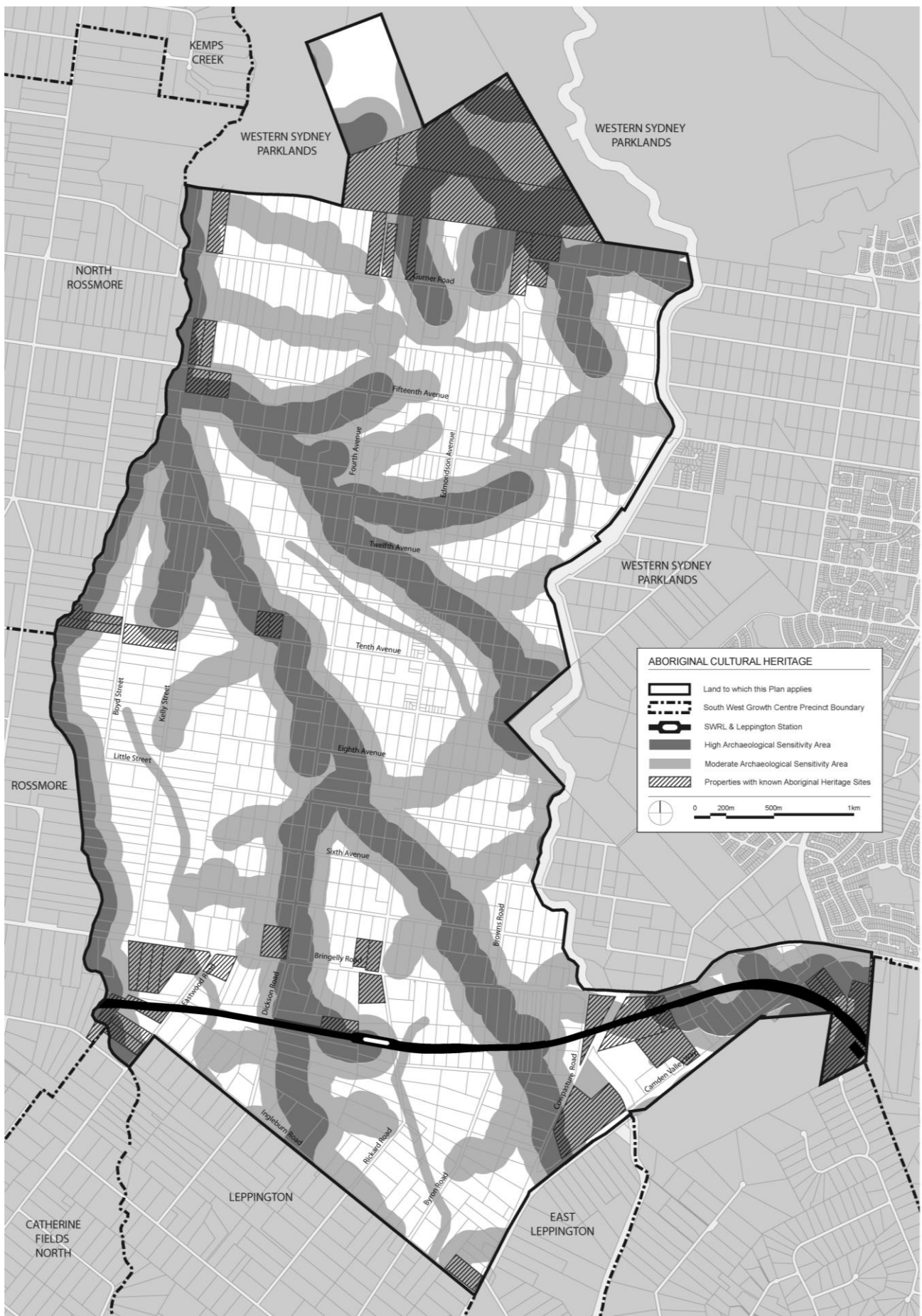


Figure 2-5: Aboriginal cultural heritage sites

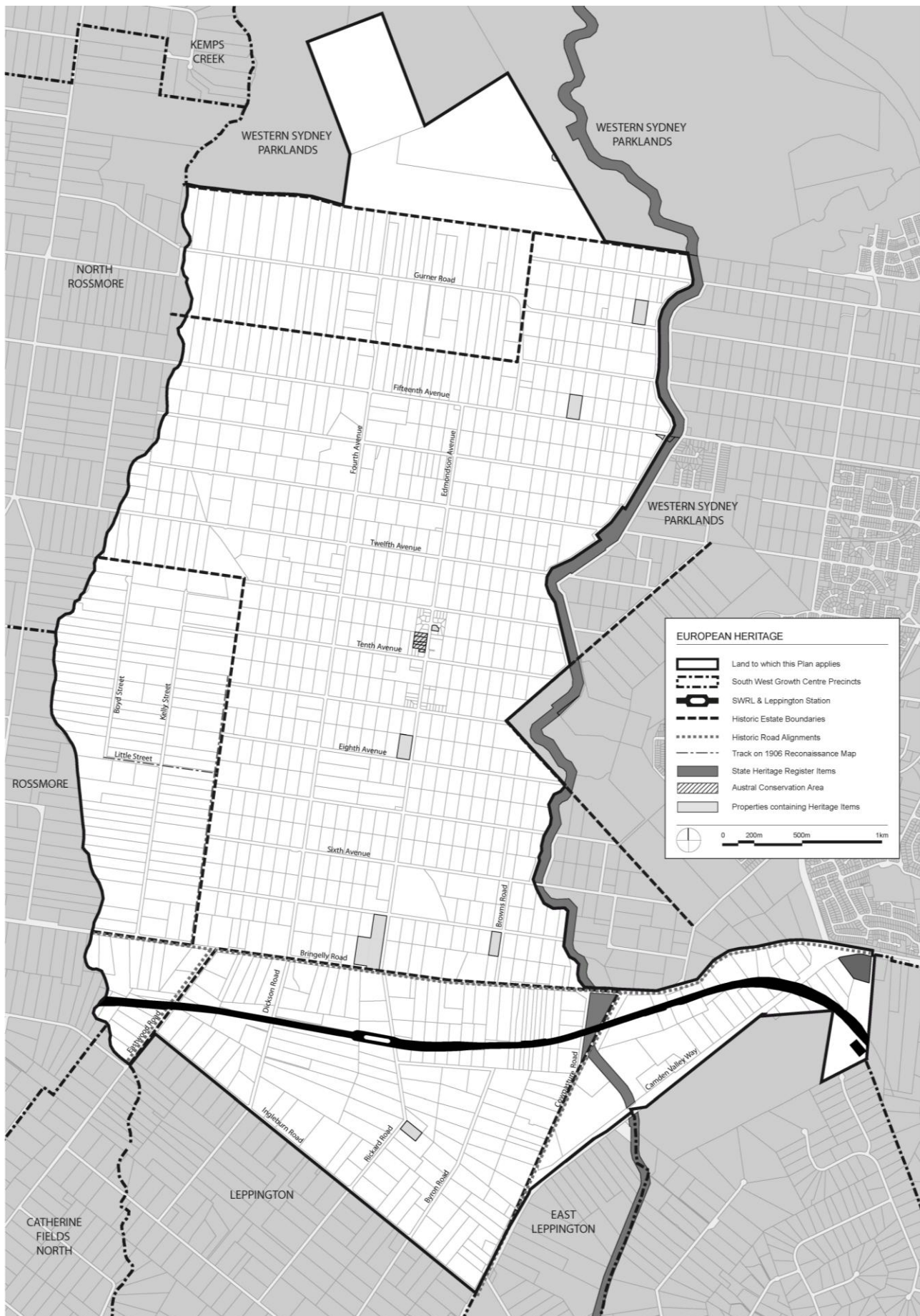


Figure 2-6: European cultural heritage

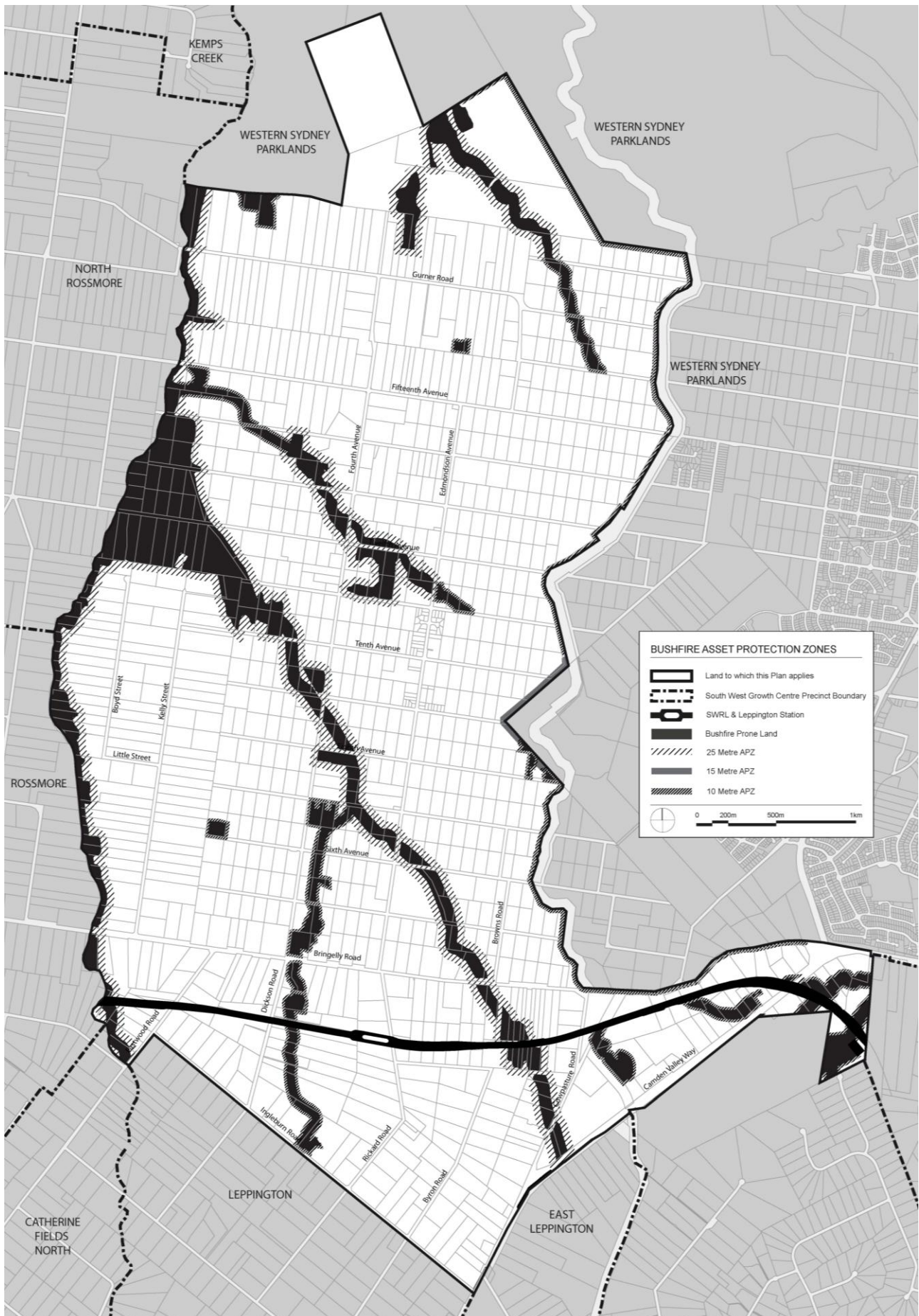


Figure 2-7: Bushfire risk and Asset Protection Zone requirements

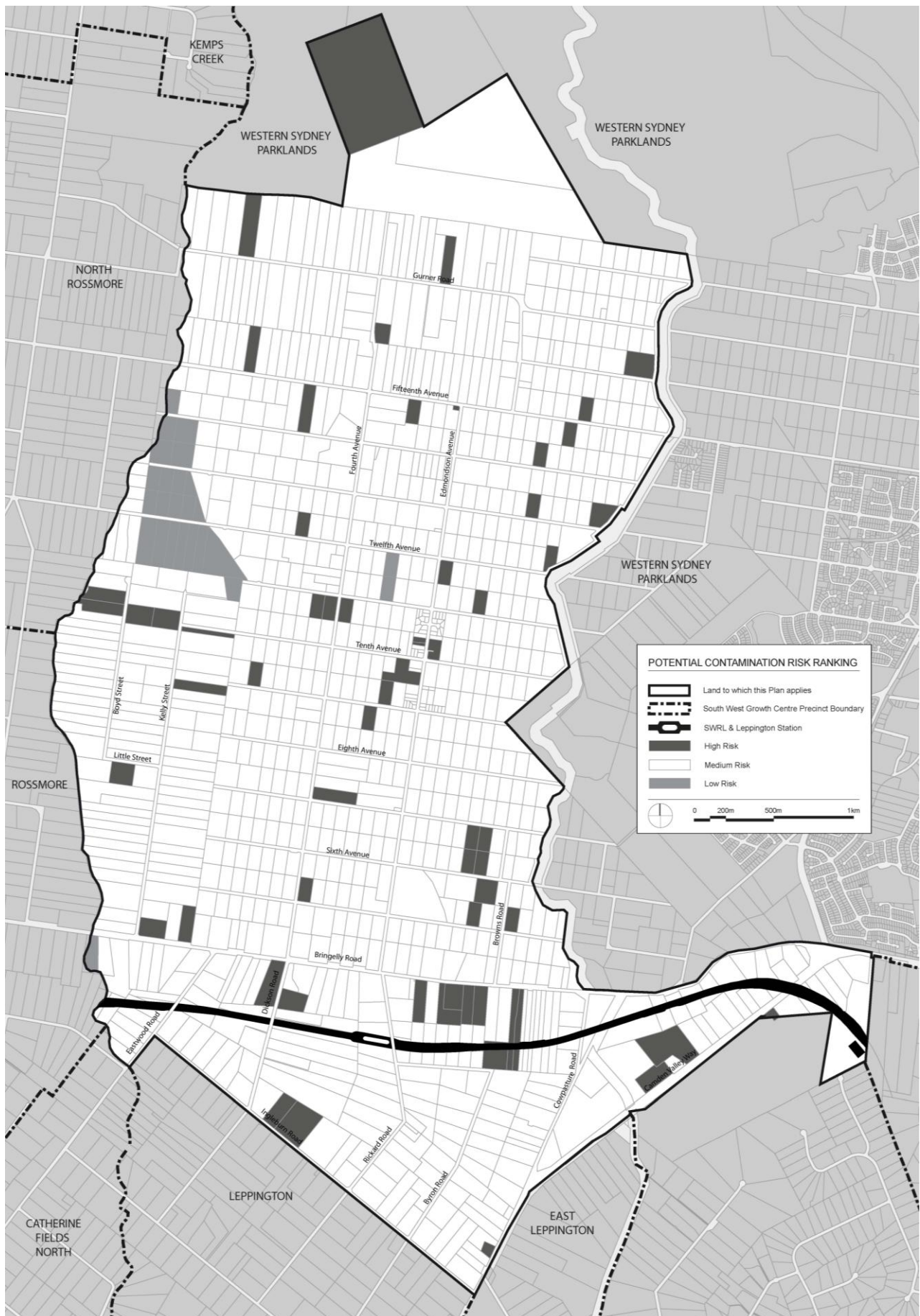


Figure 2-8: Potential contamination risk ranking

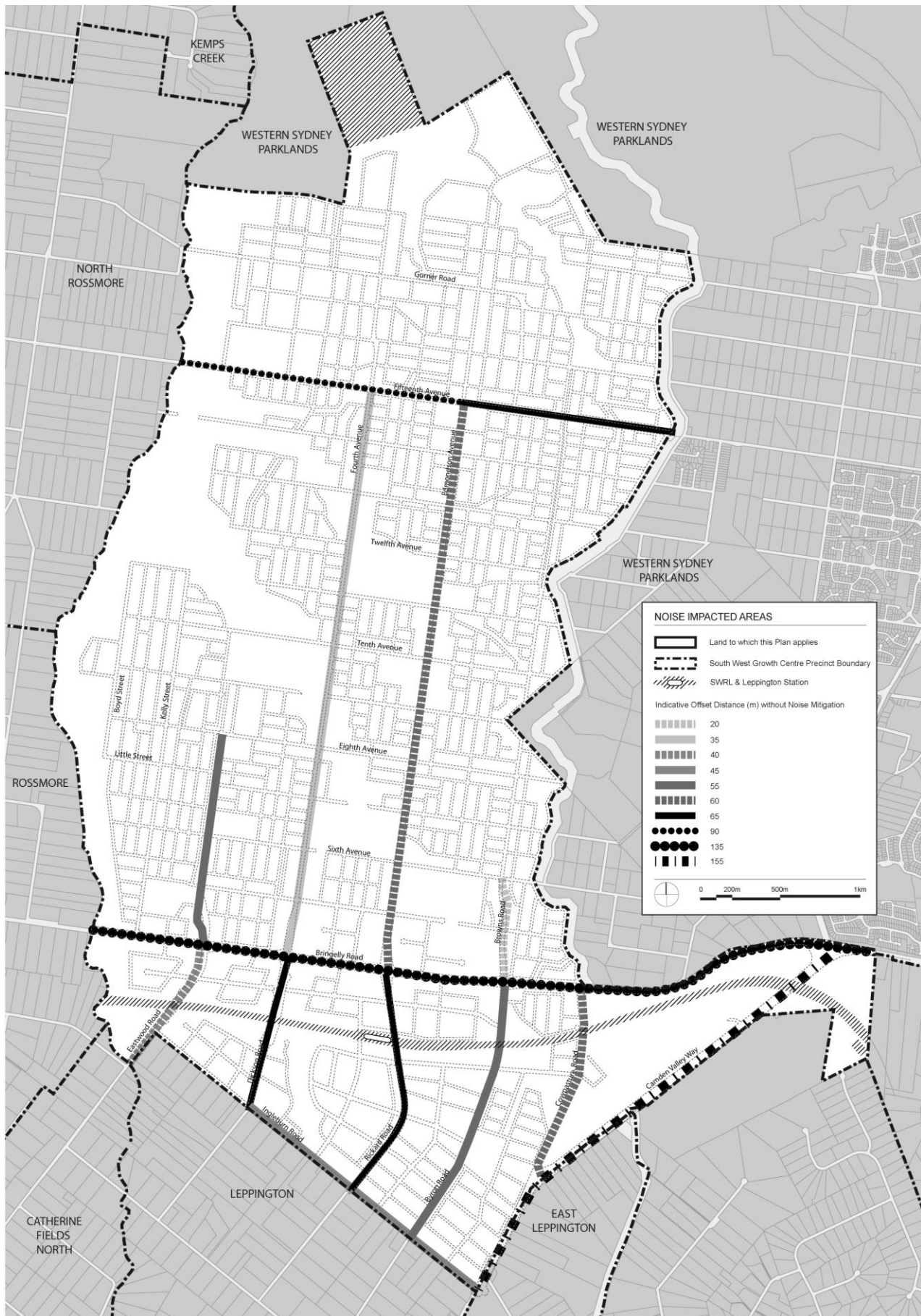


Figure 2-9: Potential noise attenuation measures

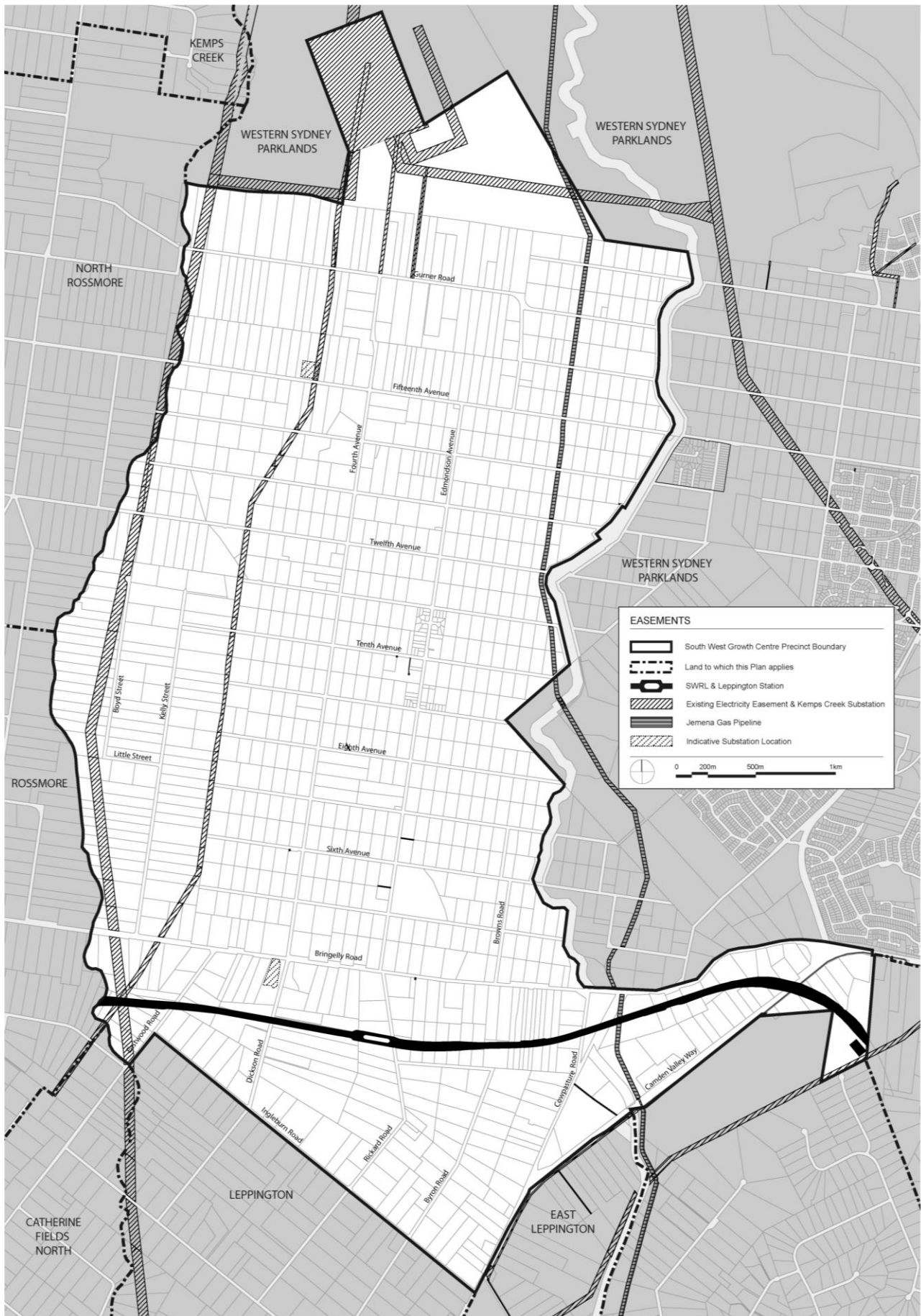


Figure 2-10: Location of easements

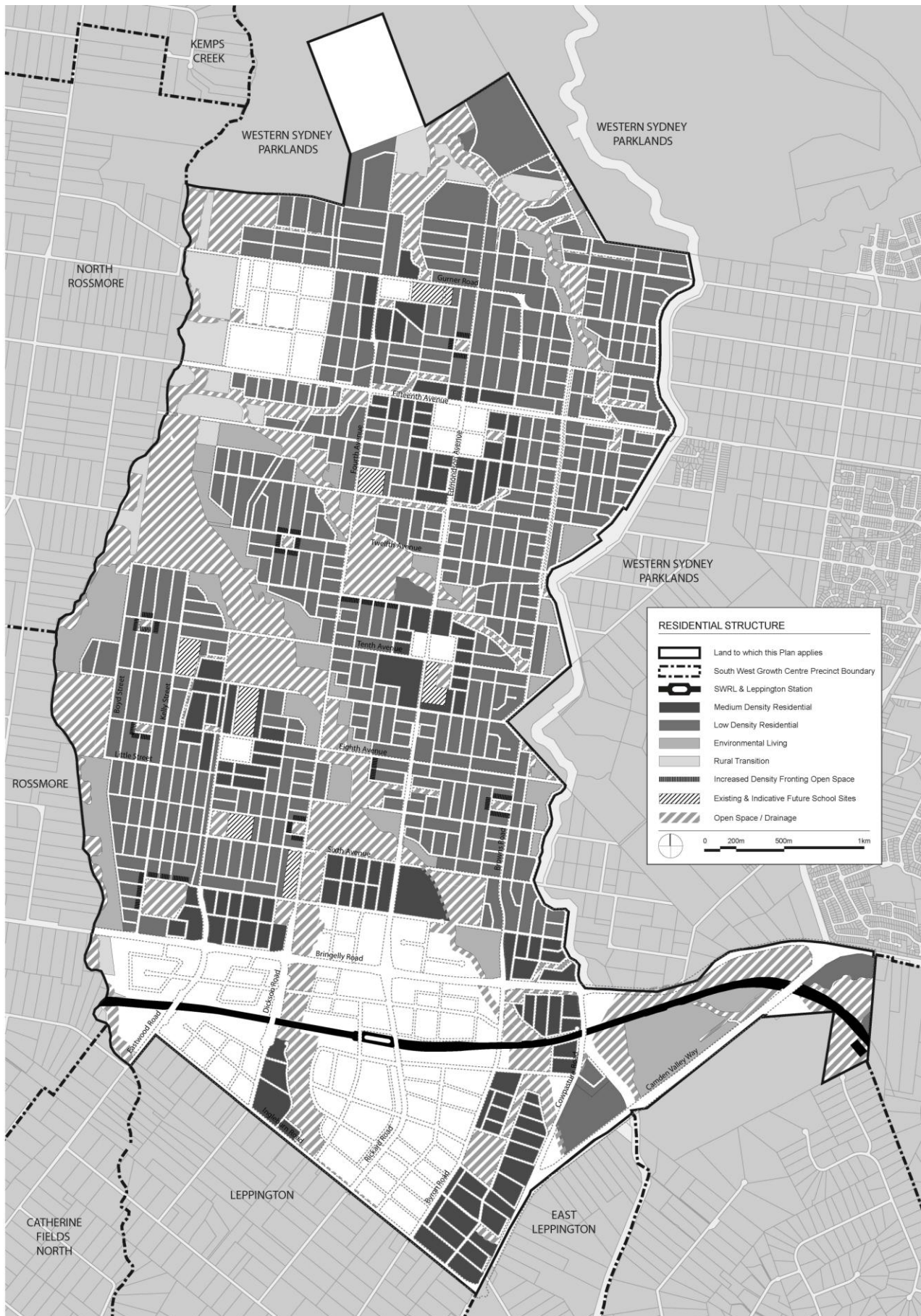


Figure 2-11: Residential structure

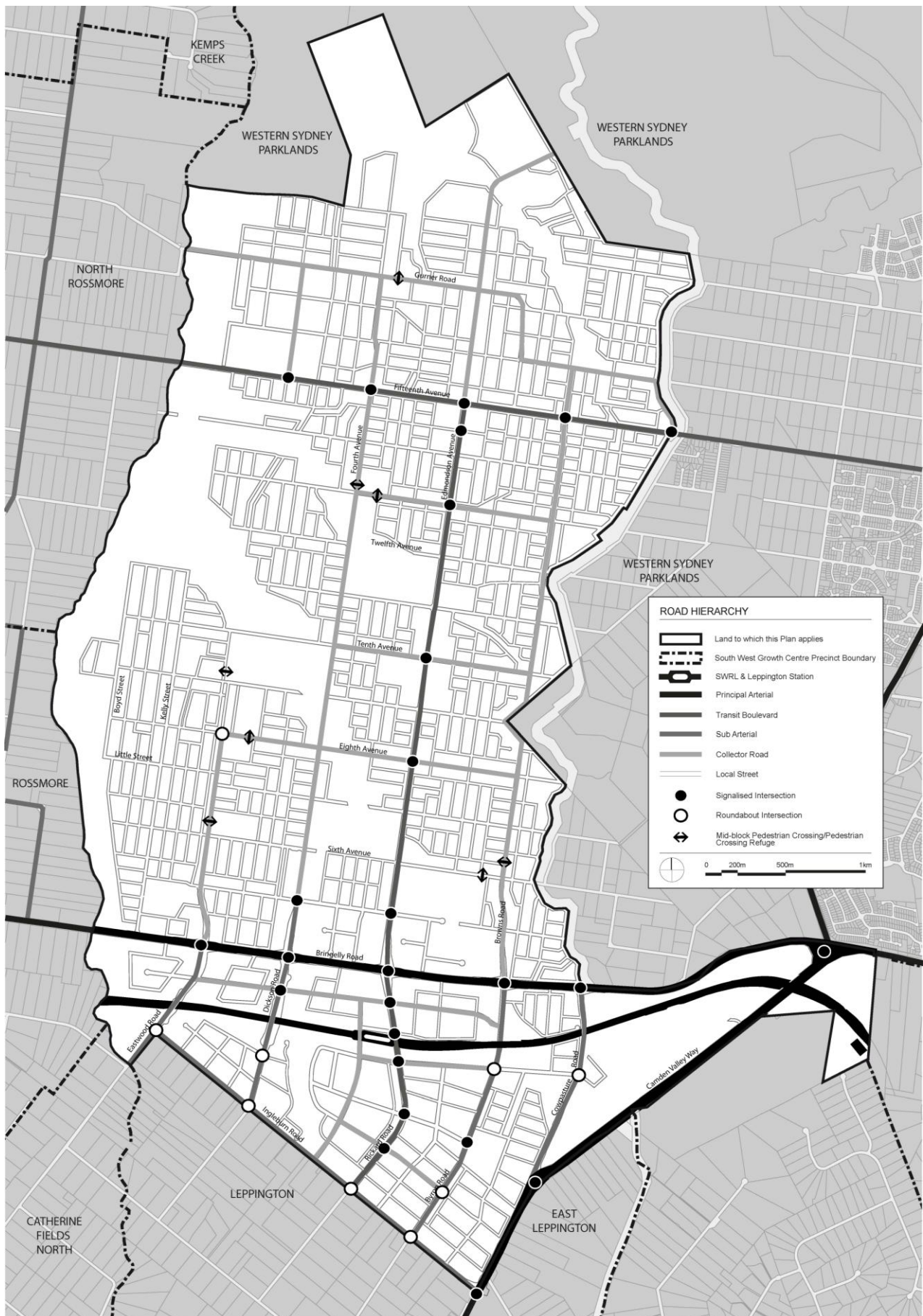


Figure 2-12: Precinct road hierarchy

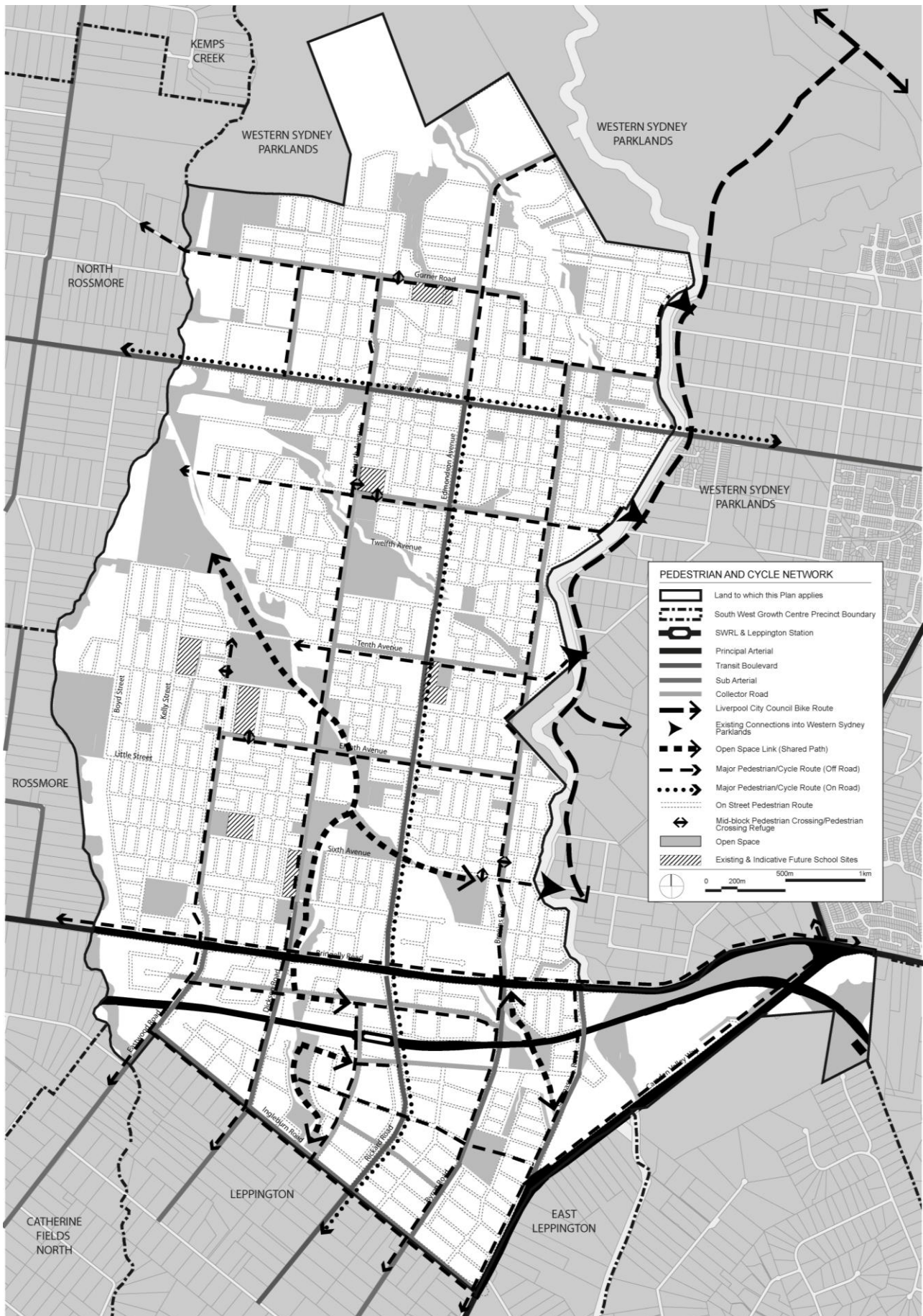


Figure 2-13: Pedestrian and cycle network

3 Centre Development Controls

Note: This part provides figures for the Austral and Leppington North Precincts that support the development controls for Centres in **Part 5** in the main body of the DCP. This part also contains Precinct Specific Controls for the Local Centre and Neighbourhood Centres, which are additional controls to the Centre controls in **Part 5** in the main body of the DCP.

3.1 Centres within the Austral and Leppington North Precincts

3.1.1 Hierarchy and function of local and neighbourhood centres

Objectives

- a. To establish the function of the Local Centre and Neighbourhood Centres within the Precincts
- b. To ensure that the centres develop a range of retail, commercial and community related uses that serve the needs of the surrounding population.

Controls

1. The location of centres is to be as shown on **Figure 3-1**.
2. The Austral Local Centre is to contain a mix of retail and local commercial land uses, to a maximum gross leaseable floorspace of 30,000m².
3. The Gurner Avenue Neighbourhood Centre is to contain a mix of retail and local commercial land uses, to service a population in the order of 10,000 people, and to a maximum gross leaseable floorspace of 10,000m².
4. The Eighth Avenue Neighbourhood Centre is to contain a mix of retail and local commercial land uses, to service a population in the order of 10,000 people, and to a maximum gross leaseable floorspace of 10,000m².
5. The Austral Neighbourhood Centre is to expand on the existing retail and community uses to cater for a population in the order of 10,000 people and to a maximum gross leaseable floorspace of 10,000m².
6. All local and Neighbourhood Centres are to contain a mix of large floorplate and specialty retail uses.
7. Leppington Major Centre is to be the focus of higher order retail, commercial, entertainment, civic and cultural activities in the South West Growth Centre, and will be supported by the Local and Neighbourhood Centres.
8. Neighbourhood shops, located outside the defined centres, are encouraged where they serve a particular market need and can be integrated with surrounding land uses. Out of centre retailing is not encouraged where it is inconsistent with the Indicative Layout Plan or where it would jeopardise the function and viability of the Local and Neighbourhood Centres or the Leppington Major Centre.

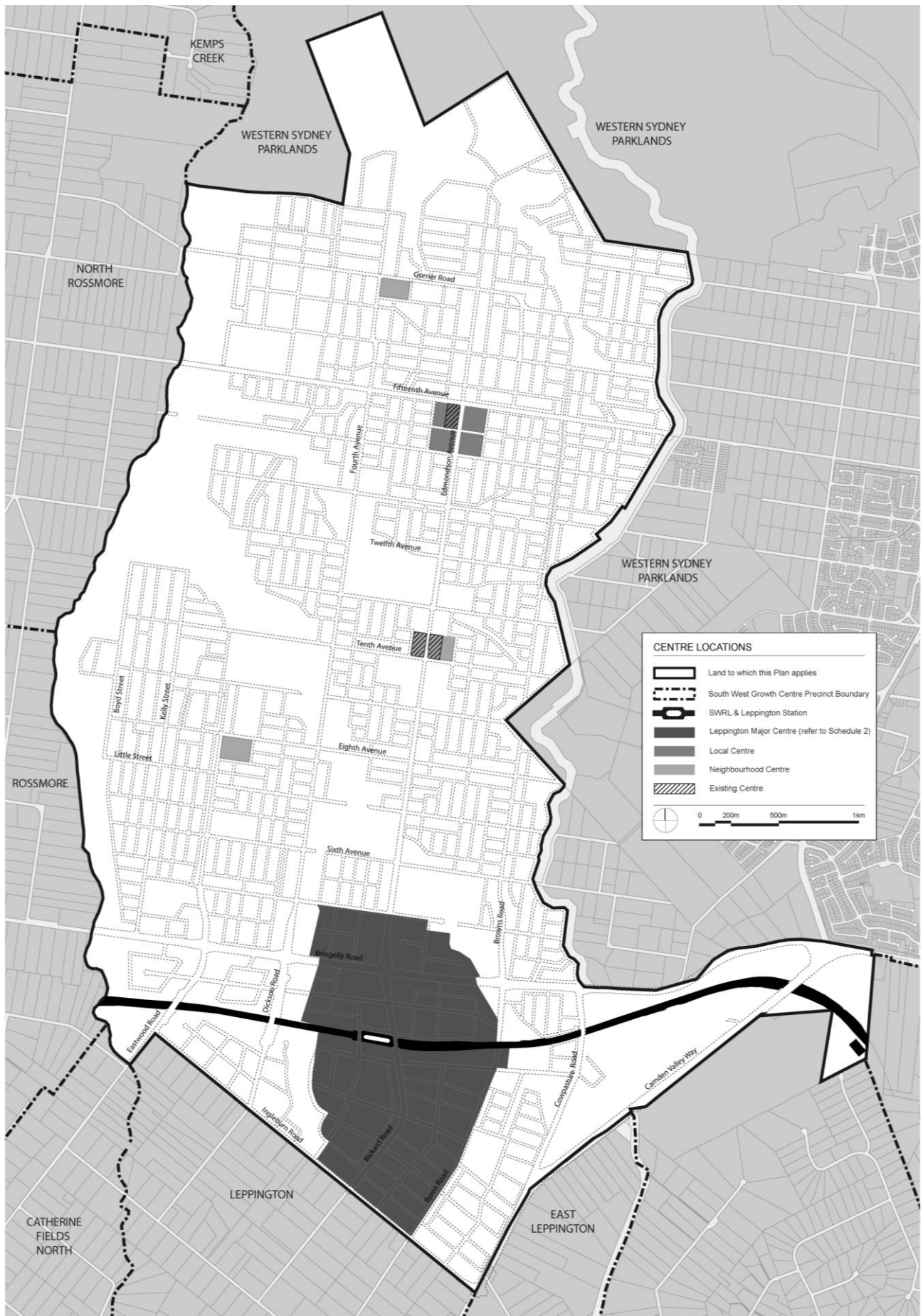


Figure 3-1: Location of Centres

3.1.2 Austral Local Centre

Objectives

- a. To facilitate the development of local centre retail, commercial and community uses that provide access to shopping, employment and services for residents of the Austral and Leppington North Precincts.
- b. To encourage a high standard of development and a quality, attractive environment within the local centre.

Controls

1. The main street in the Austral Local Centre is Edmondson Avenue.
2. Edmondson Avenue, within the Local Centre, is to be designed in accordance with **Figure 3-3**.
3. Active Street Frontages are to be provided to the main street and to the new east-west street that links the town park to the town square, consistent with **Figure 3-2**.
4. The new east-west street linking the town park to the town square is to be designed in accordance with the typical main street at **Figure 5-3** in Part 5 of this DCP.
5. On street parking is to be provided on Edmondson Avenue and the new east-west active street, except where turning lanes or bus bays prevent parking.
6. Vehicular access to the centre is to be primarily via perimeter streets including Fifteenth Avenue and Fourteenth Avenue, and new north-south oriented perimeter streets.
7. Loading areas that are adjacent to residential zoned land are to include visual and acoustic screening to protect the amenity of residents.
8. Development adjacent to the town square is to be oriented with active frontages facing the square.

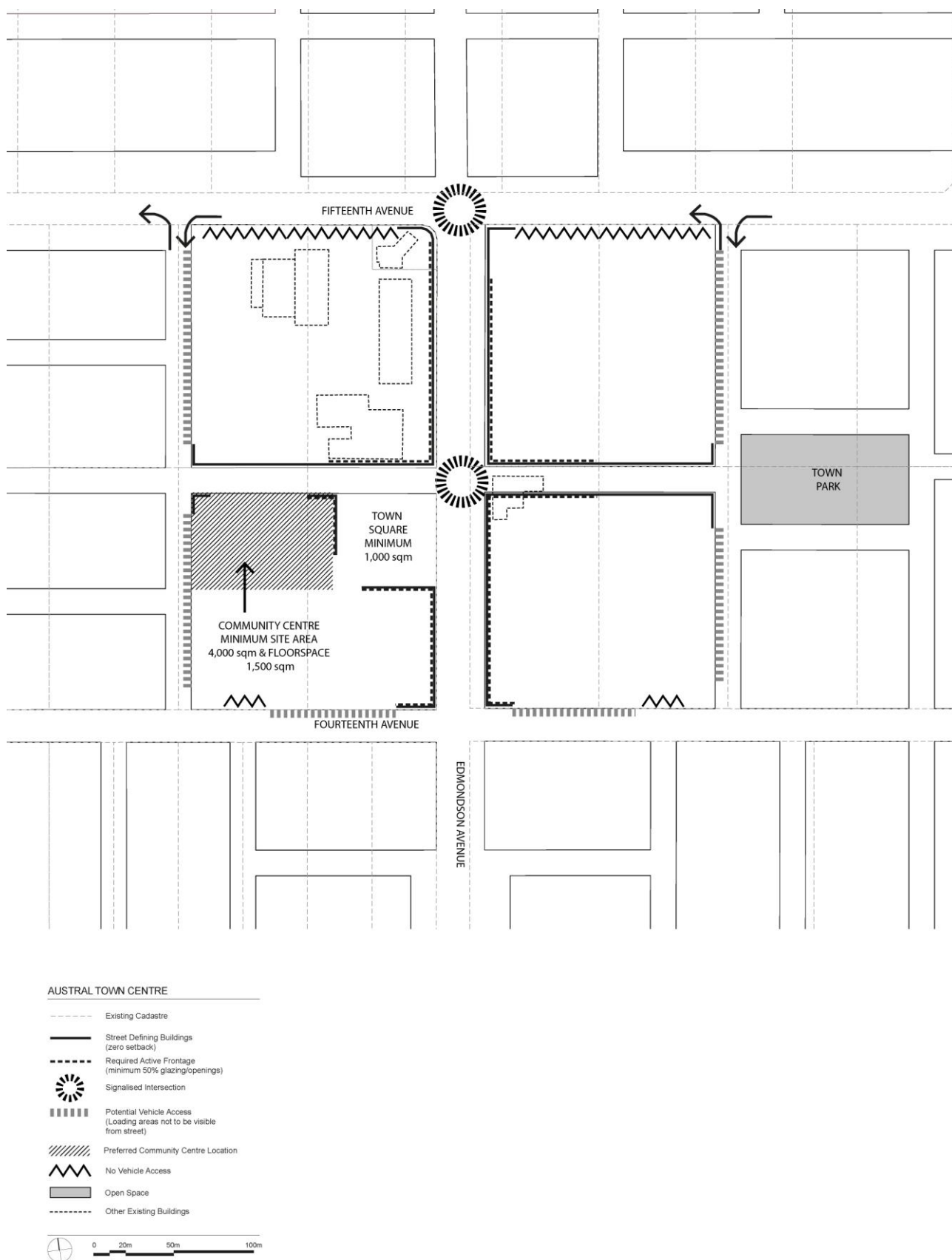


Figure 3-2: Desired future layout – Austral Local Centre

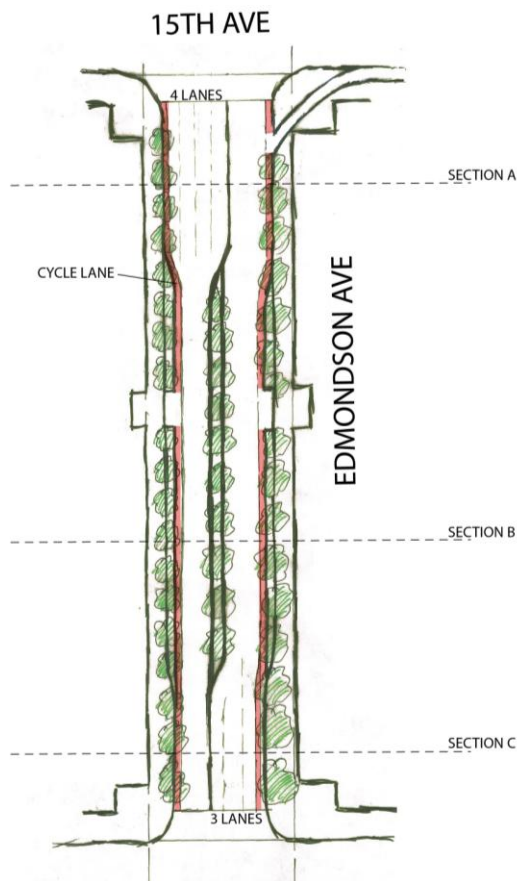


Figure 3-3: Edmondson Avenue design – Austral Local Centre

Note: Refer to cross sections on following pages that correspond with the section locations above

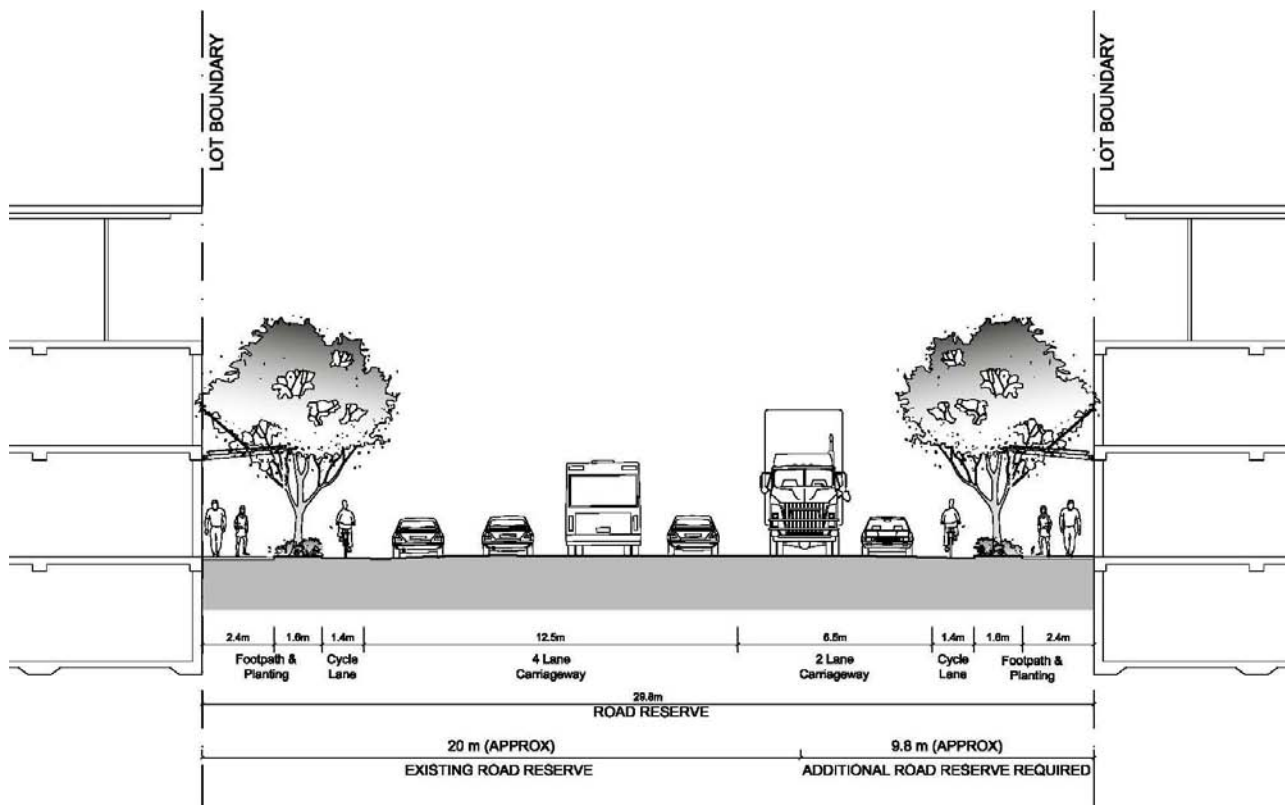


Figure 3-4a: Edmondson Avenue Austral Town Centre Section A

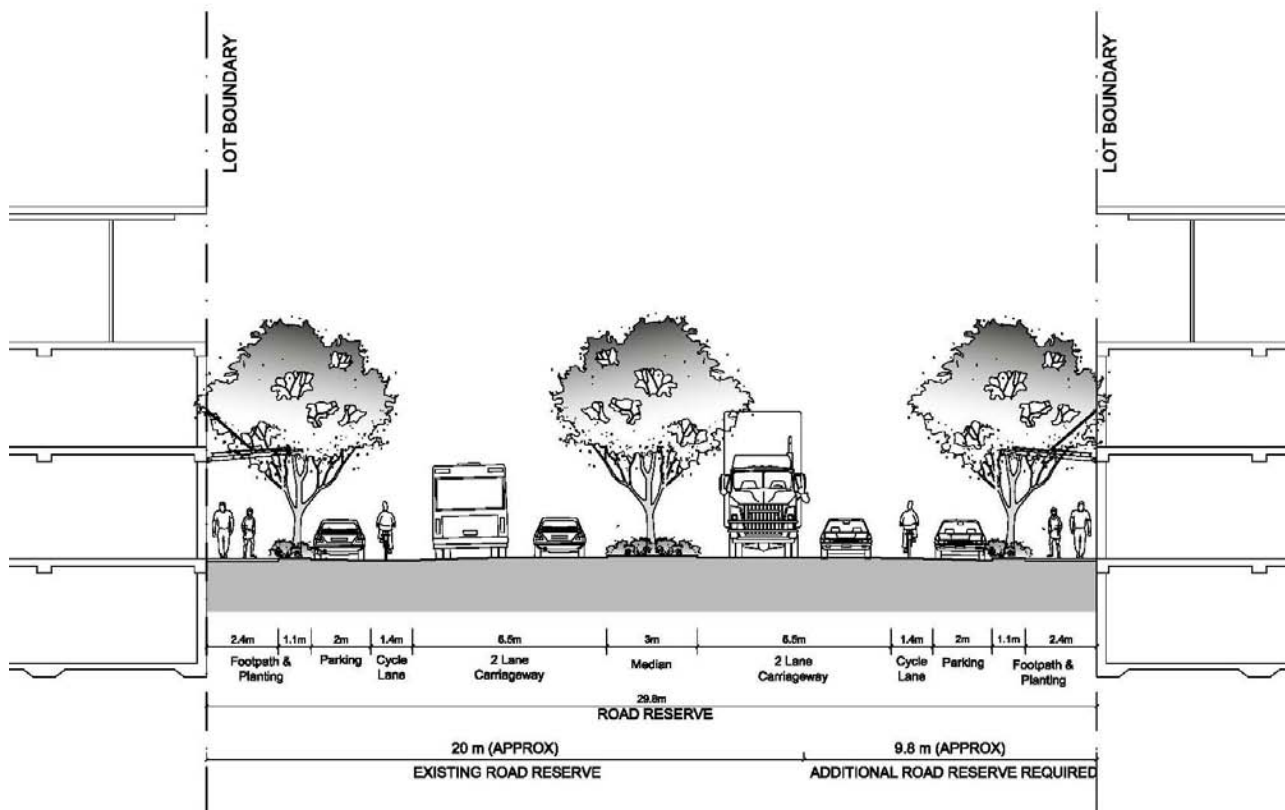


Figure 3-4b: Edmondson Avenue Austral Town Centre Section B

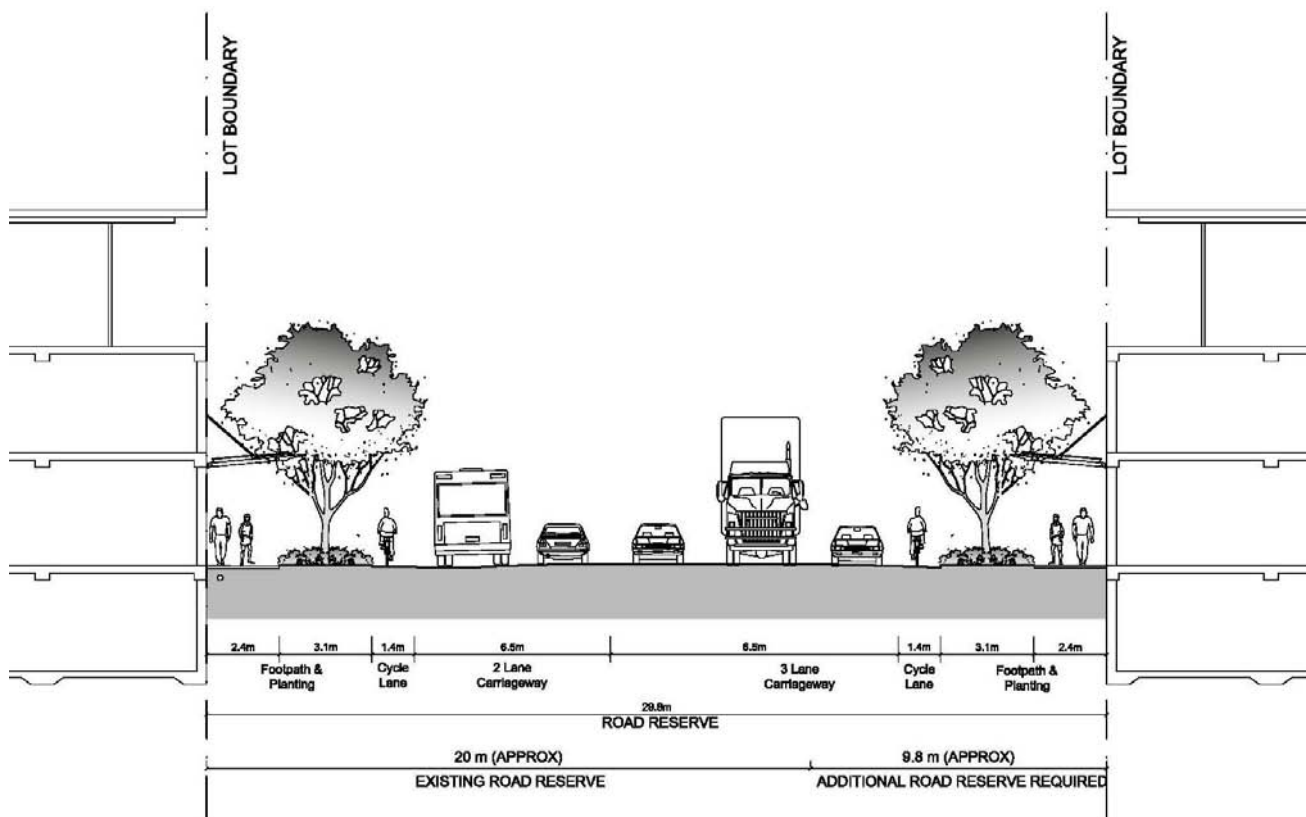


Figure 3-4c: Edmondson Avenue Austral Town Centre Section C

3.1.3 Gurner Avenue Neighbourhood Centre

Objectives

- a. To facilitate the development of neighbourhood centre retail, commercial and community uses that provide access to shopping, employment and services for residents of the northern part of the Austral Precinct.
- b. To encourage a high standard of development and a quality, attractive environment within the neighbourhood centre.

Controls

1. The main street in the Gurner Avenue Neighbourhood Centre is Gurner Avenue.
2. Active Street Frontages are to be provided to the main street consistent with **Figure 3-4**.
3. On street parking is to be provided on Gurner Avenue except where turning lanes or bus bays prevent parking.
4. Vehicular access to car parks and loading bays is to be primarily via perimeter streets including Fourth Avenue, and streets to the south and east of the centre.
5. Loading bays are to be located behind buildings fronting Fourth Avenue and Gurner Avenue.
6. Loading areas that are adjacent to residential zoned land are to include visual and acoustic screening to protect the amenity of residents.
7. Loading areas are to be located to not be visible from parks.
8. Development in the centre is to relate to the park located to the south of the centre.

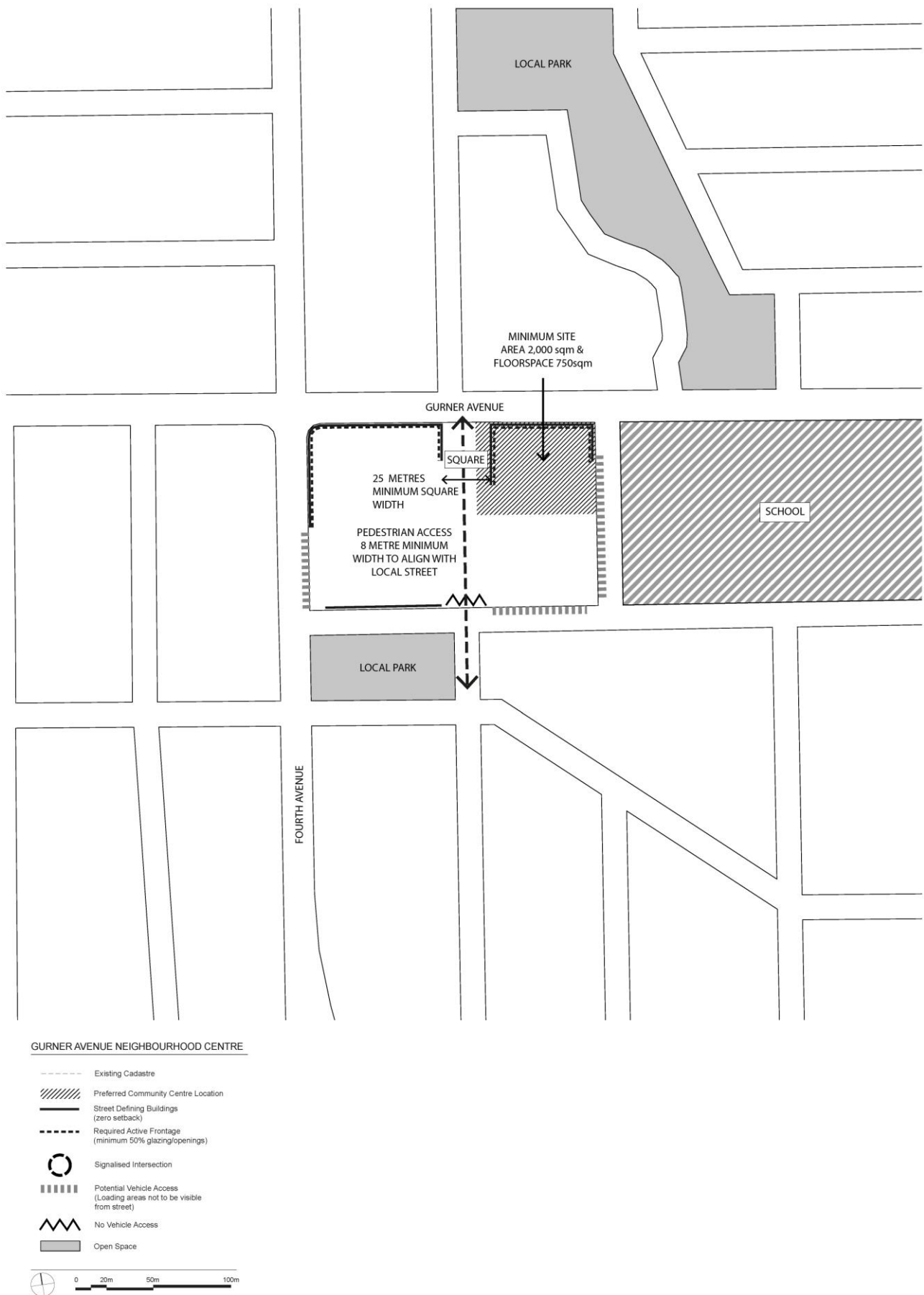


Figure 3-4: Desired future layout – Gurner Avenue Neighbourhood Centre

3.1.4 Eighth Avenue Neighbourhood Centre

Objectives

- a. To facilitate the development of neighbourhood centre retail, commercial and community uses that provide access to shopping, employment and services for residents in parts of the precincts between Bonds Creek, Kemps Creek and Bringelly Road.
- b. To encourage a high standard of development and a quality, attractive environment within the neighbourhood centre.

Controls

1. The main street in the Eighth Avenue Neighbourhood Centre is Eighth Avenue.
2. Active Street Frontages are to be provided to the main street consistent with **Figure 3-5**.
3. On street parking is to be provided on Eighth Avenue except where turning lanes or bus bays prevent parking.
4. Vehicular access to car parks and loading bays is to be primarily via perimeter streets to the west and south of the centre.
5. Loading bays are to be located behind buildings fronting Eighth Avenue.
6. Loading areas that are adjacent to residential zoned land are to include visual and acoustic screening to protect the amenity of residents.
7. Loading areas are to be located to not be visible from parks and sporting fields.

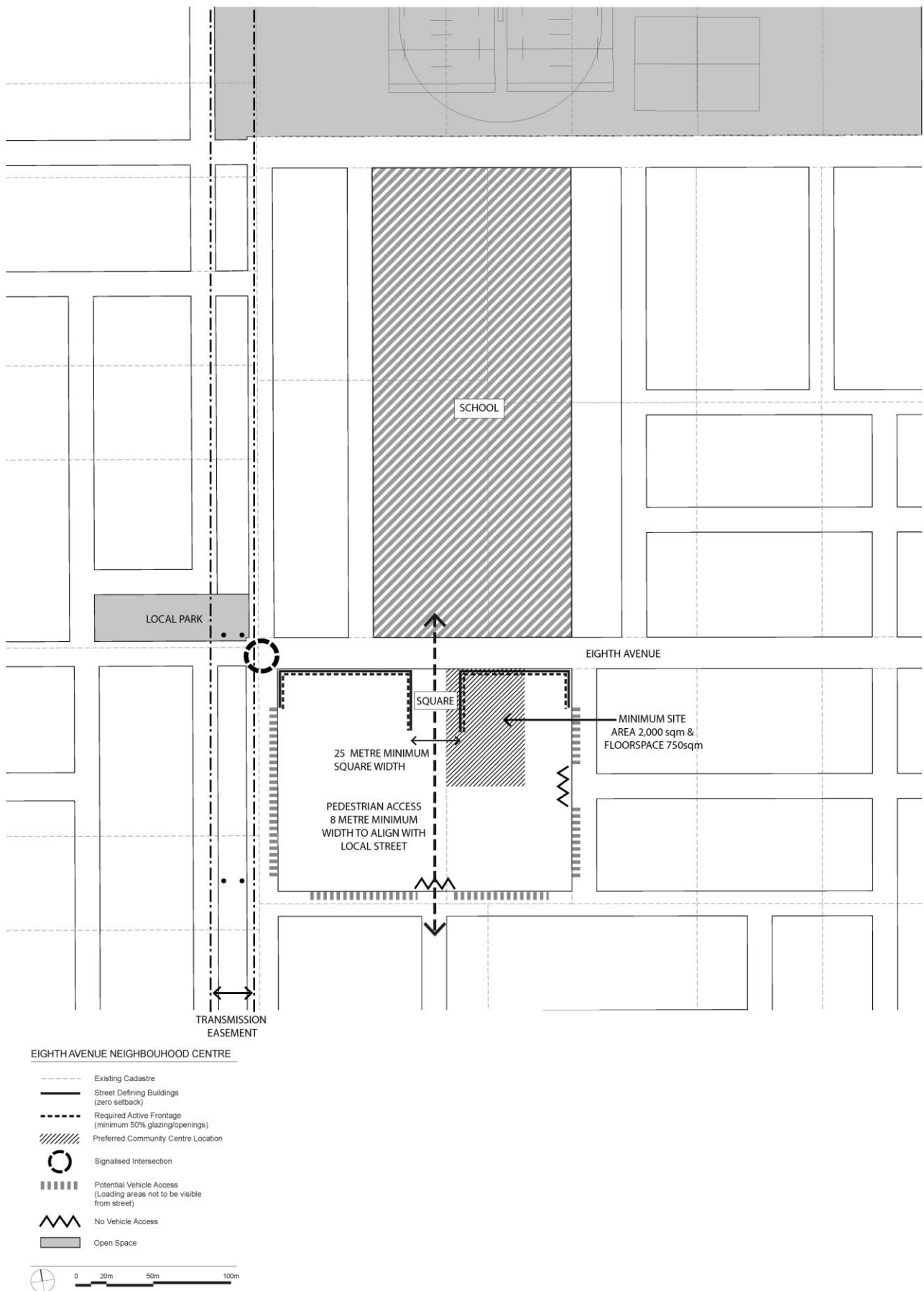


Figure 3-5: Desired future layout – Eighth Avenue Neighbourhood Centre

3.1.5 Austral Neighbourhood Centre

Objectives

- a. To facilitate the expansion of neighbourhood centre retail, commercial and community uses that provide access to shopping, employment and services for residents in the central parts of the Austral and Leppington North Precincts.
- b. To encourage a high standard of development and a quality, attractive environment within the neighbourhood centre.
- c. To protect and enhance the heritage character of parts of the Neighbourhood Centre and maintain the village character.
- d. To provide for future upgrades to Edmondson Avenue while ensuring it is an active street that contributes positively to the Neighbourhood Centre.

Controls

1. The main street in the Austral Neighbourhood Centre is Tenth Avenue.
2. Active Street Frontages are to be provided to the Edmondson Avenue and to Tenth Avenue consistent with **Figure 3-6**.
3. On street parking is to be provided on Tenth Avenue except where turning lanes or bus bays prevent parking.
4. Edmondson Avenue within the Austral Neighbourhood Centre, is to be constructed in accordance with the cross-section at **Figure 3-7**.
5. On street parking may be provided on Edmondson Avenue where:
 - Widening of the road reserve is possible in association with redevelopment of adjoining land; and
 - Car parking, footpath and verge areas will be constructed and dedicated to the road authority as part of the public road, at no cost to Council.
6. Where on street parking is to be provided on Edmondson Avenue, the Edmondson Avenue cross section is to be in accordance with cross-section B at **Figure 3-3**.
7. New buildings on the western side of Edmondson Avenue are to be set back to match or be greater than the setbacks of existing heritage buildings (refer to **Figure 2-6** for the locations of listed heritage items).
8. Elements of built heritage which contribute to the overall heritage significance of the Austral Town Centre Conservation Area (contributory items) should be retained.

9. The principal built form of contributory items, including roof lines, street-facing and side elevations, door and window-openings should be retained. Minor alterations that do not have a significant impact on the architectural form and character of the original building may be permitted.
10. Infill development should be of a modern design, which responds sympathetically to the historic character and setting of the Austral conservation area, and to the form, scale, massing, orientation and setback of its contributory items. Where possible, new infill buildings should address the street.
11. Infill development should not overwhelm the contributory items within the Austral conservation area, in height or massing. A maximum of two storeys on the street-facing elevation is appropriate, with taller elements of buildings to be set back behind the primary building line facing Edmondson Avenue.
12. Infill development or additions may be permitted at the rear of contributory items, where the design will achieve an aesthetically cohesive relationship between new and old, and the proposal is consistent with the character of the site and the broader conservation area.
13. New buildings on the eastern side of Edmondson Avenue are to be set back a minimum of 6 metres from the front property boundary, to make provision for on street parking and/or future widening of Edmondson Avenue.
14. Where redevelopment of existing retail uses is proposed, new buildings are to be positioned to provide active frontages to Tenth Avenue and Edmondson Avenue, with parking (apart from on street parking) and loading areas located to the rear.
15. Loading areas that are adjacent to residential zoned land are to include visual and acoustic screening to protect the amenity of residents.
16. Loading areas are to be located to not be visible from parks.

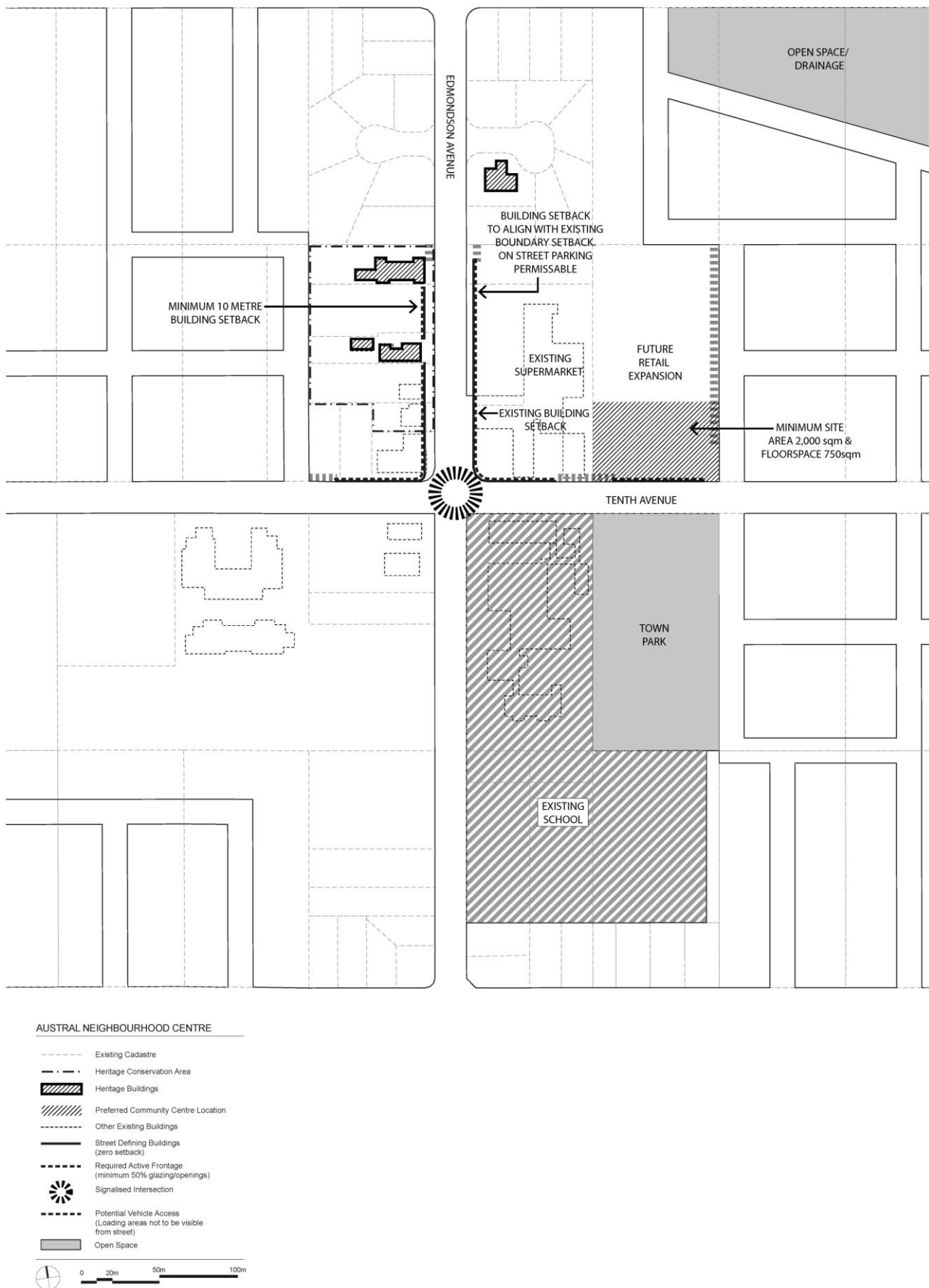


Figure 3-6: Desired future layout – Austral Neighbourhood Centre

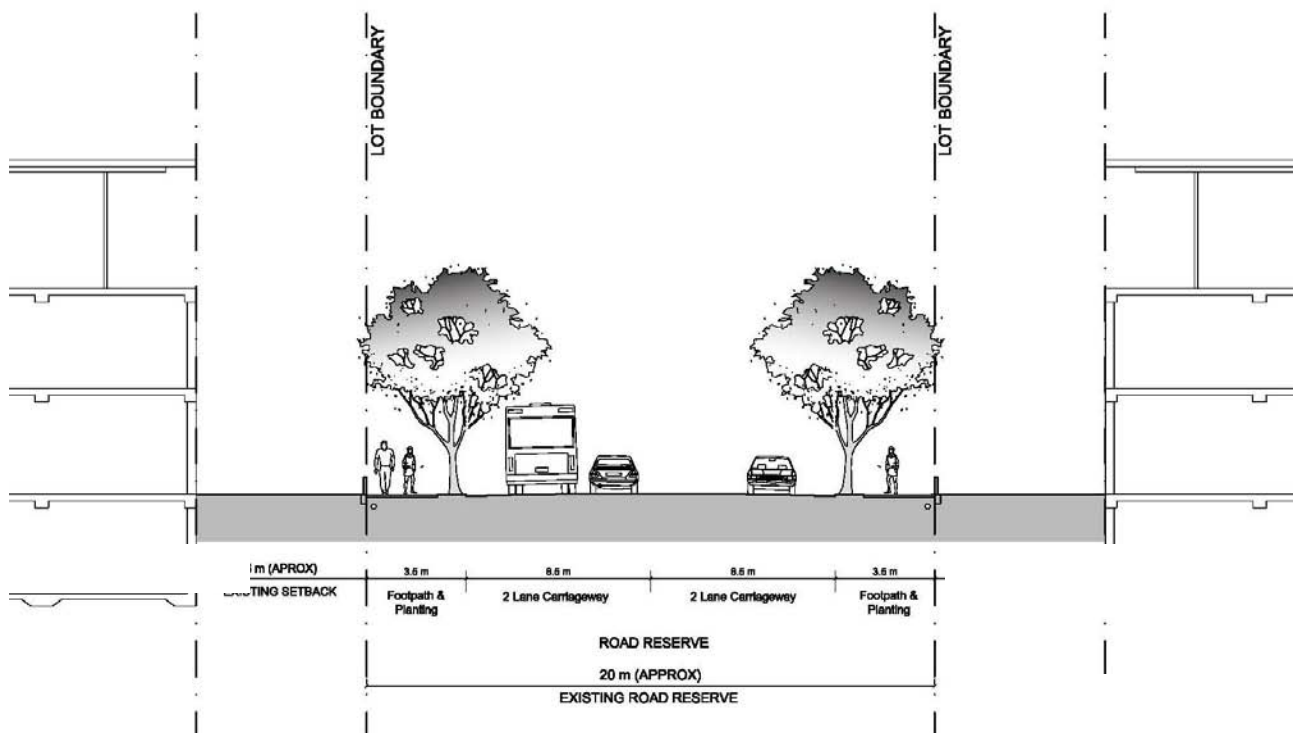


Figure 3-7: Edmondson Avenue design – Austral Neighbourhood Centre

4 Site Specific Controls

4.1 Development near or on gas easements

Objectives

- a. To ensure that development on or near gas easements considers potential impacts on the integrity and safety of the gas pipeline.
- b. To ensure reasonable standards of residential amenity and a high quality residential environment in the vicinity of gas easements.
- c. To minimise risks to property and people associated with gas pipelines.

Controls

1. The locations of roads in the vicinity of gas easements are to be consistent with the Indicative Layout Plan and the arrangement of development, including the subdivision pattern, location of dwellings and vehicular access is to be consistent with **Figure 4-1**.
2. Dwellings are to be oriented towards public roads and the gas easement.
3. Within the Environmental Living zone, the easement may be located in backyards or at the side of dwellings, where the location of the easement relative to existing or proposed roads prevents orientation of dwellings towards the easement, providing access to the easement for inspections and maintenance is not unduly restricted.
4. Garages and driveways are not to cross or be located within the easement. Where residential blocks are located within the easement, vehicle access to these properties is to be from the rear (i.e. the east side of the block).
5. Development and use of land within the easement is restricted by the conditions of the easement and applicants should demonstrate compliance with any restrictions imposed by the easement when submitting applications for development.
6. The following development within the easement must be referred to Jemena for approval prior to any works being completed, and evidence of Jemena's agreement must be submitted with the development application:
 - Excavation, blasting or other earthworks.
 - Any improvements or installations (eg. buildings, fencing or other structures).
 - Transport or parking of heavy vehicles.
 - Planting or cultivating trees within five metres of the pipeline
7. Fencing within the easement is not permitted.
8. Reference should be made to AS2885 in relation to sensitive land uses that may be restricted within a certain distance (referred to as the Zone of Influence) of the gas pipeline. Sensitive land uses

include (but are not limited to) schools, hospitals, aged care facilities, child care centres, and community facilities. Applicants should consult with the organisation responsible for the gas pipeline to determine specific requirements.

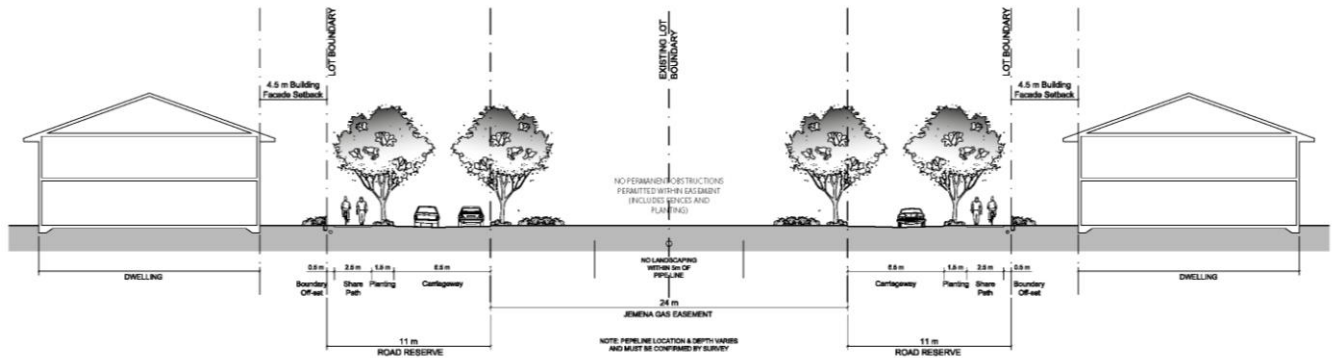


Figure 4-1: Preferred layout of development on land affected by gas easements

4.2 Development near or on electricity easements

Objectives

- a. To ensure that development on or near electricity easements considers potential impacts on the integrity and safety of electricity infrastructure.
- b. To ensure reasonable standards of residential amenity and a high quality residential environment in the vicinity of electricity easements.

Controls

1. Within land zoned R2 Low Density Residential or R3 Medium Density Residential, public roads are to be located adjacent to electricity easements.
2. The road verge may encroach into the easement, however, the carriageway should be located outside the easement except where roads cross the easement.
3. The layout of residential development adjacent to electricity easements is to be consistent with **Figure 4-2** and **Figure 4-3**, as applicable to the proposed development.
4. Council may consider accepting dedication of land within easements where the subdivision is in accordance with the Indicative Layout Plan.
5. In the E4 Environmental Living zone:
 - Dwellings and other buildings are to be located outside the easement.
 - The easement can be located in the rear yard.
 - Subdivision of land containing easements is to be minimised.
 - Battleaxe lots may be appropriate in some locations to maximise the development potential of land while avoiding impacts on the easement.

6. All proposed activities within electricity easements require approval from the relevant electricity infrastructure agency (TransGrid or Endeavour Energy). Applicants should consult with these agencies and obtain the relevant approvals prior to submitting a development application to Council. Evidence of approval is to be submitted with the development application.
7. Any proposed ground level changes and or road crossing within the easement may require the transmission line to be reconstructed or modified to provide the required clearance. All costs associated with any reconstruction or modifications are the responsibility of the applicant.
8. Where land is zoned for industrial purposes and is affected by an easement, the design of the proposed development should seek to maximise use of the easement land for purposes such as parking or storage, where those uses are consistent the requirements of Endeavour Energy.

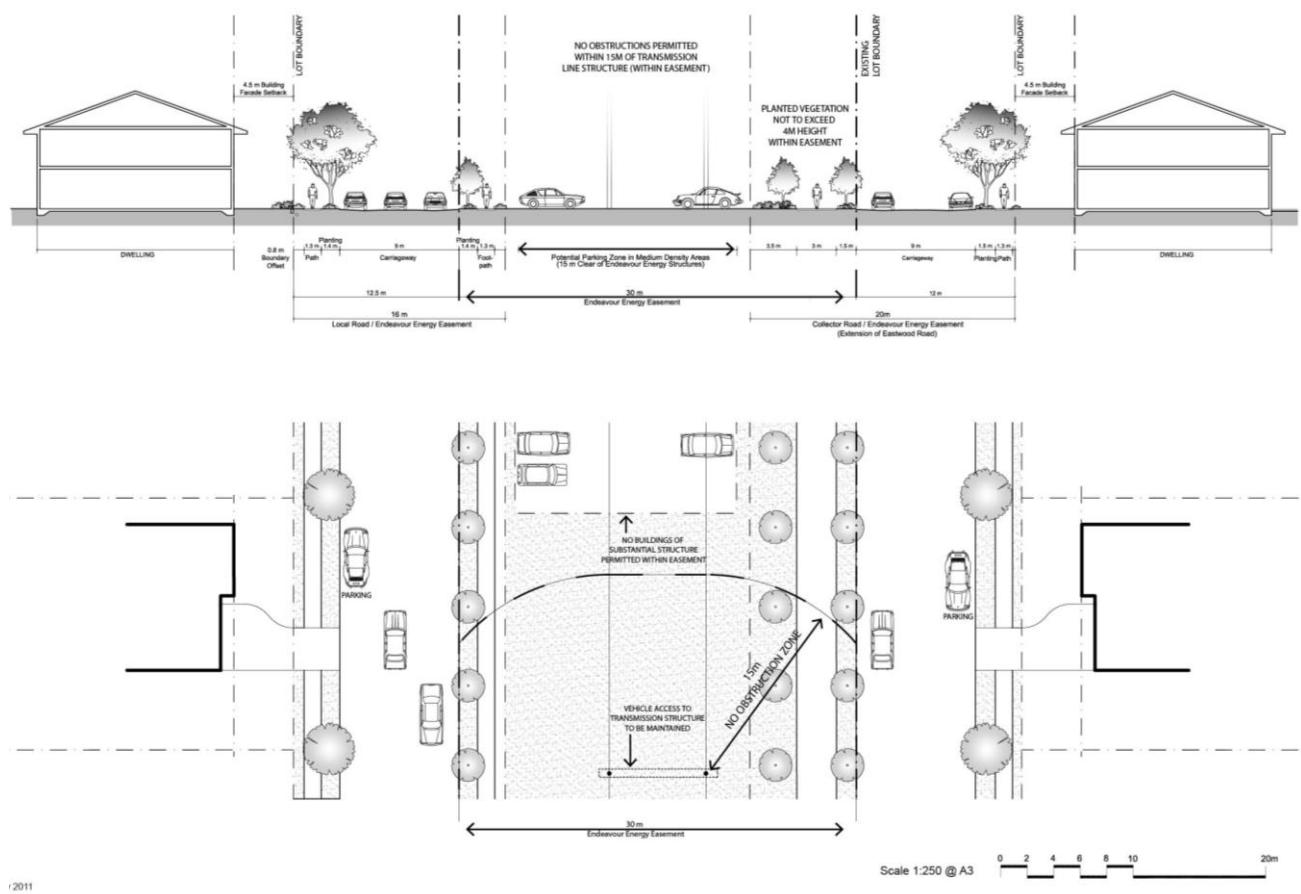


Figure 4-2: Preferred layout of development on land affected by Endeavour Energy electricity easement

6. Dwellings and other buildings are not to be located within land affected by the Environmental Protection Overlay, shown on the Indicative Layout Plan.
7. Applications for new residential development or subdivision within the Environmental Living zone are to include landscaping plans and a vegetation management plan demonstrating how native vegetation is to be protected, rehabilitated and/or restored as part of the development. Landscaping is to consist of predominantly native (preferably native to the local area) species.
8. Applicants are to demonstrate compliance with the requirements of Planning for Bushfire Protection where new development is proposed within the Environmental Living zone. The application is to consider protection from bushfire hazards relating to remnant vegetation and to vegetation that is proposed to be planted on the property or on adjoining properties.

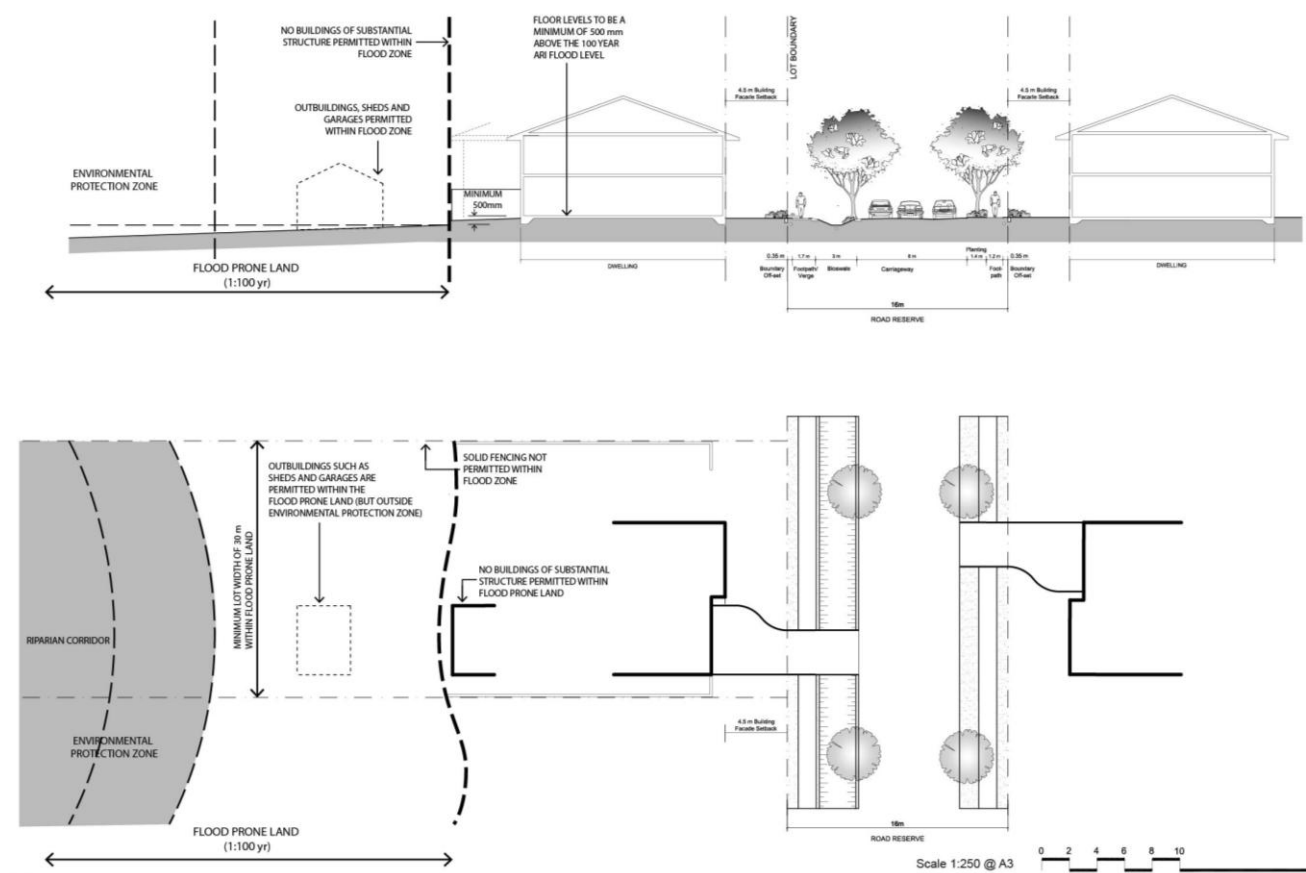


Figure 4-4: Preferred layout of development in Environmental Living zone affected by flooding

4.4 Land adjacent to the Sydney Catchment Authority Upper Canal

Objectives

- a. To ensure that the Upper Canal is taken into account in siting, designing and constructing any proposed development adjoining or in the vicinity of the Canal.
- b. To ensure that development adjacent to the Upper Canal corridor does not impact on the continued operation of the Canal infrastructure.
- c. To provide for the safety and amenity of the public living or visiting areas adjacent to the Upper Canal.
- d. To protect water quality by preventing stormwater or other pollutants entering the Upper Canal system.

Note: The Upper Canal is owned and managed by the Sydney Catchment Authority and is located on land classified as a controlled area under the Sydney Water Catchment Management Act 1998. The Canal begins at Pheasants Nest Weir on the Nepean River and transfers water from the Upper Nepean dams to the Prospect Water Filtration Plant to supply a significant part of Sydney's drinking water. The Upper Canal is historically significant having functioned as part of Sydney's main water supply system for more than 120 years and is listed on the State Heritage Register. The Upper Canal corridor is also an aesthetically significant landscape element within the Greater Sydney Metropolitan region

Controls

1. Where subdivision or development (other than residential accommodation) is proposed adjacent to the Upper Canal corridor, applicants shall consult with the Sydney Catchment Authority (SCA) as part of the process of preparing the development application. Any written requirements of the SCA shall be submitted with the DA and the DA documentation shall show how the requirements have been addressed.
2. A local road shall be provided, or existing roads retained, between development and the Upper Canal corridor. The road shall contain a landscaped verge between the road carriageway and Canal corridor. A footpath is not required to be constructed on the Canal side road verge as part of subdivision of adjoining land.
3. Road, pedestrian and cycleway crossings of the Upper Canal shall be minimized and located and designed in accordance with SCA requirements.
4. Earthworks (excavation or filling) and landscaping works carried out adjacent to or crossing the Upper Canal shall avoid damage to the Canal infrastructure in accordance with SCA requirements.
5. Appropriate fencing shall be provided, or existing fencing retained along the length of development boundaries that directly adjoin the Upper Canal corridor boundary, in accordance with SCA requirements.
6. Prior written approval shall be obtained from the SCA for any access that may be required to the Upper Canal corridor during the construction phase. .

7. Access points to the Upper Canal for SCA staff and contractors to carry out inspections and maintenance shall be retained or provided in accordance with SCA requirements.
8. Stormwater systems serving development adjacent to the Upper Canal shall be designed to ensure that stormwater does not enter the Canal. Stormwater management measures shall accommodate and not impede upstream flows from any systems that convey stormwater across, along or under the Upper Canal.

Note: Applicants are advised to refer to the SCA publication “Development Adjoining Sydney Catchment Authority Controlled Areas – Information for Consent and Determining Authorities and Proponents” when preparing development applications for land adjacent to the Upper Canal.

4.5 Land adjacent to the Western Sydney Parklands

Objectives

Controls

1. On land adjacent to the Western Sydney Parklands dwellings are to be oriented to face the Parklands and to provide for passive surveillance of the Parklands.
2. All residential lots are to be separated from the Parklands by a public road.
3. Where land is visible from the Western Sydney Parklands, dwellings are to be located away from high points to maximise preservation of the rural and bushland character of the locality. Dwellings and associated landscaping are to be positioned and designed so that, when landscaping is mature, the height of buildings does not exceed the height of the tree line.
4. Dwellings, other buildings or structures, and driveways are to be positioned to maximise the retention of existing trees on the property. Trees located on ridgelines or high points are to be retained and protected unless they are environmental weeds.
5. A landscape plan is to be submitted with every application for a new dwelling, alterations and additions to existing dwellings, or subdivision. The landscaping plan is to indicate:
 - Existing trees to be retained and removed, including justification for removal of trees.
 - Proposed landscaping including paved and soft areas, proposed planting arrangements and species.
 - Analysis of views to and from the Parklands and an assessment of the impacts of the development (including the proposed landscaping) on those views.

Schedule 2

Leppington Major Centre

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1 Introduction

1.1 Name and application of this Schedule

This Schedule forms part of the Liverpool Growth Centre Precincts Development Control Plan (also referred to as the DCP).

This Schedule applies to all development on the land within the Leppington Major Centre Boundary on **Figure 1-11-1**. This schedule and related amendments to the DCP give effect to the provisions of the DCP for land within the Leppington Major Centre as shown on the Land Application Map.

Notes:

The Leppington Major Centre is within the Leppington North Precinct. The Leppington North Precinct, and the Leppington Major Centre, is partly within Camden Local Government Area and partly within Liverpool Local Government Area. Separate DCPs apply for each Local Government Area.

Schedule 1 – Austral and Leppington North Precincts, provides specific controls for development within those Precincts, including lands that are within Leppington Major Centre. Applicants proposing development in the Leppington Major Centre should also refer to Schedule 1 to identify any controls in that Schedule which are also relevant to the proposed development.

1.2 Structure of this Schedule

This Schedule should be read in conjunction with the main body of the DCP, and Schedule 1, and is in addition to those parts of the DCP. In the event of an inconsistency between this Schedule and the main body of this DCP, this Schedule takes precedence. **Table 1-1** summarises the structure of this Schedule.

Table 1-1: Structure of this Schedule

Part	Summary
1 – Introduction	Identifies the land to which the Schedule applies.
2 – Town Centre vision and planning principles	Establishes an overall vision and planning principles to guide the ongoing development of the Leppington Major Centre.
3 – Town Centre Structure	Includes the Indicative layout Plan which shows the proposed future layout of the Major Centre. Establishes a hierarchy of streets within the Major Centre, and the function of each street type. Identifies key access routes for vehicles (cars and delivery vehicles), pedestrians, cyclists and public transport.
4 – Public Domain Controls	Provides specific objectives and controls that apply to the public areas of the Leppington Major Centre, including streets and laneways, plazas, squares and public open space.
5 – Building Controls	Controls to achieve a built form that is consistent with the town centre vision and planning principles. Controls relate to building heights, bulk and scale, and the positioning of buildings on the site, including setbacks, façade design, and energy efficiency.

Additional notes to readers are provided throughout this document. These notes are not part of the formal provisions of the DCP, but are intended to provide additional guidance and explanation of the provisions. If further guidance is required on the interpretation of provisions in the DCP, readers should refer to the definitions or contact Council for advice.

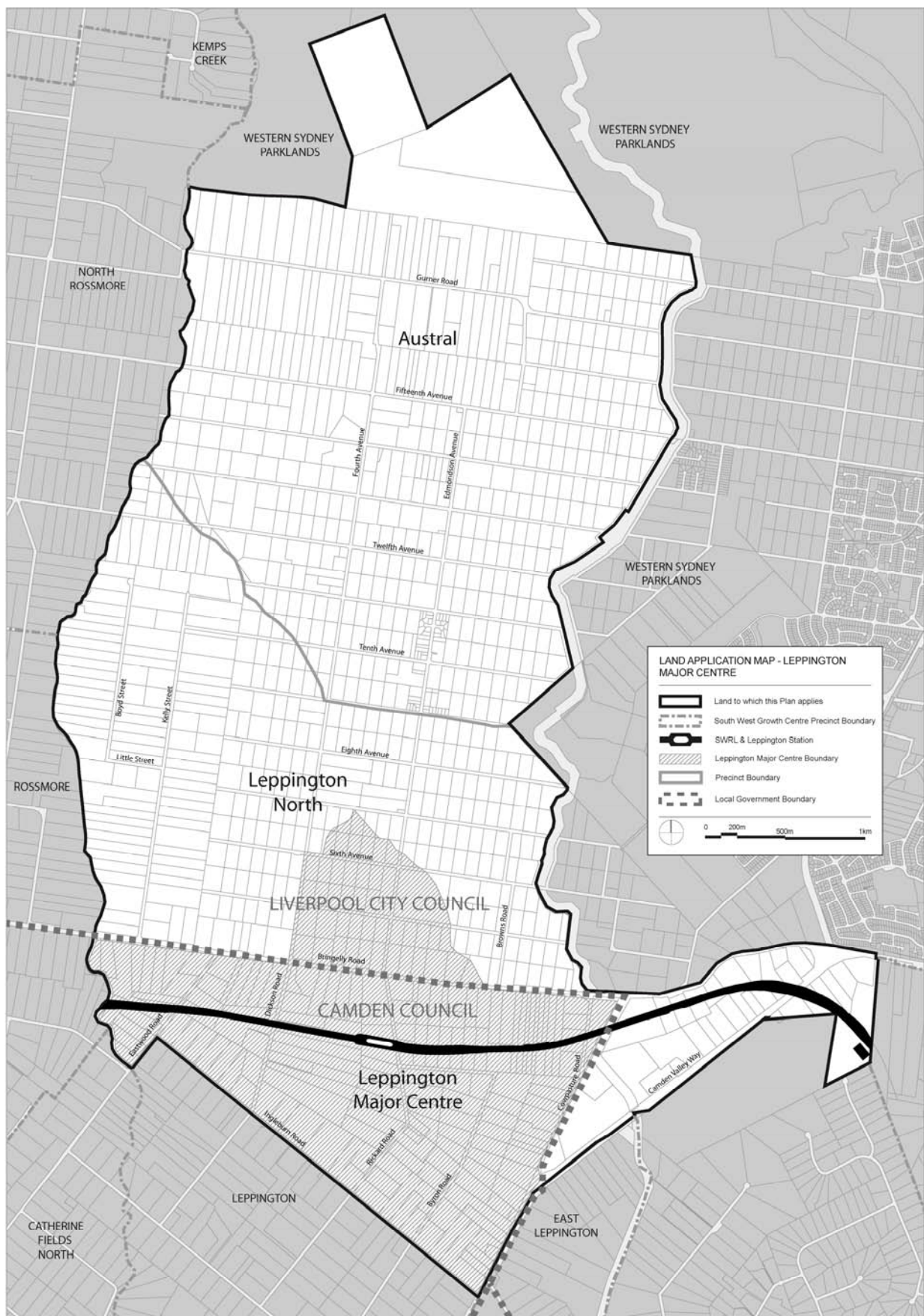


Figure 1-1: Land Application Map

2 Leppington Major Centre Vision and Planning Principles

2.1 Leppington Major Centre vision

Leppington Major Centre will be the primary focus for employment, retailing, entertainment and community services in the South West Growth Centre. It will grow progressively to become a Major Centre, consistent with the centre typology established by the Metropolitan Plan for Sydney 2036. The centre will be a destination for all residents in the South West Growth Centre, providing higher order services and facilities in addition to those found in local centres and neighbourhood centres.

Leppington Major Centre will be focused on the Leppington train station and an attractive public domain comprising a network of active streets, parks and plazas. Development will activate and enliven the public domain by encouraging the use of outdoor spaces for movement, recreation and socialisation.

The train station will provide both access to the centre, reinforcing its role as a regional employment hub, and from the South West Growth Centre to the rest of Metropolitan Sydney. An integrated road network, which builds on the existing roads and respects historic road alignments, will provide access for buses, cars, pedestrians and cyclists to the Major Centre.

Within the centre, the road network will create public spaces that are attractive to pedestrians and cyclists, while other roads will ensure good access to the centre for vehicles. Rickard Road will be the main transit boulevard: the key public transport, pedestrian and cyclist route to and from the centre and Leppington Station. The Main Street will be the focus of activity within the retail core and linking to the civic precinct north of the station. The Main Street will be activated by a high quality public domain and by development providing an active frontage to the street. The town centre streets will extend the network of active, pedestrian friendly streets throughout the centre. Perimeter roads (Eastwood Road, Dickson Road, Ingleburn Road, Byron Road, Camden Valley Way, Bringelly Road and Cowpasture Road) are the main vehicular access routes to and from the centre. Other internal roads and service lanes will provide efficient routes into the centre for cars, deliveries and service vehicles.

The layout of the centre capitalises on the natural features of the site. Public open space takes advantage of Scalabrini Creek and Bonds Creek, which form natural edges to the main commercial areas. The creek lines will serve an important role in drainage and water quality management, and also provide attractive green spaces for recreation and linkages through the centre and to surrounding residential areas. Landscaped streets will link the green spaces at the edges to the core of the centre, and water sensitive urban design measures will be integrated with street design to emphasise connections to the creeks.

A number of plazas, squares and parks will provide places for people to meet and play, and for the community to gather in the centre.

The centre will contain a mix of land uses to encourage vibrancy and to create a wide range of employment opportunities. The major land uses are clustered in sectors around Leppington Station:

- A retail core south of Leppington Station, with opportunities for mixed use development at the fringes integrating with the Scalabrini Creek parkland corridor.
- A civic precinct north of Leppington Station with education, cultural, recreation and human services for residents of the Growth Centre, in a vibrant mixed use area that connects Bringelly Road, the train station, Rickard Road and Scalabrini Creek.
- East of Rickard Road, a business park will create significant employment opportunities with commercial offices potentially associated with related uses such as warehousing or other low impact industries. The business park will be a major regional employment destination for the South West Sub-region.
- Bulky goods retailing and other related retail activities will take advantage of the high visibility of major roads including Bringelly Road and Cowpasture Road.
- Medium density residential development will be located within a number of pockets around the centre, within a 10 minute walk of Leppington Station.
- A light industrial precinct west of Dickson Road will provide significant employment opportunities and contain low impact industrial activities that meet the needs of the surrounding residential population.

The masterplan caters for long term growth, and because the major centre will develop over many years, planning controls are intentionally flexible to enable development to respond to dynamic market influences. The structural elements of the masterplan (the road network, open space network and general arrangement of land uses) are critical to creating a cohesive, functional and attractive centre. This DCP focuses on ensuring that development in the centre, at all stages of its growth, is consistent with the ultimate structure and function of the Leppington Major Centre.

2.2 Planning Principles

Note: Part 5 of the DCP contains principles for town centres generally, which also apply to the Leppington Major Centre. The principles that follow should be read in conjunction with the principles in Part 5.

2.2.1 Land use

1. A wide range of commercial, retail, community services, educational, light industrial, entertainment and recreational opportunities are available in Leppington Major Centre.
2. Opportunities for residential development exist within medium density residential areas and mixed use areas within or near the centre and within walking distance of Leppington Station.
3. Related land uses take advantage of opportunities to locate near each other to maximise access to services and the efficient provision and use of ancillary functions such as car parking.
4. The mix of land uses within the centre creates high levels of activity, and a vibrant, attractive centre.
5. The scale, intensity and function of land uses reinforces Leppington's role as a Major Centre and draws people to the centre from across the South West Growth Centre.
6. Land uses take advantage of public transport provision and the major road network, both of which make Leppington a preferred location for major employment generating land uses.
7. Development responds to existing patterns of subdivision and land ownership to make efficient use of land as the centre progressively develops.
8. Development will increase in intensity and scale, and a number of major stages in growth of the centre will occur over a period of 20-30 years.
9. At each stage in the development of the major centre, land uses and the form of development will be consistent with the vision for the major centre.

2.2.2 Transport and access

1. A hierarchy of streets creates clearly legible routes for pedestrians, cyclists, public transport, cars and service vehicles to access and circulate within the centre.
2. The function of each street type is clearly defined, including the relative priority that is given to different modes of transport for each street type.
3. Streets are designed and constructed to minimum standards that will facilitate the establishment of a high quality streetscape and provide sufficient capacity for pedestrians, cyclists and vehicles to move throughout the centre.
4. Streets are safe, attractive and interesting elements of the public domain.
5. The South West Rail Link is a key transport connection to Metropolitan Sydney from the South West Growth Centre, and an important connection to Leppington Major Centre, particularly for workers in

the centre. Access to and from Leppington Station, particularly for pedestrians, cyclists and buses is a critical element of the town centre road network.

6. All streets within the centre are characterised by low traffic speeds, with an emphasis on pedestrian amenity and safety.
7. Rickard Road is the main focus of activity within the centre, and is a low speed traffic environment that gives priority to buses, pedestrians and cyclists. It is the primary access route to the transport interchange and Leppington Station.
8. The Main Street is the focus of activity in the retail core of the centre. Retail, commercial and residential development activate the street, along with pedestrians, cyclists, cars and buses.
9. Bringelly Road, Ingleburn Road, Dickson Road and Byron Road are the primary access routes to the centre for cars and service vehicles.
10. Eastwood Road and Cowpasture Road support the primary access routes providing secondary access to the peripheral areas of the town centre from surrounding areas.
11. Town Centre Streets are active and pedestrian friendly, and have capacity for buses to circulate within the centre. They provide important vehicle access routes into the retail and commercial developments. Subject to demand, Town Centre Streets may have active ground floor frontages.
12. Service Lanes provide direct vehicle access to internal car parks and loading bays. They also cater for pedestrian through site links, but do not necessarily support active frontages.
13. Pedestrian Through-Site Links are pedestrian only connections at mid-block locations, to improve pedestrian permeability within the centre, and to connect and activate squares and plazas.

2.2.3 Public domain

1. The public domain comprises a network of streets, plazas, and public open space that are accessible at all times of the day, connect places within the centre and provide a consistent, high quality character and amenity that defines the Leppington Major Centre.
2. Elements of the public domain may be constructed by Council or other parties but are designed and constructed to consistent standards to unify development across the town centre.
3. Landscaping of streets, parks and plazas enhances the quality of the public domain, provides protection from the sun, and links the natural features of the town centre with the urban areas.
4. Materials and finishes are consistent for elements such as paving, street furniture, lighting, and elements that link the public and private domains such as building facades and awnings.
5. The design of streets reinforces their role in the road hierarchy and provides a safe, attractive and legible network for cars, pedestrians, cyclists and public transport.
6. Green links along Scalabrini Creek and Bonds Creek create an interface between the urban, built up parts of the centre and the natural features which contribute positively to the identity of the centre.

7. Landscaped streets connect green spaces with the urban plazas and squares that provide a focus for activity within the built up parts of the centre.
8. The orientation of streets takes advantage of and emphasises views to local features particularly Scalabrini Creek and Bonds Creek.
9. Streets and pedestrian through site links terminate at or link public parks, plazas and squares.
10. Plazas or squares are integrated with adjoining buildings and create opportunities for people to congregate within the centre.
11. Elements of water cycle management are integrated with the street network and public spaces to capitalise on the contribution of water to the amenity and character of the centre.
12. The design of the public domain achieves energy efficiency.

2.2.4 Built form

1. The design, orientation, size and bulk of buildings compliment the public domain.
2. Building heights emphasise the natural features of the Major Centre, including ridgelines and creek corridors.
3. The location and orientation of buildings takes advantage of and emphasises views to local and more distant features, including views to Scalabrini Creek, Bonds Creek and more distant views to the Blue Mountains.
4. The built form contributes to a legible town centre by highlighting key destinations and creating landmarks.
5. Building orientation, building heights and the design of building facades enhance safety and amenity in the public domain, including streets, parks, plazas and the creek corridors.
6. Taller buildings are clustered along Rickard Road and near Leppington Station.
7. The bulk of taller buildings is minimised by a fine grained road network and by limiting the floorplate of taller building elements.
8. Mid-block pedestrian or vehicle links are encouraged to improve pedestrian circulation and to reduce the horizontal bulk of buildings.
9. Along Rickard Road, the Main Street and Town Centre Streets, and fronting public squares and plazas, buildings are built to the front property boundary to define the public domain and assist the transition between private and public areas.
10. Ancillary activities such as parking, loading and service areas are visually screened from the public domain, are orientated towards and gain access from, Town Centre Streets or Service Lanes.
11. Buildings are orientated to take advantage of solar access and provide protection from prevailing winds both for building occupants and in the public domain.

12. The design and construction of buildings maximises energy efficiency, minimises water use and maximises water re-use, and considers the embodied energy of materials used in construction.
13. Development in the vicinity of listed heritage items respects and responds to the heritage significance of those items.

3 Town Centre Structure

3.1 Indicative Layout Plan

Objectives

- a. To enable development to occur within Leppington Major Centre in accordance with the Indicative Layout Plan.

Controls

1. Development within the Leppington Major Centre is to be generally in accordance with the Indicative Layout Plan at **Figure 3-13-1**.

3.2 Public Domain

Objectives

- a. To establish a structure for the public domain that connects and integrates development within the Leppington Major Centre.
- b. To ensure that elements of the public domain are designed and constructed to appropriate standards, and that satisfactory arrangements are in place for the ongoing management and maintenance of the public domain either by Council or land owners.

Controls

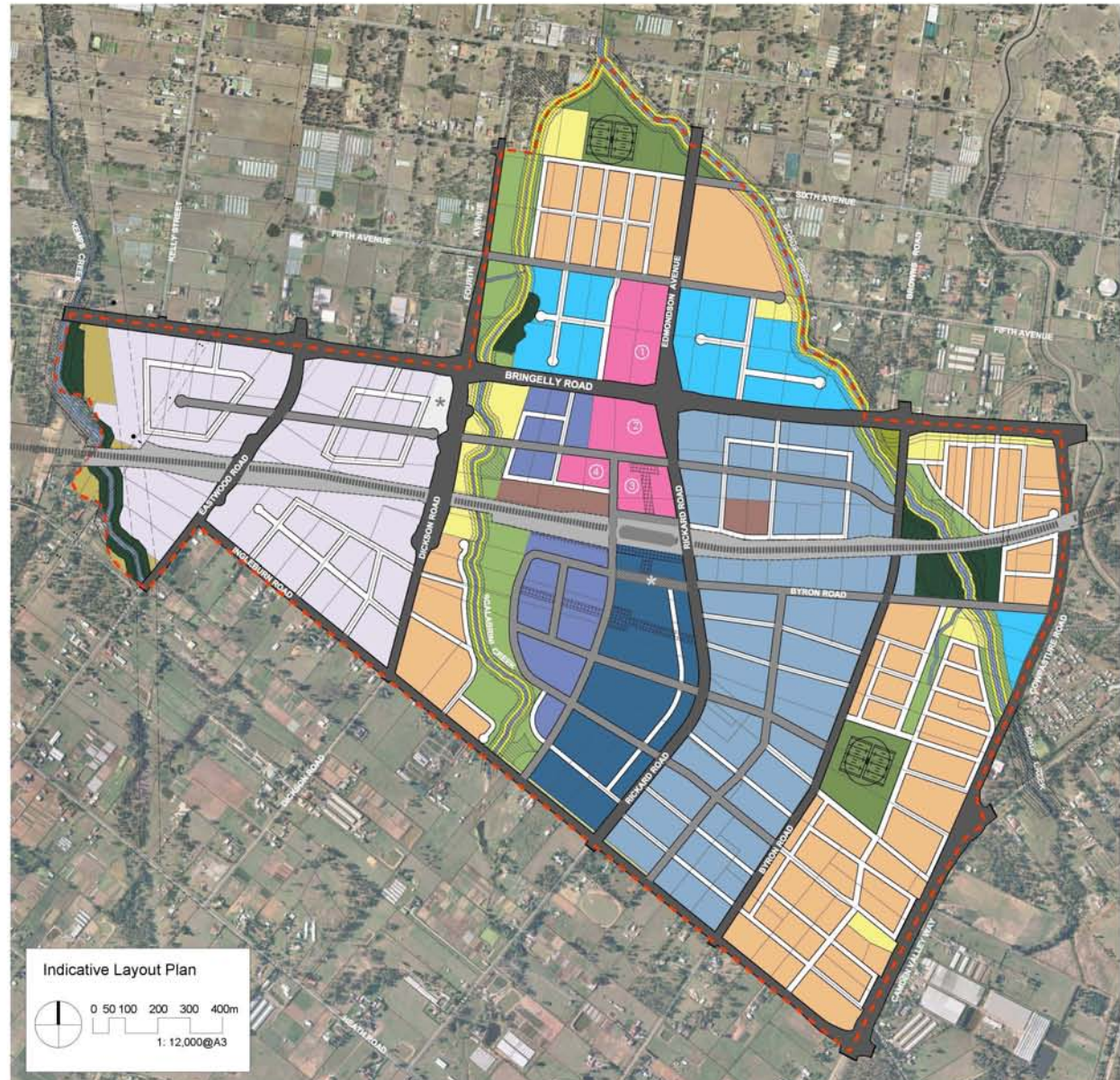
1. Elements of the public domain include:
 - Streets
 - Pedestrian through-site links
 - Public parks and drainage land
 - Plazas
2. Public domain elements are to be located as shown on the Indicative Layout Plan.
3. Elements of the public domain that are zoned RE1 Public Recreation or SP2 Infrastructure can be delivered by Council, or may be constructed in accordance with this DCP by another party and dedicated to Council, subject to the agreement of Council.
4. Elements of the public domain that are zoned for purposes other than those listed in Control 3 above are the responsibility of the applicant, and details of the proposed design, construction and operational management of public domain elements are to be included in Development Applications.

Note: Council may accept dedication of public domain elements such as plazas and squares subject to certain conditions. However, Council may require that these elements remain in private ownership and are maintained and managed by the land owner to appropriate standards. Applicants are encouraged to

incorporate these elements of the public domain in development proposals in the Leppington Major Centre, and these proposals should be discussed with Council prior to submission of an Application.

5. Access is to be available to the public domain at all times of the day and night.

- LEGEND**
- Site Boundary
 - Existing Creeks
 - Environmental Protection Overlay
 - Light Industrial
 - Civic Precinct : 1 - Indicative Aquatic/Indoor Recreation Location
2 - Indicative TAFE Site
3 - Indicative Cultural/Community Centre Location
4 - Indicative Health Facility Location
 - Mixed Use
 - Commercial / Business Park
 - Bulky Goods Retail
 - Retail Core
 - Medium Density Residential
 - Rural Transition
 - Passive Open Space
 - Private Open Space
 - Active Open Space
 - Environmental Conservation
 - Drainage
 - Bus Interchange
 - Commuter Carpark
 - Indicative Substation Site
 - Major Roads
 - Primary Roads
 - Road Subject to Flood Plain Filling Assessment
 - Rail Corridor And Leppington Station
 - Transmission Easement
 - Plaza / Pedestrian Link



Leppington Town Centre Masterplan
CM⁺ Conybeare Morrison
 Client: Department of Planning & Infrastructure
 10027-SK60 Rev 7 June 2012

Figure 3-1: Indicative Layout Plan

3.3 Road hierarchy and circulation

Objectives

- a. To ensure that the development of the Leppington Major Centre is based on a coordinated, integrated hierarchy of streets that connects places within the centre and to the road network beyond the centre;
- b. To encourage walking, cycling and public transport as the dominant transport modes within the centre, while recognising the importance of private vehicles and service vehicles to the viability and functionality of the centre;
- c. To ensure that the function of streets provides for all modes of transport, and that conflicts between pedestrians, cyclists, buses, cars and service vehicles are minimised;

Controls

1. The locations of streets are to be as shown on the Indicative Layout Plan.
2. The hierarchy of streets within the centre is shown on **Figure 3-23-2**. Streets are to be designed and constructed in accordance with this hierarchy and with **clause 4.1** of this Schedule.

Note: typical cross sections for sub-arterial roads, local residential streets and residential collector roads are specified in clause 3.2.3 of the main body of this DCP. Streets of these types as shown on **Figure 3-23-2** are required to be designed in accordance with those requirements where they are within land zoned primarily for residential purposes, or are roads that are identified as sub-arterial roads.

3. Modifications to the street network will be considered by Council only where the proposed street network:
 - Achieves the same outcomes in terms of traffic circulation;
 - Maintains the hierarchy of streets within the centre and opportunities for active street frontages to be created on the Main Street and Town Centre Streets;
 - Enables efficient and safe pedestrian and cyclist movement around the town centre;
 - Provides efficient access for cars to car parks and service vehicles to loading docks;
 - Is consistent with requirements for bus access in and around the centre and to the Leppington Transport Interchange;
 - Enables appropriate management of stormwater including connections to trunk stormwater basins shown on the Indicative Layout Plan;
 - Does not unreasonably impact on the ability of adjoining land owners to develop their land in accordance with the Indicative Layout Plan;
 - Is consistent with the Planning Principles in **clause 2.2** of this Schedule.
4. Additional mid-block streets (eg. Service Lanes) or Pedestrian Through-Site Links may be proposed where the additional street or link:

- Improves pedestrian movement or the circulation of traffic within the centre;
 - Improves access to development for loading and service vehicles or for access to internal car parks;
 - Integrates with the modified grid network of streets in the centre as shown on the Indicative Layout Plan;
 - Meets relevant road safety requirements for intersection locations and road geometry;
 - Is publicly accessible at all times;
 - Does not significantly reduce the amount of pedestrian and vehicular activity on the Main Street or Town Centre Streets so as to jeopardise the creation of vibrant and active public spaces and the viability of businesses;
 - Is constructed to withstand vehicular traffic for emergency and event access.
5. Traffic management measures are to be utilised within and surrounding the Major Centre to produce a low speed pedestrian friendly traffic environment, particularly on the Main Street and Town Centre Streets. Traffic management devices are to be identified at the time of DA submission.
 6. Principles of CPTED (Crime Prevention through Environmental Design) are to be incorporated in the design of the street network.
 7. Pedestrian and cycle links are to be provided along the streets in the major centre and in other areas of the public domain, as shown on **Figure 3-33-3**.
 8. Streets and pathway networks are to be designed to ensure that walking and cycling take priority over traffic circulation.

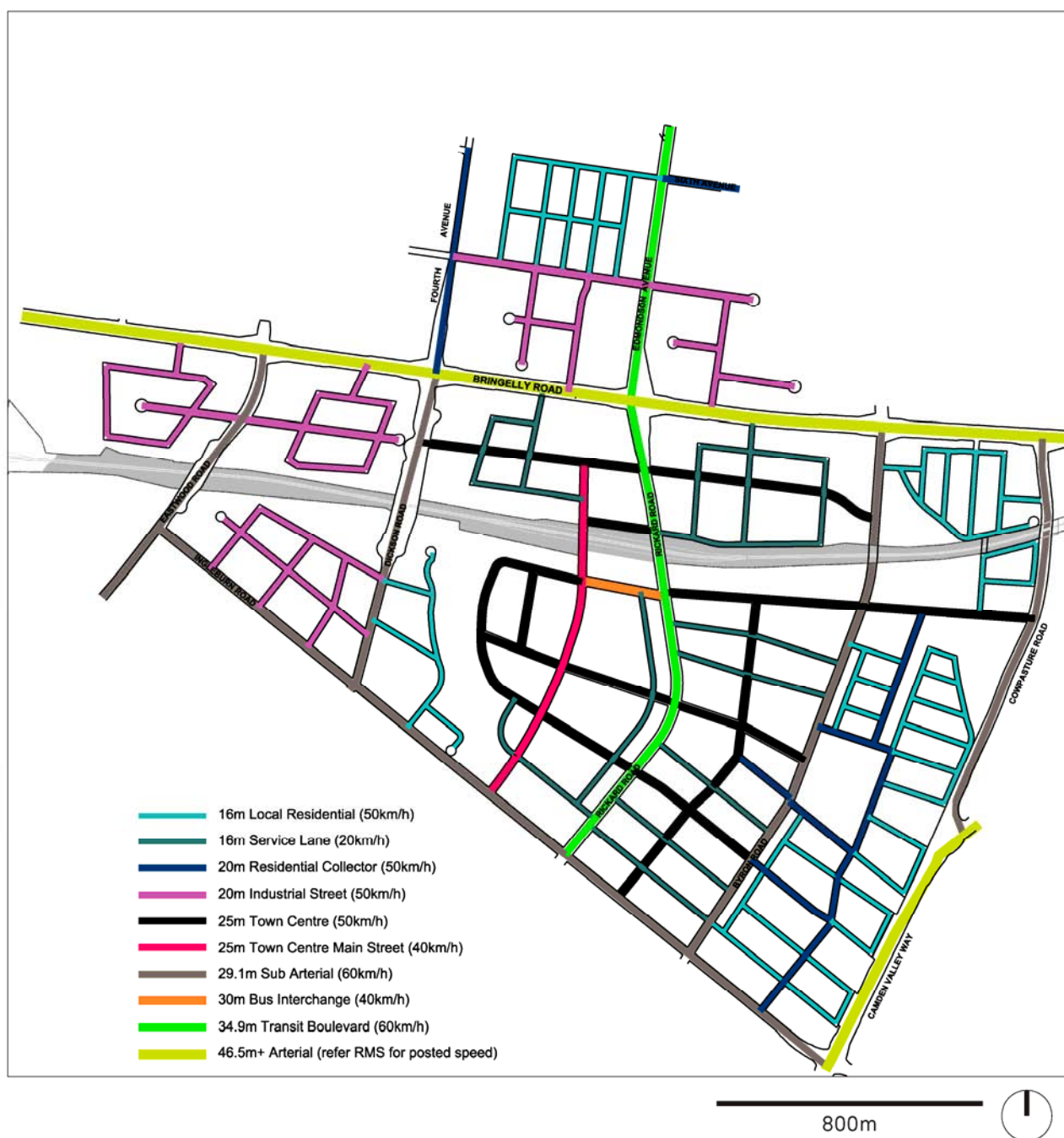


Figure 3-2: Leppington Major Centre road hierarchy

Note: The speeds specified in the figure above are indicative design speeds. Posted speeds will not exceed these speeds and in some cases may be lower to achieve safety and amenity objectives for the Leppington Major Centre.

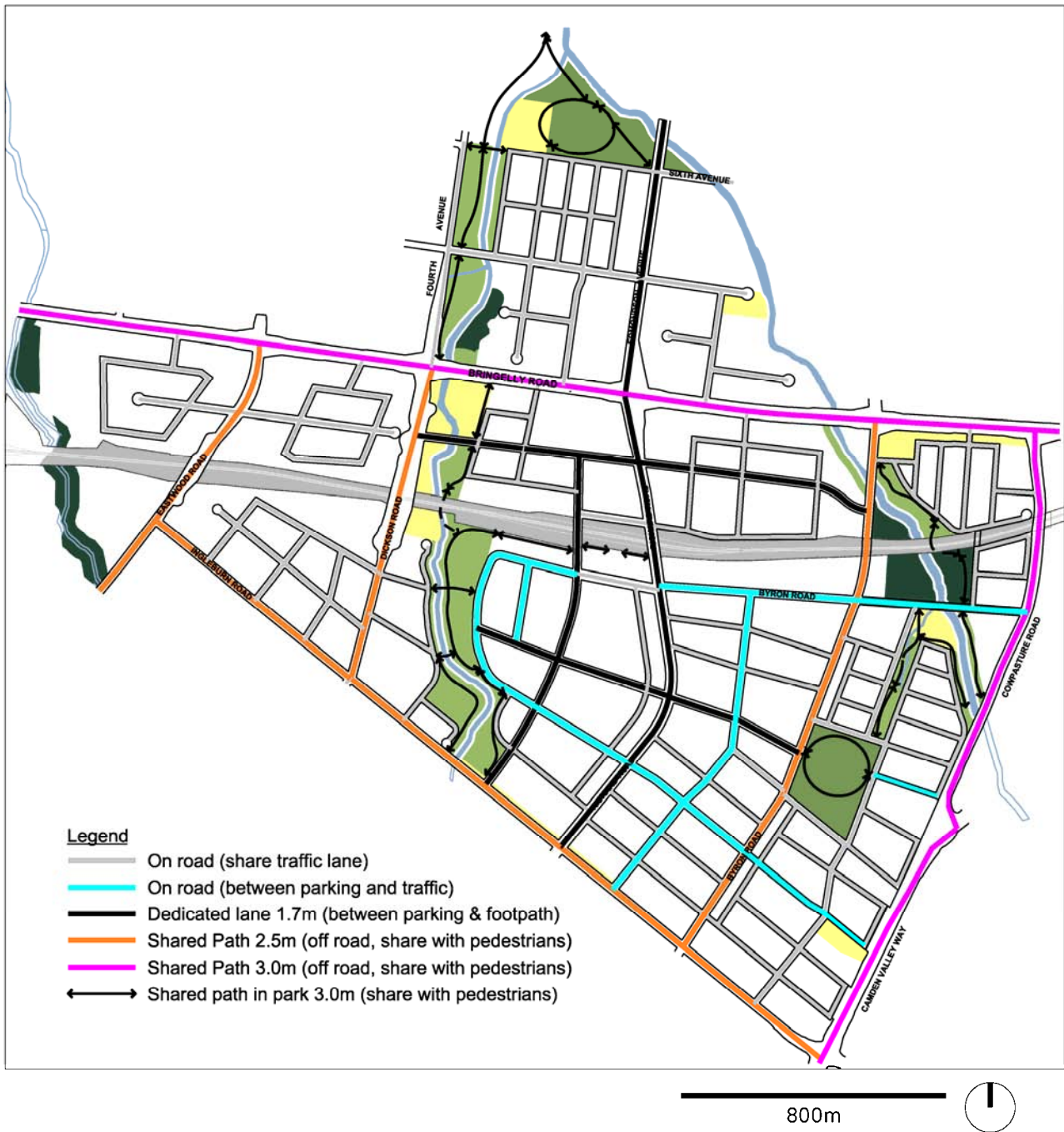


Figure 3-3: Pedestrian and cycle routes

4 Public Domain Controls

4.1 Materials

Objectives

- a. To ensure that, as the Major Centre develops, consistent materials and finishes are used throughout the public domain.
- b. For the public domain within the Major Centre to unify the character and amenity of the centre.
- c. To ensure that materials are durable, easy to maintain and attractive.

Controls

1. Leppington Major Centre will have a unified and integrated character through consistent materials, details, finishes and treatments.
2. Materials used in the public domain are to be consistent with **Table 4-1** and demonstrate implementation of the materials selection principles below.
3. Criteria for the selection and use of materials, elements and finishes within the public domain of the Major Centre are:
 - design – items are to be functional and meet the needs of the Major Centre;
 - aesthetics – items are to relate to the scale, style and character of the Major Centre;
 - availability and ongoing supply – selection of items such as furniture and pavements e.g. should have a long term view of availability and supply for replacement parts and servicing;
 - cost – items are to be affordable and within the means of ongoing the Major Centre public domain managers;
 - maintenance – items must be easily maintained and not have onerous demanding ongoing maintenance requirements
 - life span / longevity – items selected should be looking at as long a lifespan as feasible to ensure the Major Centre public domain managers are not incurred with expensive recurrent replacement costs;
 - workability – items should be chosen for their simplicity;
 - sustainability – ESD principles of each item selected should be reviewed prior to final selection;
 - accessibility – all items must conform to the *Australian Disability Discrimination Act 1992* and relevant Australian Standards;
 - vandal resistance – all items must be implemented with view to reducing vandalism and a suitable repair programme in place;

- safety - items must conform to relevant codes and Australian Standards.
- Engineering Standards - items must comply with Council's Engineering Specifications

Table 4-1: Materials guidelines for the public domain

Item	Element	Guideline
Concrete Insitu	Joints	Expansion and control joints to align with building and alternative path edges where possible. Trip stops or equivalent to be used near trees - refer to Council's Engineering Specifications.
	Base Course	Compaction and material to be determined by consent authority - refer to Council's Engineering Specifications.
	Finish	Streets Even textured slip resistant surface to finish level Class B. Perpendicular Broom Finish with steel trowel margins
	Colour	Main path colour to be standard grey concrete. Feature concrete areas to be determined by consent authority. Dark tones can be used to create contrast with the main concrete colour, but limit area of coverage to reduce heat absorption.
	Hazard and Directional Tactile Indicators	Stainless Steel studs or product determined by consent authority. Provide 45% luminance contrast in accordance with (AS1428.4)
	Testing/Slip Resistance	Slip resistance test results required on sample installation.
	Maintenance/Cleaning	High pressure hosing / street sweeper. Maintenance program to be determined by consent authority.
Unit Pavers	Unit Size	To be determined by consent authority. Typically 400x400mm in stretcher bond pattern
	Base Course	Concrete slab support base approved by consent authority - refer to Council's Engineering Specifications. Pavers mortared onto concrete base
	Joints/Sealants	Expansion and control joints to align with building and alternative path edges where possible. To be determined by consent authority (Australian Standards) Pavers to be sealed in accordance with consent authority (AS)
	Finish	Streets/Pathways: semi-honed.
	Colour	To be determined by consent authority. Mid-tones are preferred to reduce glare and minimise heat absorption.
	Hazard and Directional Tactile Indicators	Stainless Steel studs or product determined by consent authority. Provide 45% luminance contrast in accordance with (AS1428.4)
	Testing/Slip Resistance	Slip resistant test results on loose tile samples with sealer and a sample installation.
	Maintenance/Cleaning	Sealant applied in outdoor dining areas High pressure hosing / street sweeper cleaning.

Item	Element	Guideline
		Maintenance program to be determined by consent authority.
	Tree Pit Edging	Steel edging to be installed tree pit perimeter edges to contain pavers. Steel edging to be secured to support concrete slab subbase.
Lighting	Lighting Levels	Streets/Road Reserves: P1 - P5 Pathways (Including Cycleways): P1 - P4 Public Activity Areas and Open Space (Excluding Car Parks): P6-P8 Connecting Elements (Steps, Stairways, Ramps, Footbridges, Pedestrian ways): P9-P10 Outdoor Carparks: P11 - P12
	Poles	Unpainted Proprietary Banner mounting system for Main Street Height of luminaires mounting determined by lighting engineer
	Luminaries	Luminaries to be consistent with lighting levels and Light spill requirements. To be determined by consent authority (AS)
	Light Spill	Lighting not to spill into residential areas. Lighting to focus on Street and Pedestrian pavements. To be determined by consent authority (AS)
	Catenary Lighting	Catenary lighting can be used in Town Square. To be determined by consent authority (AS)
Furniture	Bollards	Bollards to be used to control where maintenance vehicle access is required into pedestrian plaza areas Removable bollards required in emergency access and maintenance access areas. Bollards to be of consistent design.
	Barriers	Fence/Balustrade Structural Designated fencing to be provided along high level road medians and street edges to discourage pedestrian road crossing. Custom or proprietary fencing design to be determined by consent authority. Planting Designated hedge planting installed at medium level road edges and road medians to discourage pedestrian road crossing.
	Rubbish Bins	Rubbish Bins to be provided at pedestrian nodes, including crossing points. All rubbish bins to be of consistent design. Recycling Rubbish Bins to be provided in pedestrian gathering areas. Bin selection should consider bird/animal protection. Rubbish Bins and rubbish removal maintenance schedules to be determined by consent authority.
	Bench Seating/Feature Seating	Bench seating to be provided at regular intervals in the Town Centre Streets. Timber slat seating and backrest supports preferred. Custom bespoke seating can be considered in the Town Square.
	Bicycle Racks	Provide bicycle racks on hardstand areas only. Locate clear of pedestrian thoroughfares. Surface mounted, with tamper-proof fixings.
	Bicycle Rails	Locate in accordance with Austroads Part 14 – Bicycles. To be fabricated in accordance with Camden Council Standard Pathway Rails SD06.
	Drinking Fountains	Drinking fountains to be universally accessible. Locate clear of pedestrian thoroughfares.

Item	Element	Guideline
		Drinking fountain to be surface mounted.
	Shelters	Shelters and shade structures are to be: provided in open space areas and riparian corridors where sufficient immediate shade or weather protection is not available or where a sense of enclosure is considered desirable; provided over table and bench settings and table seats where weather protection is desirable; sited so that roof water is shed into garden areas; installed on hard wearing surface; surface mounted, with tamper-proof fixings; installed level, not at grade with pavement.
	Viewing Platforms	Boardwalks and Viewing Platforms maybe used to: provide access over spillways or viewing opportunities over water bodies; provide recreational or interpretational opportunities in riparian corridors or wetland areas; installed on hard wearing surface; surface mounted, with tamper-proof fixings; installed level, not at grade with adjacent surface.
	Tables	provided in association with benches in open space areas. installed on hard wearing surface. surface mounted, with anti-vandal fixings. installed level, not at grade with pavement.
	Handrails and balustrades	Handrails and balustrades to be in accordance with BCA and AS 1428.
Street Trees	Tree Guards	Tree Guards to be installed in major pedestrian gathering intersections. To be consistent design along street. To be determined by consent authority. Root guards to be installed.
	Tree Pits	Pit Covers Pit covers to be consistent along street and be flush with adjacent paving. To be determined by consent authority. Edging Steel edging required for trees in Unit Paving and Asphalt
Playgrounds	Playing Surface	High use areas (eg. District Playground) Rubber softfall to Australian Standards Low use areas (eg. Local Playground) Bark mulch to Australian Standards
	Playground Equipment	Refer Landcom Open Space Design Guidelines (2008), p25-26.
Exercise stations	Exercise Equipment	Exercise equipment to cater for a range of age groups. Provide proprietary items to Australian Standards installed to manufacturer's recommendations.
Tactile indicators	Pedestrian walkways	Provide tactile indicators on pedestrian crossing points as required by the consent authority. Consider other users impeded by tactile indicators such as wheelchairs and prams. Coordinate locations with pavement layout.

4.2 Landscaping

Objectives

- a. To ensure that, as the Major Centre develops, species selection and landscape design adopt consistent themes.
- b. For the public domain within the Major Centre to unify the character and amenity of the centre.
- c. To ensure that species are appropriate to the environment of the Major Centre and contribute to the amenity and comfort of people in the Major Centre.

Controls

1. Leppington Major Centre will have a unified and integrated character through a consistency of species selection and landscaping design in the public domain.
2. Plant species are to be selected predominantly from the lists in the tables that follow, noting that recommended species are suitable for different parts of the public domain, including streets, plazas and squares and open space.
3. In Riparian Protection Areas (shown on the Riparian Protection Areas Map under the Growth Centres SEPP) plant selection should be locally indigenous and typical of species that naturally occur along watercourses on the Cumberland Plan. **Table 4-5** provides guidance on appropriate species.
4. Qualified Ecologists should also assist in any planting selection for rehabilitation, revegetation or restoration works within Riparian Protection Areas.

Table 4-2: Preferred tree species for streets, plazas and squares

Species Name	Common Name	Height	Width	Native
Acer palmatum 'Senkaki'	Coral Bark Maple	4m	3m	
Acer rubrum '	October Glory' Red Maple	9m	7m	
Acmena smithii 'Red Head'	Red Head Acmena	6m	2m	yes
Agonis flexuosa	Willow Myrtle	8m	4m	yes
Angophora costata Dwarf 'Darni'	Dwarf Angophora	4m	2m	yes
Bauhinia hookeri	Mountain Ebony	10m	5m	yes
Brachychiton populneus	Kurrajong	8m	5m	yes
Brachychiton rupestris	Bottle Tree	8m	5m	yes
Cercis canadensis 'Forest Pansy'	Canadian Redbud	2m	3m	
Cercis chinensis 'Avondale'	Chinese Redbud	12m	4m	

Species Name	Common Name	Height	Width	Native
<i>Cercis occidentalis</i>	Californian Redbud	5m	2m	
<i>Cercis siliquastrum</i>	Judas Tree	15m	5m	
<i>Cereus grandiflorus</i>	Night Blooming Cereus	5m	2m	
<i>Ceretopetalum gummiferum</i>	NSW Xmas Bush	6m	3m	yes
<i>Cupaniopsis anarcardiodes</i>	Tuckeroo	7m	3m	yes
<i>Elaeocarpus reticulatus</i>	Blue Berry Ash	8m	4m	yes
Eucalyptus: Dwarf grafted varieties only	Eg - 'Summer Red', 'Orange Beauty', 'Wild Fire'	3m aprx		yes
<i>Fraxinus griffithii</i>	Evergreen Ash	6m	4m	
<i>Fraxinus oxycarpia</i>	Raywood varieties	10m	5m	
<i>Ginkgo biloba</i> 'Princeton Sentry'	Tall Narrow Ginkgo	10m	3m	
<i>Gordonia axillaris</i>	Poached Egg Camellia	7m	3m	
<i>Hymenosporum flavum</i>	Native Frangipani	7m	3m	yes
<i>Jacaranda mimosifolia</i>	Blue Haze Tree	15m	10m	
<i>Jubaea chilensis</i>	Chilean Wine Palm	8m	4m	
Species Name	Common Name	Height	Width	Native
<i>Juniperus chinensis</i> 'Keteleeri'	Corkscrew conifer	4m	3m	
<i>Juniperus chinensis</i> 'Spartan'	Spartan conifer	4m	2.5m	
<i>Koelreuteria paniculata</i>	Golden Rain Tree	5m	3m	
<i>Lagerstroemia species</i>	Crepe Myrtle	4m	3m	
<i>Laurus nobilis</i>	Bay Laurel	6m	3m	
<i>Leptospermum species</i>	tea tree species	3m	3m	yes
<i>Lirodendron tulipefera fastigiatum</i>	Tulip tree	12m	5m	
<i>Lophostemon confertus</i>	Brisbane Brush Box	9m	6m	yes
<i>Magnolia grandifolia</i> 'Exmouth'	Magnolia 'Exmouth'	7m	3m	
<i>Magnolia grandiflora</i> 'Little Gem'	Magnolia 'Little Gem'	4m	2m	
<i>Magnolia grandifolia</i> 'Kay Parris'	Dwarf Perfumed Magnolia	4m	2m	
<i>Magnolia x soulangeana</i>	Tulip Magnolia	7m	4m	
<i>Magnolia soulangiana</i>	Saucer Flower	6m	6m	

Species Name	Common Name	Height	Width	Native
Melaleuca styphelioides	Prickly Paperbark	6m	4m	yes
Melaleuca decora	White Cloud Tree	5m	2m	yes
Melaleuca linariifolia	Snow In Summer	6m	4m	yes
Nyssa sylvatica 'Autumn Cascade'	Weeping Blackgum	4m	3m	
Nyssa sylvatica	Black Tupelo	15m	6m	
Parrotia persica	Persian Witch Hazel	9m	3m	
Pistacia chinensis	Pistacia Nut Tree	13m	4m	
Prunus varieties	Flowering cherry s	4m	3m	
Malus varieties	Flowering apple	4m	3m	
Pyrus varieties	Flowering pear	6m	4m	
Pyrus calleryana 'Aristocrat'	Flowering Pear	6m	3m	
Pyrus calleryana 'Chanticleer'	Flowering Pear	9m	4m	
Species Name	Common Name	Height	Width	Native
Pyrus calleryana 'Bradford'	Bradford Pear	6m	3m	
Pyrus calleryana 'Edgedell'	Edgedell Pear	5m	3m	
Pyrus calleryana 'Glens Form'	Flowering Pear	8m	4m	
Pyrus calleryana 'Capital'	Flowering Pear	8m	4m	
Pyrus betulaefolia 'Southworth Dancer'	Flowering Pear	5m	4m	
Sapium sebiferum	Chinese Tallowwood	7m	3m	
Quercus palustris 'Pringreen'	Tall Narrow Oak	10m	3m	
Syzygium australe 'Pinnacle'	Narrow Syzygium	6m	2m	yes
Syzygium paniculatum	Brush Cherry	10m	4m	yes
Tristanopsis laurina 'Luscious'	Water Gum	7m	3m	yes
Zelkova serrata	Zelkova	10m	4m	
Zelkova serrata 'Green Vase'	Wine Glass tree	10m	4m	
Zelkova serrata 'Mushashino'	Narrow Zelkova	8m	3m	

Table 4-3: Preferred tree species for parks and larger plazas

Species Name	Common Name	Height	Width	Native
Angophora costata	Sydney Red Gum	30m	10m	yes
Angophora floribunda	Rough Barked Apple	20m	6m	yes
Angophora subvelutina	Broad Leaf Apple	18m	6m	yes
Araucaria araucana	Monkey Puzzle Tree	35m	8m	yes
Araucaria bidwilli	Bunya Bunya Pine	40m	10m	yes
Araucaria cunninghamii	Hoop Pine	45m	6m	yes
Brachychiton acerifolius	Illawarra Flame Tree	30m	6m	yes
Brachychiton discolour	Lacebark Kurragong	30m	6m	yes
Caloedendron capense	Cape Chestnut	15m	8m	
Carya illinoensis	Pecan	30m	10m	
Cedrus atlantica	Atlas Cedar	30m	8m	
Cedrus deodara	Deodar Cedar	30m	6m	
Cupressus funebris	Funeral Cypress	20m	5m	
Eucalyptus amplifolia	Cabbage Gum	30m	5m	yes
Eucalyptus bauerana	Blue Box	25m	4m	yes
Eucalyptus benthamii	Camden White Gum	35m	8m	yes
Eucalyptus crebra	Narrow Leaf Red Iron Bark	30m	8m	yes
Eucalyptus fibrosa	Broad Leaf Red Iron Bark	30m	8m	yes
Eucalyptus tereticornis	Forest Red Gum	40m	8m	yes
Eucalyptus viminalis	Manna Ribbon Gum	50m	8m	yes
Ficus macrophylla	Moreton Bay Fig	30m	8m	yes
Ficus rubiginosa	Port Jackson Fig	18m	6m	yes
Flindersia australis	Australian Teak	25m	5m	yes
Ginkgo biloba	Maidenhair Tree	30m	8m	
Jacaranda mimosifolia	Blue Haze Tree	15m	10m	
Liriodendron tulipifera	Tulip Tree	40m	8m	
Livistona australis	Cabbage Palm	20m	2m	yes

Species Name	Common Name	Height	Width	Native
Macadamia integrifolia	Macadamia Nut Tree	15m	5m	yes
Magnolia grandifolia	Bull Bay Tree	18m	8m	
Magnolia denudata	Yulan Tree	18m	8m	
Phoenix canariensis	Canary Island Date Palm	15m	5m	
Pinus pinea	Italian Stone Pine	25m	4m	
Podocarpus elatus	Illawarra Pine	25m	8m	yes
Quercus coccinea	Scarlet Oak	15m	3m	
Quercus palustris	Pin Oak	25m	5m	
Quercus robur	English Oak	30m	6m	
Schinus areira	Peppercorn Tree	17m	5m	
Syzygium luehmannii	Small Leaf Water Gum	20m	8m	yes
Ulmus parvifolia	Chinese Elm	12m	5m	
Zelkova serrata	Zelkova	12m	4m	
Washington robusta	Mexican Fan Palm	25m	3m	

Table 4-4: Preferred mid-storey and under-storey species

SHRUBS:	CLIMBERS:	GROUND COVERS & SUB SHRUBS:
Acmena varieties	Clematis aristate	Acacia cognate 'Mini Cog'
Banksia varieties	Gelsemium sempervirens	Anigozanthos "Bush Gems - varieties, eg Bush Haze, Bush Ranger
Bauhinia galpini	Jasminum spp.	Dianella caerulea
Brunfelsia - grandifolia/ maliformis/pauciflora varieties	Hardenbergia violacea	Dichondra repens
Callistemon varieties	Kennedia rubicunda	Convolvulus mauritanicus
Cordyline fruticosa 'Kiwi'	Mandevilla spp	Goodenia hederacea
Crinum pedunculatum	Pandorea jasminoides	Hardenbergia violacea
Dodonaea	Trachelospermum jasminoides	Kniphofia "Maid of Orleans"
Doryanthes excelsa	NATIVE HERBS:	Melaleuca pentagona 'Little Penta'
Eucalyptus: dwarf grafted varieties.	Dianella spp	Myoporum spp
Gordonia axillaris	Eremophila debilis (syn. Myoporum debile)	Myoporum parvifolium
Grevillea varieties	Lomandra spp (eg Tanika or Nyalla)	Myoporum montanum
Erica varieties	Plectranthus parvifolius	Plectranthus parvifolius
Eremophila varieties	Pennisetum alopecuroides	Rhodanthe anthemoides
Ixora chinensis (Prince of Orange)	Scaevola albida	Scaevola aemula
Kunzea varieties	NATIVE GRASSES:	Sedum sempervirens
Indigofera australis	Carex appressa	HEDGES:
Leptospermum species	Danthonia racemosa	Brunfelsia varieties
Loropetalum chinensis	Dianella varieties Imperata cylindrical	Buxus varieties
Magnolia grandifolia 'Little Gem'	Lomandra varieties incl 'Tanika' 'Nyalla' etc	Loropetalum chinensis varieties
Magnolia stellata (Star Magnolia)	Sorghum leiocladum	Michelia varieties
Melaleuca 'Revolution Gold'	Themeda australis	Murraya varieties
Michelia figo (Port Wine Magnolia)		Photonia x fraseri 'Little Red Robin'
Myoporum montanum		Viburnum varieties eg odoralissimum
Photonia 'Red Robin' and other smaller growth Photonia.		
Viburnum varieties, eg odoralissimum		
Syzygium varieties.		

Table 4-5: Species for riparian protection areas

(a) Littoral Species (littoral means the foreshores, riverbanks and the plants of that habitat).	
Species Name	Common Name
Baumea articulata	
Bolboschoenus fluviatilis	
Carex appressa	Tall Sedge
Cyperus exaltatus	
Gahnia sieberiana	Red Fruited Saw Sedge
Isolepis nodosa	Knobby Club Rush
Juncus usitatus	Common Rush
Philydrum lanuginosum	
Potamogeton tricarinatus	
(b) Macrophyte Species (Macrophyte means the conspicuous plants that dominate wetlands, shallow lakes and streams)	
Species Name	Common Name
Baumea articulata	Jointed Twig Rush
Bolboschoenus fluviatus	Marsh Club Rush
Carex appressa	Ephemeral Marsh
Cyperus exaltatus	
Eleocharis sphacelata	Tall Spike Rush
Juncus usitatus	
Phragmites australis	Common Reed
Potamogeton tricarinatus	
Philydrum lanuginosum	

4.3 Street design

Objectives

- a. To establish design standards that correspond with the intended function and character of the different street types in Leppington Major Centre.
- b. To ensure that streets provide appropriate amenity for all users, are safe and are able to be maintained.

Controls

1. Streets that are anticipated to operate as bus routes must be capable of accommodating buses with a minimum vehicle length of 14.5 metres.
2. Materials used in footpaths, landscaped areas and other elements of road verges are to be consistent with this DCP.
3. Materials and finishes, and planting, are to emphasise key elements of the streetscape, such as intersections, pedestrian crossings and major building entries.
4. Residential streets are to be designed in accordance with the controls in Part 3 of the main body of this DCP.
5. Industrial streets are to be designed in accordance with the controls in Part 5 of the main body of this DCP.
6. For local residential streets with on road cycle lane between parking and traffic lane (as shown on **Figure 3-33-3**), the road reserve is to be 18m wide. The additional land area and construction cost (above the cost of constructing a local residential street to the dimensions specified in this DCP) will be funded by Council.

Street landscaping

7. Each Development Application is to include a landscaping plan which demonstrates how the landscaping proposed for the development fits into the overall Public Domain Strategy.
8. The design of streets, including tree planting, and buildings that front them is to consider that:
 - North-south oriented and north-east to south-west oriented streets benefit from solar protection in summer to eastern side of the street.
 - East-west and north-west to south-east oriented streets benefit from solar access in the winter solstice to southern side of the street.
9. Deciduous trees are to be used only where greater solar access in winter is required (eg. on the southern side of east-west oriented streets and the southern and eastern sides of urban plazas).
10. Evergreen trees are to be used for roadside planting (especially sub-arterial and arterial roads).

11. Evergreen trees are to be used where visual-buffers are required (eg. adjacent rail and sub-arterial / arterial roads).
12. Street trees have a shorter lifespan than park trees, and their ongoing maintenance and replacement should be planned to ensure continued canopy cover.
13. Street tree planting need not be symmetrical. Different species can be planted on opposite sides of the street to perform different microclimatic functions.
14. The layout of street tree planting on town centre streets is to be formal with regular spacing and coordinate with regular light-pole locations, street parking, awnings and outdoor seating.
15. The layout of street tree planting on residential and bulky goods / industrial local streets is to be informal to maximise opportunity for planting amongst multiple driveway entrances.
16. The layout of street trees and landscape zones must coordinate required clear-zones from street corners and setbacks from street kerbs.
17. Plant selection is to utilise species listed in **Table 4-2** and take into account the following:
 - Species which complement remnant native vegetation where possible.
 - Potential impacts on road and footpath pavements.
 - Water and maintenance requirements.
 - Scale in relation to the function of the area.
 - Contribution to the character of the local centre.
 - Consistency with solar access and weather protection requirements in this DCP.
 - Impacts on utilities (Power/Gas/Water/Sewer/Cables) and street lights
 - Pruning and shaping resilience
 - Driveways, bus stops, pedestrian crossings and intersections
 - Road verge and nature strip widths
 - Building orientation, uses and setbacks
 - Lateral spreading habits
 - Waste service collections
 - Cultural and heritage amenity.
 - Minimum setbacks from concrete structures.
 - Road Authority requirements for street trees to meet road safety objectives.
18. Tree spacing should generally be:
 - 12-15m on E-W and NW-SE streets to allow greater solar access in winter.

- 10-12m on N-S and NE-SW streets to provide greater protection from summer western sun.
- Sufficient to ensure that tree pits treat stormwater runoff from the road to meet the water quality standards specified in this DCP.

Larger tree canopies may require wider spacing to match canopy width.

19. Taller trees may be appropriate on the southern side of east-west oriented streets and the eastern side of north-south oriented streets to maximise sunlight penetration in winter and shade in summer (to both the street and to building facades).

4.3.1 Rickard Road

Objectives

- a. Rickard Road is to function as a transit boulevard within Leppington Major Centre, with priority to public transport, pedestrians and cyclists and a low speed traffic environment.
- b. To ensure that Rickard Road has an attractive landscape character.
- c. To activate the street with outdoor uses and active building frontages.

Controls

1. The design of Rickard Road is to be as shown on **Figure 4-14-1** and consistent with the controls below.

Quality of Materials	<ul style="list-style-type: none">• Footpath pavement to be consistent material for the full-width.• Pedestrian pavement to be high-quality unit paver or insitu concrete.
Street Trees	<ul style="list-style-type: none">• Provide street trees at regular spacing, coordinate with awnings, outdoor dining, street lights and on-street car park locations.• Large trees preferred on verges to create a tree lined boulevard. Large trees in the median preferred subject to road safety requirements.• Provide frangible street trees in median, regular spaced and offset from footpath trees.• Plant around base of street trees.• For medians less than 4m width (eg at intersections), no planting is permitted and hard surfaces are to be provided.• Provision is to be made for maintenance vehicles to enter the median.
Street Activation	<ul style="list-style-type: none">• Main building entrances should be located on Rickard Road.• Outdoor dining and other activities that activate the street are encouraged adjacent to building entrances and near street corners.• Opportunity to provide outdoor dining in kerb blisters. Minimum clear pedestrian path required. Design to consider barrier treatments to provide separation from traffic lanes and a pleasant environment.• Outdoor dining to be located clear of building frontage to allow way-finding by people who are sight impaired.
Light poles and bus stop coordination	<ul style="list-style-type: none">• Coordinate light pole location with street trees, bus shelters and awnings (refer to Figure 4-24-2).
Mid Block Crossing	<ul style="list-style-type: none">• Not permitted.
Through site link	<ul style="list-style-type: none">• Provide through-site link access to retail areas• Provide additional building setbacks at entrances.
Awnings and weather protection	<ul style="list-style-type: none">• Continuous awnings to be provided for all development.• Supplement weather protection for outdoor dining areas with umbrellas and retractable awnings.
Water Sensitive Urban Design	<ul style="list-style-type: none">• Tree pits are to collect and treat rain water from the road carriageway and downpipes from awnings to meet water quality standards specified in this DCP.

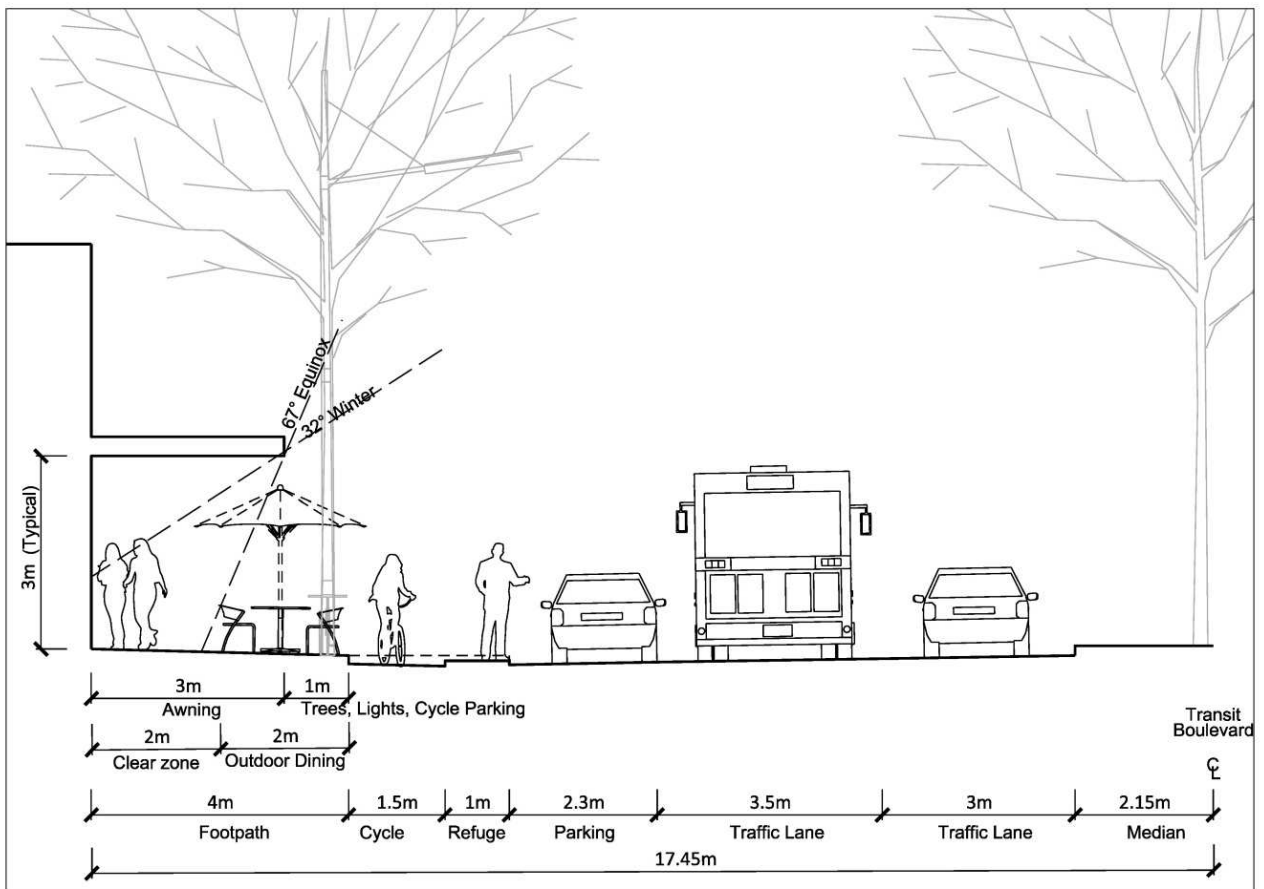
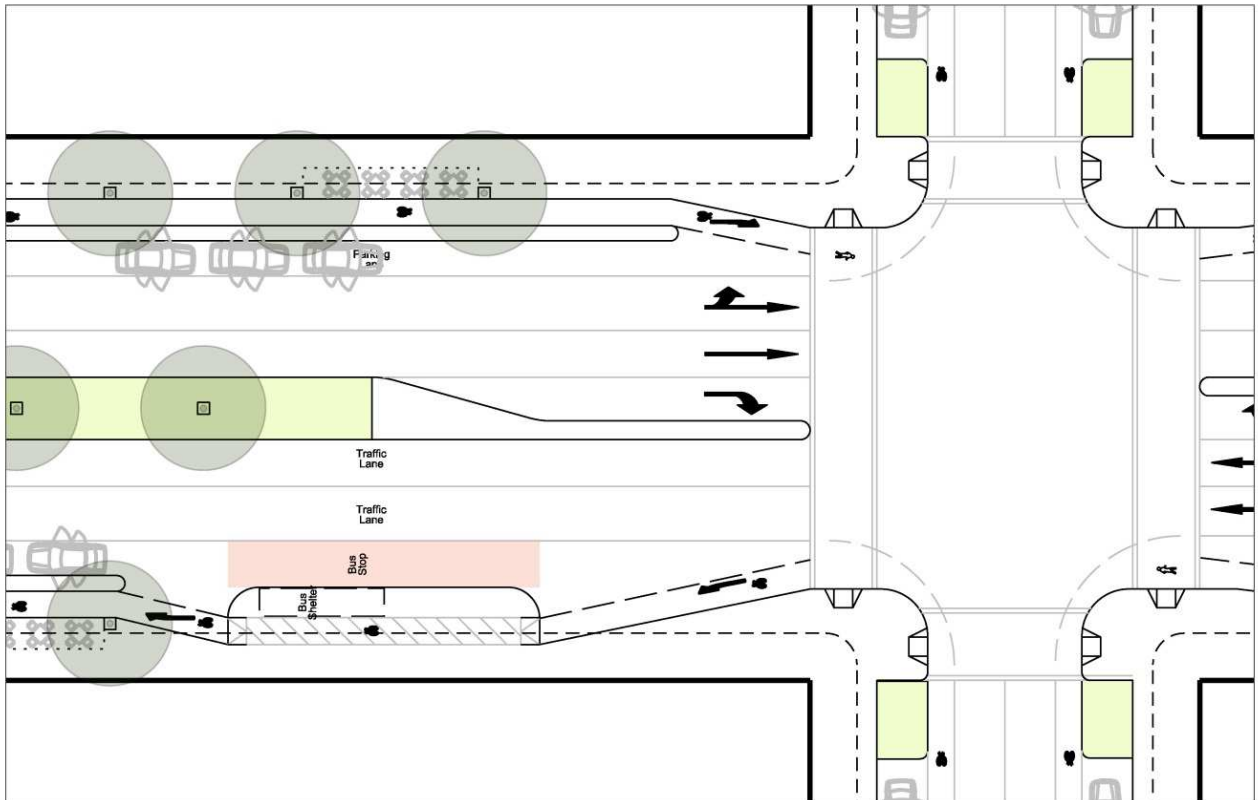


Figure 4-1: Rickard Road typical plan and cross section

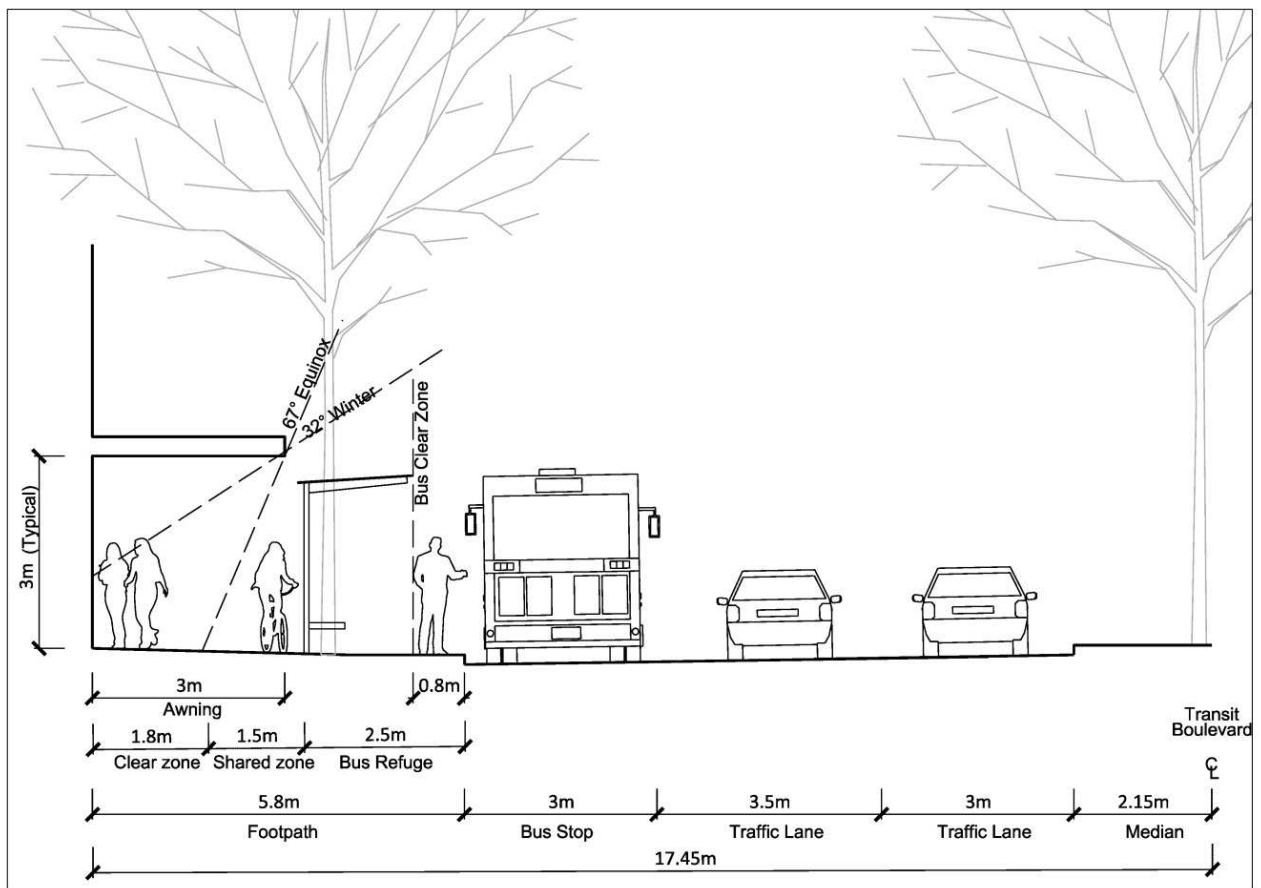


Figure 4-2: Rickard Road cross section at bus stops

4.3.2 Main Street

Objectives

- a. To activate the main street by:
 - fronting specialty retail and other land uses that create activity onto the Main Street.
 - Maximising on street parking and access for cyclists.
 - Creating an attractive pedestrian environment
- b. To ensure that the main street develops as the main focus of activity in the retail core of the Major Centre.

Controls

1. The design of the Main Street is to be as shown on **Figure 4-34-3** and consistent with the controls below.

Quality of Materials	<ul style="list-style-type: none">• Footpath pavement to be consistent material for the full-width.• Pedestrian pavement to be high-quality unit pavers.• Use paving patterns / variety of colours or materials to differentiate outdoor dining areas and entrances to through-site links.
Street Trees	<ul style="list-style-type: none">• Provide street trees at regular spacing, coordinate with awnings, outdoor dining, street lights and street car park locations.• No street trees adjacent bus stops.• Species selection is to be from the species suitable for north-south oriented streets in Appendix A2, and species type is to be consistent for the length of the street. More than one species can be used, particularly to achieve a particular pattern or to achieve appropriate solar access / shade outcomes, but the pattern of species should be replicated for the entire length of the Main Street.
Street Activation	<ul style="list-style-type: none">• Development must present an active frontage to the main street.• Buildings define the street edge (zero setbacks).• Outdoor dining and other activities that activate the street are encouraged.• No outdoor dining / on-street trading adjacent bus stops.• Outdoor dining to be located clear of building frontage to allow way-finding by people who are sight impaired.• Public (unpaid) seating provided near mid-block crossings, and typically 50m spacing therefrom.
Parking and loading	<ul style="list-style-type: none">• No driveway access permitted on the main street.• All off street parking and loading is to be accessed from other streets and service lanes.• The on-street parking lane provides for a range of functions (eg. loading bays, bus stops and turning lanes at intersections if required)• Provide event and emergency vehicle access to the Town Plaza via the mid block crossing using removable bollards.

Light poles and bus stop coordination	<ul style="list-style-type: none"> • Coordinate light pole locations with street trees, bus shelters and awnings. • Ensure light pole design can accommodate a proprietary banner mounting system. • Arrangements for bus stops, the cycle lane, footpaths and road carriageway are to be consistent with Figure 4-44-4.
Intersections and pedestrian crossings	<ul style="list-style-type: none"> • Provide a mid-block crossing centred on the Town Plaza. Consent authority is to determine if the crossing is to be raised. • The design of the crossings should accommodate either raised or flush treatments, and signals if required in the future. • Provide blisters at pedestrian crossings and the mid-block crossing consistent with Figure 4-44-4. • Provide corner blisters at intersections except where dedicated turning lanes are required (Figure 4-54-5) • Provide low-level planting to the mid-block crossing. • Use bollards if crossing is raised.
Through site link	<ul style="list-style-type: none"> • Provide through-site link access to retail areas at the mid-block crossing location. • Provide additional building setbacks at entrances.
Awnings and weather protection	<ul style="list-style-type: none"> • Supplement weather protection for outdoor dining areas with umbrellas and retractable awnings. • Continuous awnings are required for all buildings fronting the main street.
Water Sensitive Urban Design	<ul style="list-style-type: none"> • Tree pits are to collect and treat rain water from the road carriageway and downpipes from awnings to meet water quality standards specified in this DCP.

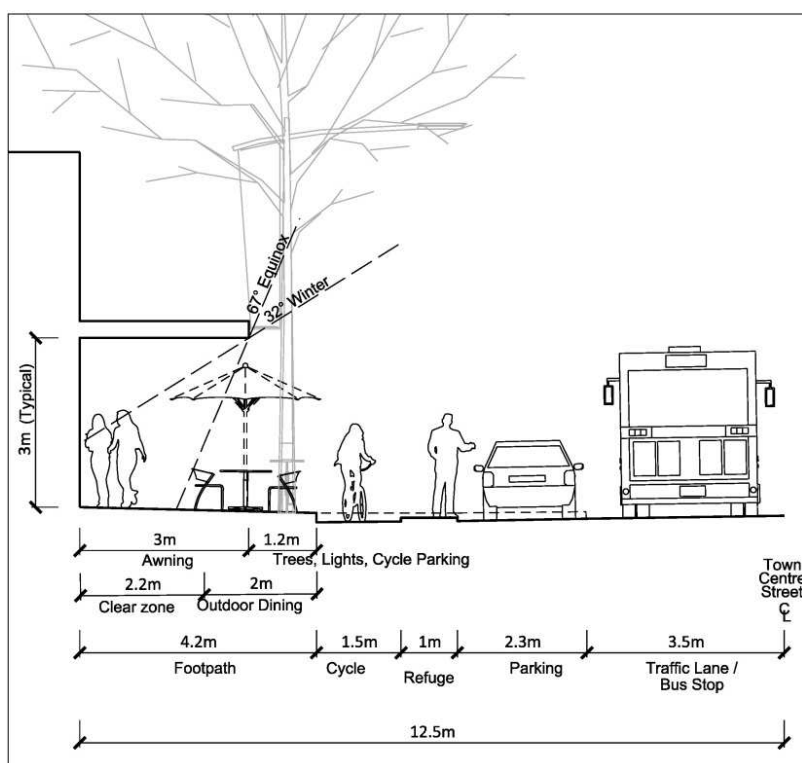
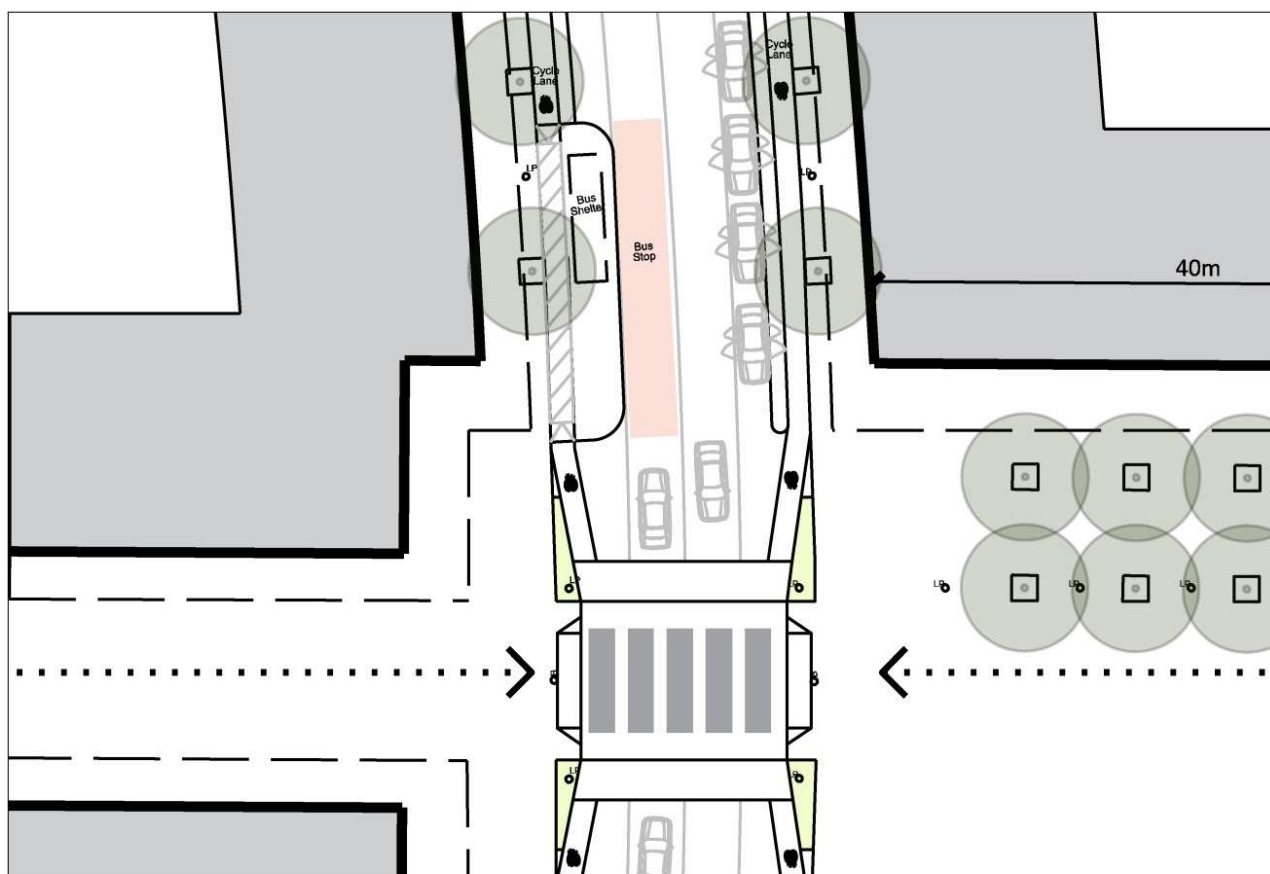


Figure 4-3: Main Street typical plan and cross section

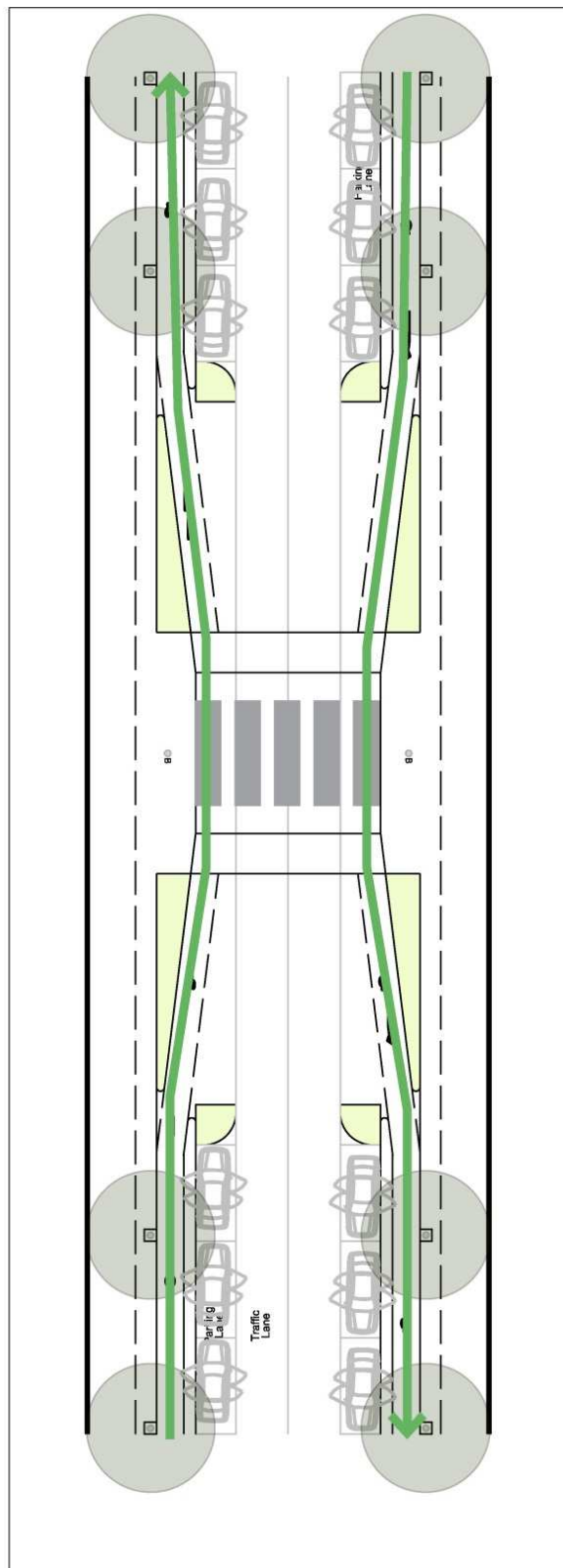
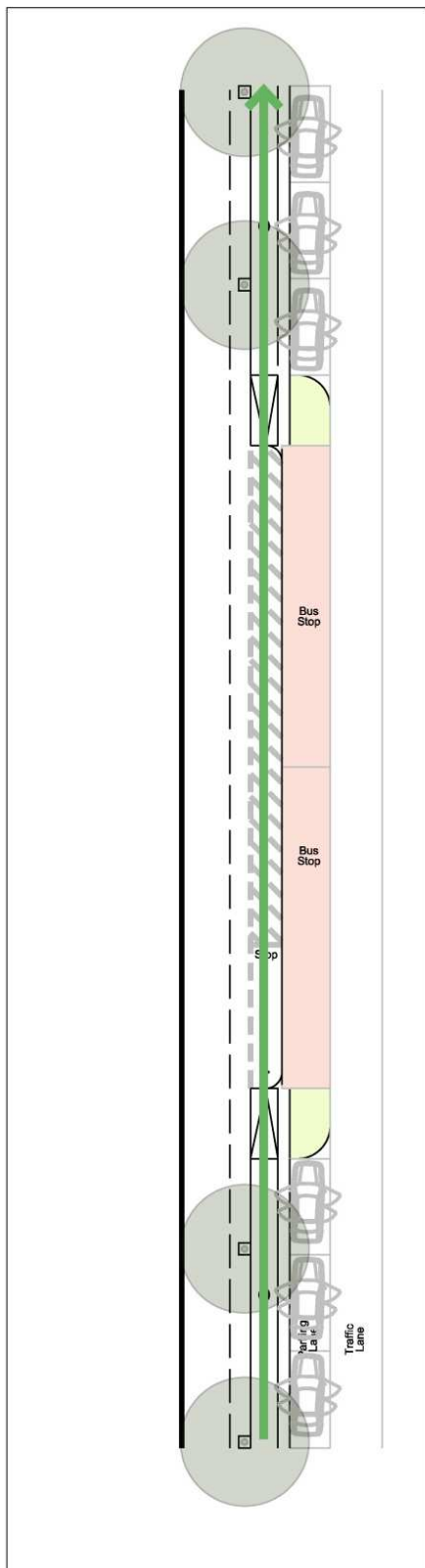


Figure 4-4: Main Street design at mid-block bus stops and mid-block pedestrian crossings

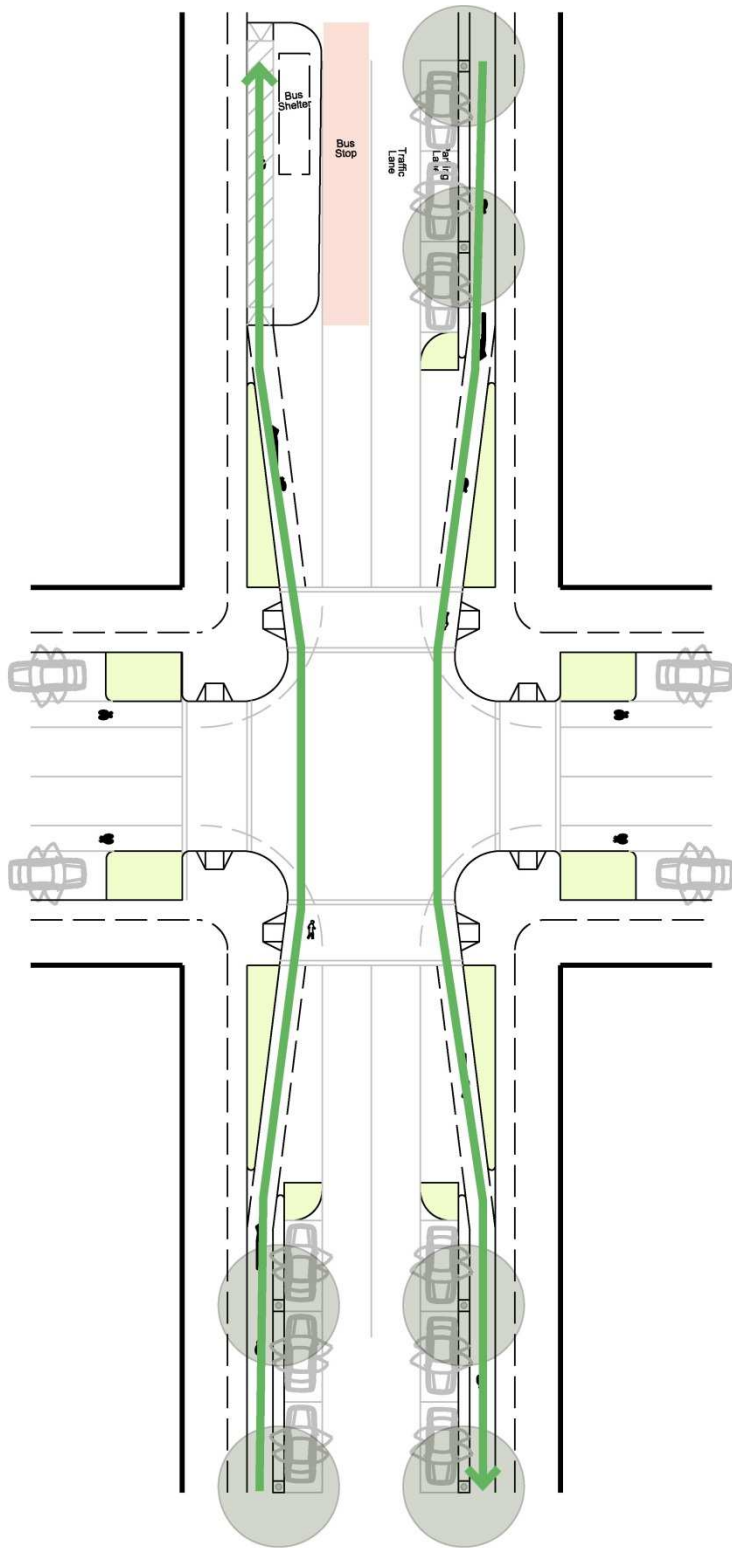


Figure 4-5: Main Street intersection design

4.3.3 Town Centre Streets

Objectives

- a. To ensure that Town Centre Streets are able to accommodate growth in vehicular, pedestrian and cyclist traffic as the town centre develops.
- b. To ensure that development in the town centre has appropriate vehicle access for parking, loading and services.
- c. To ensure that Town Centre Streets are attractive and contribute positively to the character of the Major Centre.
- d. To activate Town Centre Streets, where possible, by:
 - fronting specialty retail and other land uses that create activity onto the street.
 - Maximising on street parking and access for cyclists.
 - Creating an attractive pedestrian environment

Controls

1. The design of Town Centre Streets is to be as shown on **Figure 4-64-6** and consistent with the controls below.

Quality of Materials	<ul style="list-style-type: none">• Footpath pavement to be consistent material for the full-width.• Pedestrian pavement to be high-quality unit paver.• Use paving patterns / variety of colours or materials to differentiate outdoor dining areas and entrances to through-site links.• Additional planting can be provided in kerb blisters (eg. to frame outdoor dining areas). This will require removal of some on-street parking.
Street Trees	<ul style="list-style-type: none">• Provide street trees at regular spacing, coordinate with awnings, outdoor dining, street lights, car park/loading bay entries and on street parking.• No street trees adjacent bus stops.• Tree species type is to be consistent for the length of the street.• More than one species can be used, particularly to achieve a particular pattern or to achieve appropriate solar access / shade out comes, but the pattern of species should be replicated for the entire length of the Main Street.• Provide minimum separation distance of 0.75m from edge of concrete structures to street tree.• Provide root guards.
Street Activation	<ul style="list-style-type: none">• Active frontage are preferred for Town Centre Streets, but these streets may also provide vehicle access to internal parking and loading areas.• Buildings define the street edge (zero setbacks) where there is an active frontage or to screen internal parking and loading areas.• Where buildings do not have a zero setback, a landscaped setback is to be provided to screen utility areas, car parks and loading areas from view from the street.

	<ul style="list-style-type: none"> • Outdoor dining and other activities that activate the street are encouraged. Design is to consider barrier treatments to provide separation from traffic lanes and a pleasant environment. • No outdoor dining / on-street trading adjacent bus stops. • Outdoor dining to be located clear of building frontage to allow way-finding by people who are sight impaired.
Parking and loading	<ul style="list-style-type: none"> • Town Centre Streets may provide vehicle access to internal parking and loading areas. • The on-street parking lane provides for a range of functions (eg. loading bays, bus stops and turning lanes at intersections if required).
Light poles and bus stop coordination	<ul style="list-style-type: none"> • Coordinate light pole locations with street trees, bus shelters and awnings. • Ensure light pole design can accommodate a proprietary banner mounting system. • Arrangements for bus stops, the cycle lane, footpaths and road carriageway are to be ensure the safety of bus passengers, cyclists and pedestrians.
Intersections and pedestrian crossings	<ul style="list-style-type: none"> • Provide corner blisters at pedestrian crossings and mid-block crossings. • Provide low-level planting to the mid-block crossing. • Use bollards if crossings are raised.
Through site link	<ul style="list-style-type: none"> • Provide through-site link access to retail areas at the mid-block crossing location. • Provide additional building setbacks at entrances.
Awnings and weather protection	<ul style="list-style-type: none"> • Supplement weather protection for outdoor dining areas with umbrellas and retractable awnings. • Continuous awnings preferred along the length of street, subject to whether active street frontage uses locate on these streets.
Water Sensitive Urban Design	<ul style="list-style-type: none"> • Opportunity for WSUD in corner blisters and as a replacement for on street parking bays. • Tree pits are to collect and treat rain water from the road carriageway and downpipes from awnings to meet water quality standards specified in this DCP.

4.3.4 Bus Interchange

Objectives

- a. To enable the function of the bus interchange to evolve as the Major Centre grows.
- b. To ensure that the street is activated, but that other uses do not interfere with the operation of the bus interchange.
- c. To ensure that the bus interchange is well integrated with the train station.

Controls

1. The design of the Bus Interchange Street is to be as shown on **Figure 4-74-7** and consistent with the controls below.

Quality of Materials	<ul style="list-style-type: none"> Footpath pavement to be consistent material for the full-width. Pedestrian pavement to be high-quality unit paver.
Street Trees	<ul style="list-style-type: none"> No street trees adjacent bus stops. Provide shade trees in Bus Interchange Plaza connecting to Rail Station Concourse.
Street Activation	<ul style="list-style-type: none"> No outdoor dining / on-street trading adjacent bus stops. For outdoor dining facing the street, a minimum building setback of 2m at ground level is required. Locate outdoor dining areas in Bus Interchange Plaza. Provide planter beds / awnings / retractable canopies for sun protection.
Parking and loading	<ul style="list-style-type: none"> Parking and loading access is to be from other streets.
Light poles and bus stop coordination	<ul style="list-style-type: none"> Coordinate light pole location with street trees, bus shelters and awnings. The location of Bus Bays is to consider pedestrian access and operational requirements to provide sufficient queuing distance for the left-turn into Rickard Road and the Main Street. Provide bus only lanes adjacent bus stop bays to avoid conflict with other vehicles
Intersections and pedestrian crossings	<ul style="list-style-type: none"> Provide mid-block crossing centred on Bus Interchange Plaza. Consent authority to determine if the crossing is raised. The design of the crossings should accommodate either raised or flush treatments, and signals as required Provide through-site link access to retail areas at mid-block crossing location. Provide additional building setbacks at entrance. Provide corner blisters at pedestrian crossings and mid-block crossing. Provide low-level planting and bollards to mid-block crossing
Through site link	<ul style="list-style-type: none"> Provide through-site link access to retail areas at the mid-block crossing location. Provide additional building setbacks at entrances.
Awnings and weather protection	<ul style="list-style-type: none"> Provide continuous awnings / colonnades over footpath. Provide separate bus shelters for weather protection Potential to provide colonnade flanking Bus Interchange Plaza to provide all-weather access from the Rail Station to the Bus Interchange.
Water Sensitive Urban Design	<ul style="list-style-type: none"> No opportunity for WSUD on Bus Interchange Street.

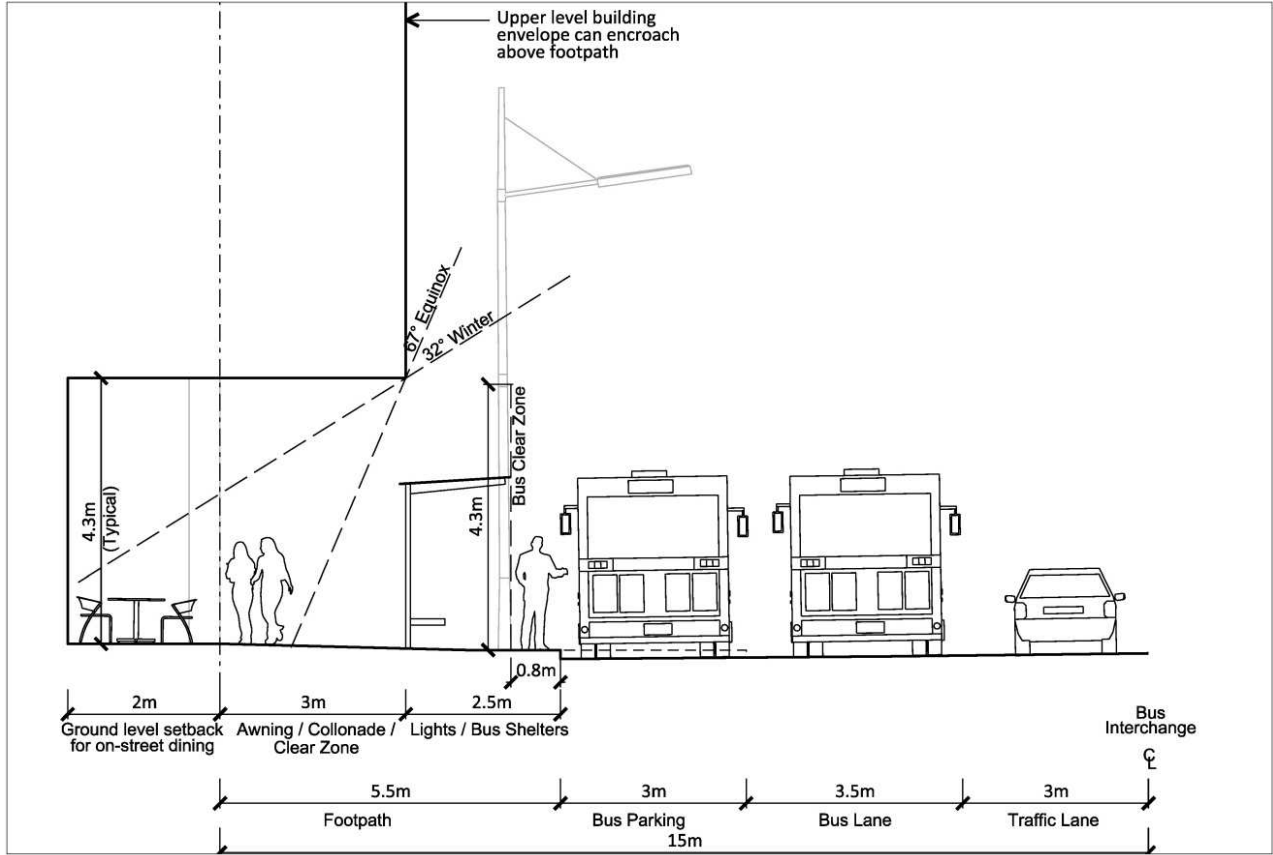
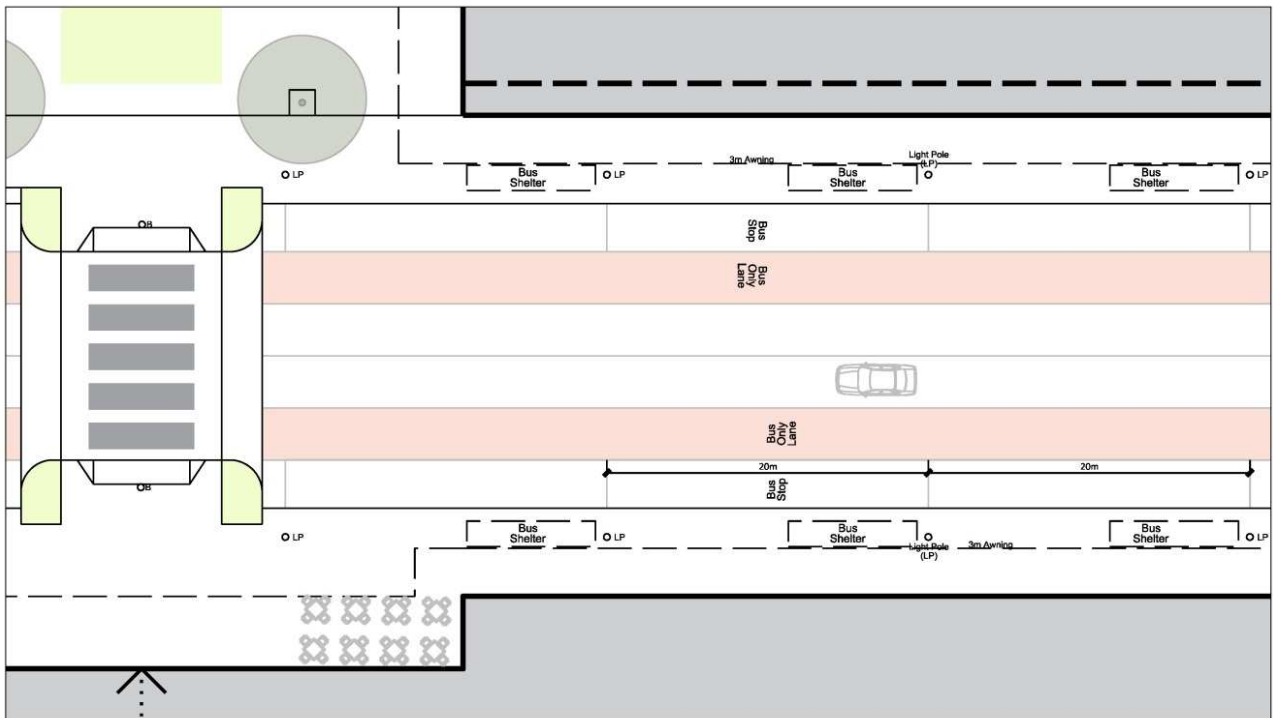


Figure 4-7: Bus interchange street typical plan and cross-section

4.3.5 Service Lanes

Objectives

- a. To ensure that there is appropriate access for vehicles to development in the town centre, for purposes such as parking and loading.
- b. To ensure that utility activities, parking and loading do not detract from the character of the Main Street and Town Centre Streets.
- c. To provide opportunities for additional pedestrian connections through the Major Centre.

Controls

1. The design of Service Lanes is to be as shown on **Figure 4-84-8** and consistent with the controls below.

Quality of Materials	<ul style="list-style-type: none">• Footpath pavement to be insitu concrete.• Driveways to be consistent treatment within public domain.
Street Trees	<ul style="list-style-type: none">• Limit street tree planting to areas adjacent to intersections with other town centre streets.
Street Activation	<ul style="list-style-type: none">• Outdoor Dining permitted near intersections of Town Centre Streets.
Parking and loading	<ul style="list-style-type: none">• Service lanes are the primary access routes for vehicles to internal car parks and loading bays.• On street parking may be permitted on one side of the street only, providing it does not interfere with the function of the street.
Through site link	<ul style="list-style-type: none">• Provide additional building setbacks at entrance to through site links.
Awnings and weather protection	<ul style="list-style-type: none">• Awnings can wrap around corners from intersection with Town Centre Streets.• No requirement for continuous awnings.
Water Sensitive Urban Design	<ul style="list-style-type: none">• No opportunity for WSUD on Service Lanes.

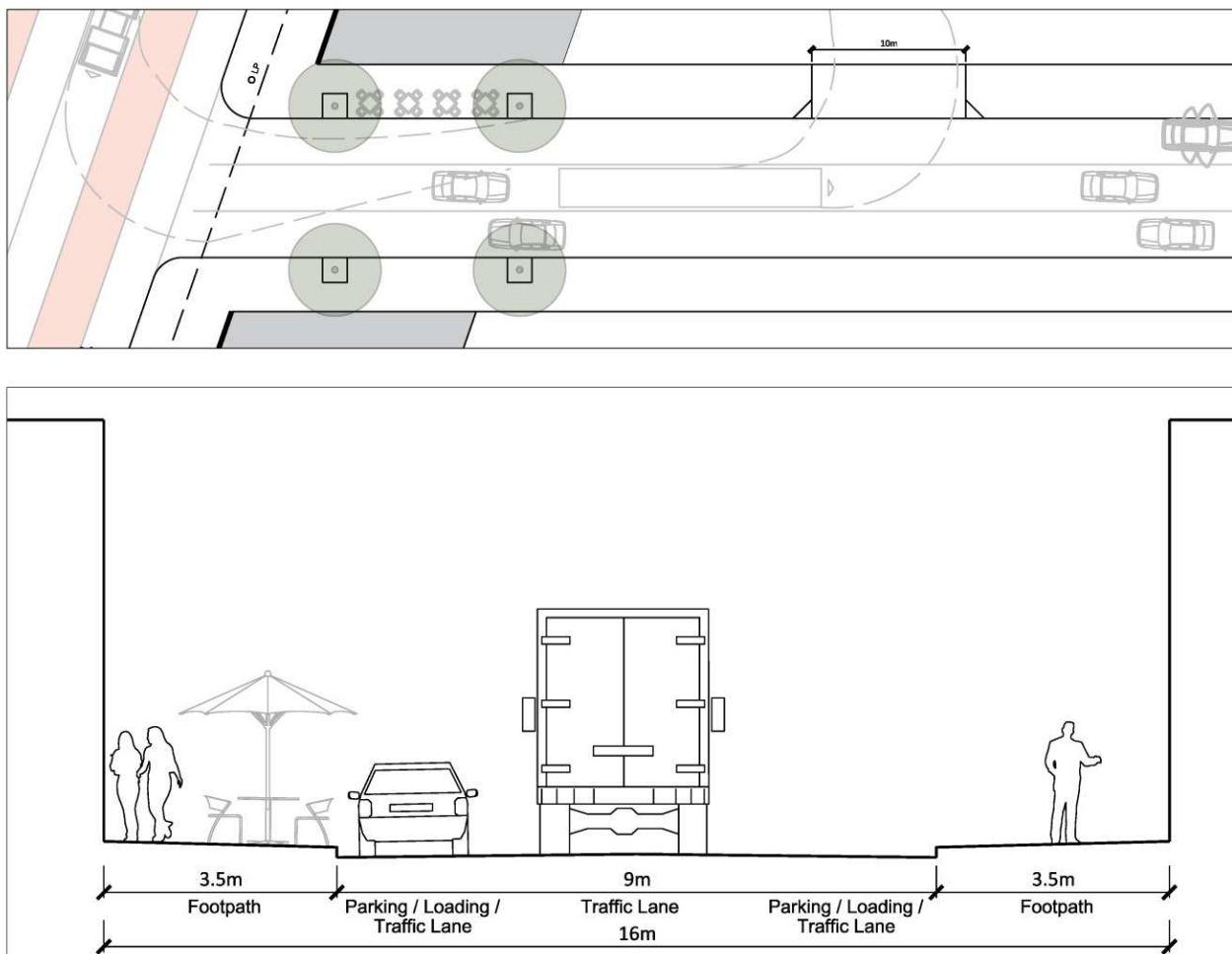


Figure 4-8: Service lane typical plan and cross-section

4.4 Plazas and squares

Objectives

- a. To create a series of activity nodes within the public domain that are a focus for informal and organised community gatherings and interaction.
- b. To establish places within the centre that promote active use of the public domain and an interface between development and the public domain.
- c. To provide breaks in the built form at key locations.
- d. To encourage development to be orientated towards the public domain rather than being internally focused.

Controls

1. The design of Plazas is to consider the following principles:
 - quality of social spaces;
 - safety and perceptions of safety;
 - provision for sight and mobility impaired people;
 - cater for special public events, markets etc;
 - pedestrian walkways and pavement surfaces;
 - pedestrian lighting;
 - location and amount of seating;
 - visual amenity;
 - passive recreation function;
 - cultural significance - places for social interaction and public art; and
 - maintenance requirements.
2. Plazas or squares are encouraged at key nodes within the centre, such as at intersections between Town Centre Streets and Service Lanes or Pedestrian Through Site Links, at intersections along Rickard Road, or to incorporate, highlight and interpret heritage items such as the Leppington Public School and the WV Scott Memorial.
3. Squares or plazas should be located to terminate or enhance vistas within the centre and to surrounding areas, particularly at high points or to connect the centre to the adjacent creek corridors.
4. The boundary dimensions of squares and plazas should be in the order of 40-70 metres. The dimensions and orientation of the plaza or square is to maximise solar access, particularly during winter.

5. The design of the square or plaza and adjoining buildings is to ensure that at least 50% of the area of the square or plaza receives sunlight between the hours of 11am-2pm on June 21. Above the first floor, buildings may need to be set back to ensure appropriate solar access to the square.
6. Plazas and squares should generally be square or rectangular, although irregular shapes may be appropriate to make use of residual land or where streets intersect at odd angles.
7. Squares and plazas may include water features to improve amenity, assist in management of micro-climates and to incorporate water sensitive urban design into the public domain.
8. Buildings are to be built to the boundary fronting squares, plazas and parks at the ground floor and first floor, or set back at the ground floor a maximum of 3 metres only where a colonnade is proposed within the setback.
9. Buildings fronting squares, plazas or public open space are to have active frontages above the ground floor that provide passive surveillance of the square or plaza. Commercial or retail tenancies are to have glazed facades or balconies overlooking the square, and residential development is to have balconies facing the square, plaza or park.
10. Materials and finishes are to be in accordance with **Table 4-1**.
11. Plant species selection for plazas and squares is to predominantly utilise species listed in **Table 4-2**.
12. Trees, awnings and colonnades are the preferred means of shade and weather protection within squares and plazas. Trees should be predominantly deciduous to provide shade in summer and solar access in winter.

4.4.1 Town Plaza

Controls

1. The Town Plaza is to be located mid-block on the main street generally in the location shown on the Indicative Layout Plan.
2. The design of the Town Plaza is to be consistent with the controls below and **Figure 4-94-9**.

Quality of Materials	<ul style="list-style-type: none"> • Pedestrian pavement to be high-quality unit paver.
Trees	<ul style="list-style-type: none"> • Provide shade trees in north-eastern corner to provide shade from the west in summer. • Provide deciduous trees on the southern side of the plaza
Activation	<ul style="list-style-type: none"> • Provide flexible public activity space with water and public art elements and free seating. • Integrate the development at ground level and upper floors with the plaza. Active uses at ground floor fronting all sides of the plaza and upper floor residential are encouraged to overlook the plaza. Orient balconies and living areas towards the plaza to provide passive surveillance and activity. • Locate outdoor dining on south-east side to provide good solar access in winter and shade from the western sun in summer. • Provide multiple areas for public seating with good visual surveillance and protection from summer sun (eg. shade trees). • Coordinate locations with pedestrian desire lines to avoid conflicts. • Opportunity for bespoke street furniture and public art integration into public seating.
Parking loading and vehicle access.	<ul style="list-style-type: none"> • Provide event and emergency vehicle access to the Town Plaza via the mid block crossing using removable bollards.
Through site link	<ul style="list-style-type: none"> • Provide through-site link access to retail areas at mid-block crossing location from the plaza. Provide additional building setbacks at entrances. Through site links are publicly accessible 24hrs.
Awnings and weather protection	<ul style="list-style-type: none"> • All development fronting the plaza is to provide continuous awning or colonnades.
Water Sensitive Urban Design	<ul style="list-style-type: none"> • WSUD to be integrated with tree planting Tree pits within the plaza are to collect and treat rain water from impervious surfaces to meet water quality standards specified in this DCP. • WSUD measures to be integrated with water features where practical.
Lighting	<ul style="list-style-type: none"> • In addition to street lighting, provide pedestrian lighting to plazas, mid-block crossings, marked and signalised pedestrian crossings, cycle lanes and through site links. • Provide feature lighting (eg. catenary) in the Town Plaza.

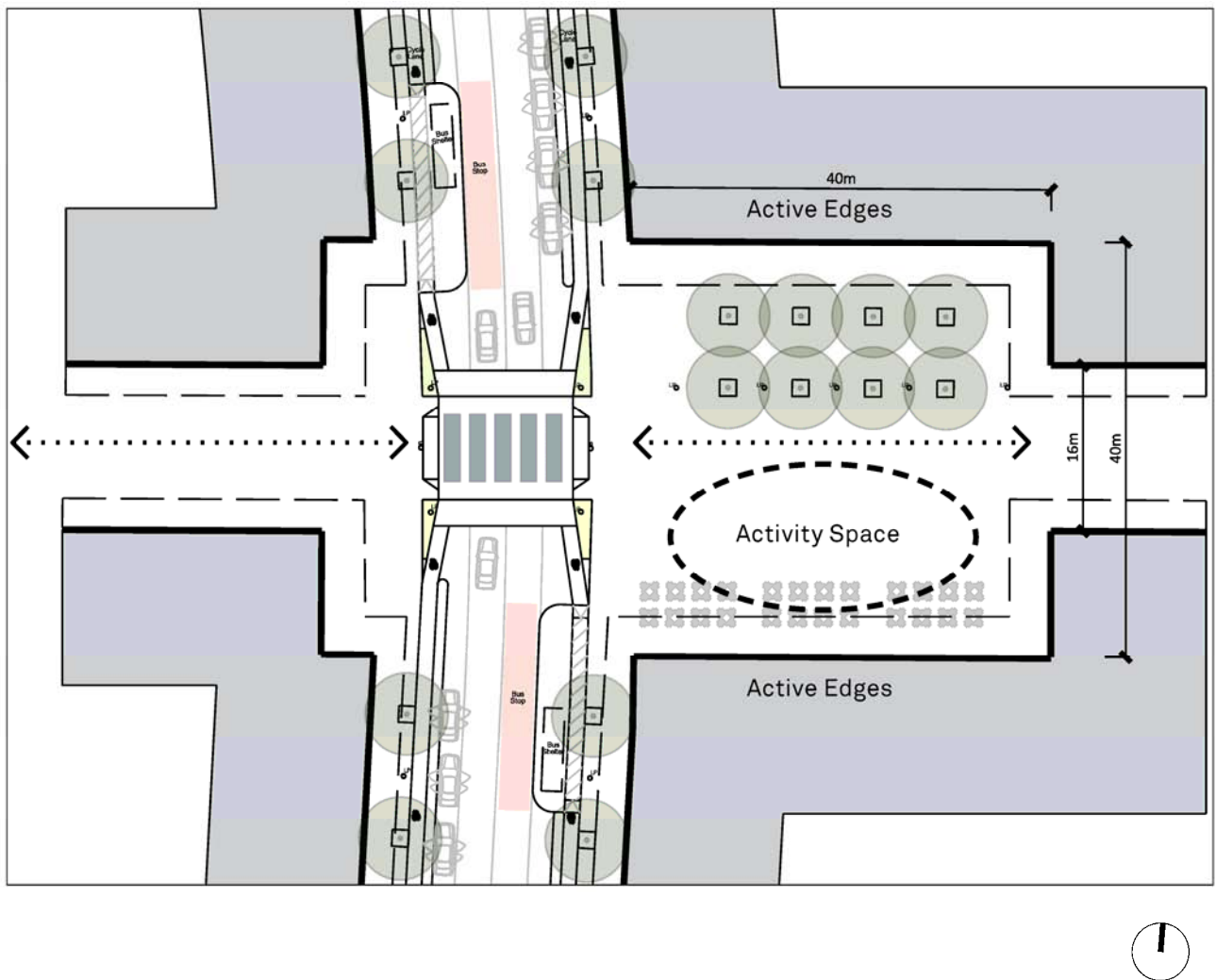


Figure 4-9: Layout of the Town Plaza

4.4.2 Rail and Bus Interchange Plaza

Controls

1. The Interchange Plaza is to be aligned with the Leppington Station concourse and entry, generally in the location shown on the Indicative Layout Plan.
2. The design of the Interchange Plaza is to be consistent with the controls below and **Figure 4-94-9**.

Quality of Materials	<ul style="list-style-type: none"> • Pedestrian pavement to be high-quality unit paver. • Paving material and design to integrate with station entry / concourse to assist way-finding.
Trees	<ul style="list-style-type: none"> • No street trees adjacent bus stops. Provide shade trees in Bus Interchange Plaza connecting to Rail Station Concourse.
Activation	<ul style="list-style-type: none"> • Provide flexible public activity space with water and public art elements and free seating. • Provide multiple areas for public seating with good visual surveillance and protection from summer sun (eg. shade trees). • Coordinate seating locations with pedestrian desire lines to avoid conflicts. • Integrate the development at ground level and upper floors with the plaza. Active uses at ground floor fronting all sides of the plaza and upper floor residential are encouraged to overlook the plaza. Orient balconies and living areas towards the plaza to provide passive surveillance and activity. • No outdoor dining / on-street trading adjacent bus stops. • Locate outdoor dining areas in Bus Interchange Plaza. • Provide planter beds / awnings / retractable canopies / colonnades for sun protection Provide multiple areas for public seating with good visual surveillance and protection from summer sun (eg. shade trees). • Opportunity for bespoke street furniture and public art integration into public seating to extend the public art themes adopted for Leppington Station.
Parking loading and vehicle access.	<ul style="list-style-type: none"> • Provide event and emergency vehicle access to the Interchange Plaza via the mid block crossing using removable bollards.
Through site link	<ul style="list-style-type: none"> • Provide through-site link access to retail areas at mid-block crossing location from the plaza. Provide additional building setbacks at entrances. Through site links are publicly accessible 24hrs.
Awnings and weather protection	<ul style="list-style-type: none"> • Supplement weather protection for outdoor dining areas with umbrellas and retractable awnings. • Provide colonnade flanking Bus Interchange Plaza to provide all-weather access from the Rail Station to the Bus Interchange.
Water Sensitive Urban Design	<ul style="list-style-type: none"> • WSUD to be integrated with tree planting Tree pits within the plaza are to collect and treat rain water from impervious surfaces to meet water quality standards specified in this DCP. • WSUD measures to be integrated with water features where practical.
Lighting	<ul style="list-style-type: none"> • In addition to street lighting, provide pedestrian lighting to plazas, mid-block crossings, marked and signalised pedestrian crossings, cycle lanes and through site links. • Provide feature lighting (eg. catenary) in the Interchange Plaza.

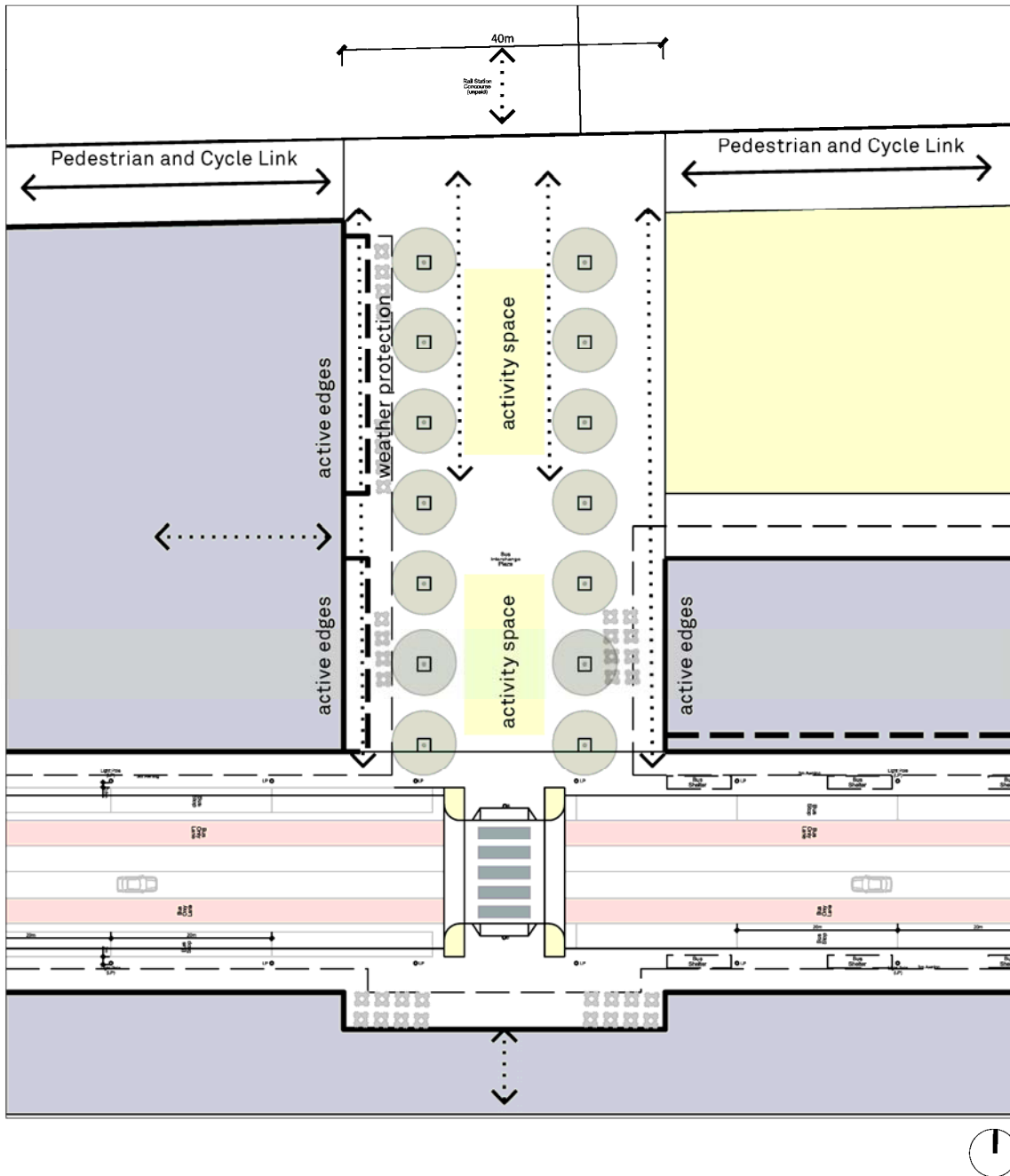


Figure 4-10: Layout of the Rail and Bus Interchange Plaza

4.4.3 Civic Centre Plaza

Controls

1. The Civic Centre Plaza is to be developed as part of the Civic and Cultural Centre to the north of Leppington Station.
2. The location of the Civic Centre Plaza is to align with a through site link from Leppington Station and integrate with the TAFE college to the north, generally in the location shown on the Indicative Layout Plan.
3. The design of the Civic Centre Plaza is to be consistent with the controls below and **Figure 4-114-11**.

Quality of Materials	<ul style="list-style-type: none"> • Pedestrian pavement to be high-quality unit paver. • Continue design themes from the station through the through-site links and plaza to assist in pedestrian way-finding to the station.
Trees	<ul style="list-style-type: none"> • Provide shade trees in eastern corner to provide shade from the west in summer.
Activation	<ul style="list-style-type: none"> • Provide flexible public activity space with water and public art elements and free seating. This space should also accommodate outdoor community events, eg. free markets, fetes, performances, street theatre etc associated with the community and cultural use of the buildings. • Provide multiple areas for public seating with good visual surveillance and protection from summer sun (eg. shade trees). • Coordinate seating locations with pedestrian desire lines to avoid conflicts. • Integrate the development at ground level and upper floors with the plaza. Active uses at ground floor fronting all sides of the plaza and upper floor residential are encouraged to overlook the plaza. Orient balconies and living areas towards the plaza to provide passive surveillance and activity. • No outdoor dining / on-street trading adjacent bus stops. • Locate outdoor dining areas on west side to provide good solar access in winter and shade from the western sun in summer. • Provide planter beds / awnings / retractable canopies / colonnades for sun protection Provide multiple areas for public seating with good visual surveillance and protection from summer sun (eg. shade trees). • Opportunity for bespoke street furniture and public art integration into public seating to extend the public art themes adopted for Leppington Station. • Provide pedestrian through-site link access to Civic areas at mid-block crossing location. Provide additional building setbacks at entrances.
Parking loading and vehicle access.	<ul style="list-style-type: none"> • Provide event and emergency vehicle access to the Civic Centre Plaza via the mid block crossing using removable bollards.
Through site link	<ul style="list-style-type: none"> • Provide through-site link access to retail areas at mid-block crossing location from the plaza. Provide additional building setbacks at entrances. Through site links are publicly accessible 24hrs.
Awnings and weather protection	<ul style="list-style-type: none"> • Supplement weather protection for outdoor dining areas with umbrellas and retractable awnings.
Water Sensitive Urban Design	<ul style="list-style-type: none"> • WSUD to be integrated with tree planting Tree pits within the plaza are to

	<p>collect and treat rain water from impervious surfaces to meet water quality standards specified in this DCP.</p> <ul style="list-style-type: none"> WSUD measures to be integrated with water features where practical.
Lighting	<ul style="list-style-type: none"> In addition to street lighting, provide pedestrian lighting to plazas, mid-block crossings, marked and signalised pedestrian crossings, cycle lanes and through site links. Provide feature lighting (eg. catenary) in the Civic Centre Plaza.

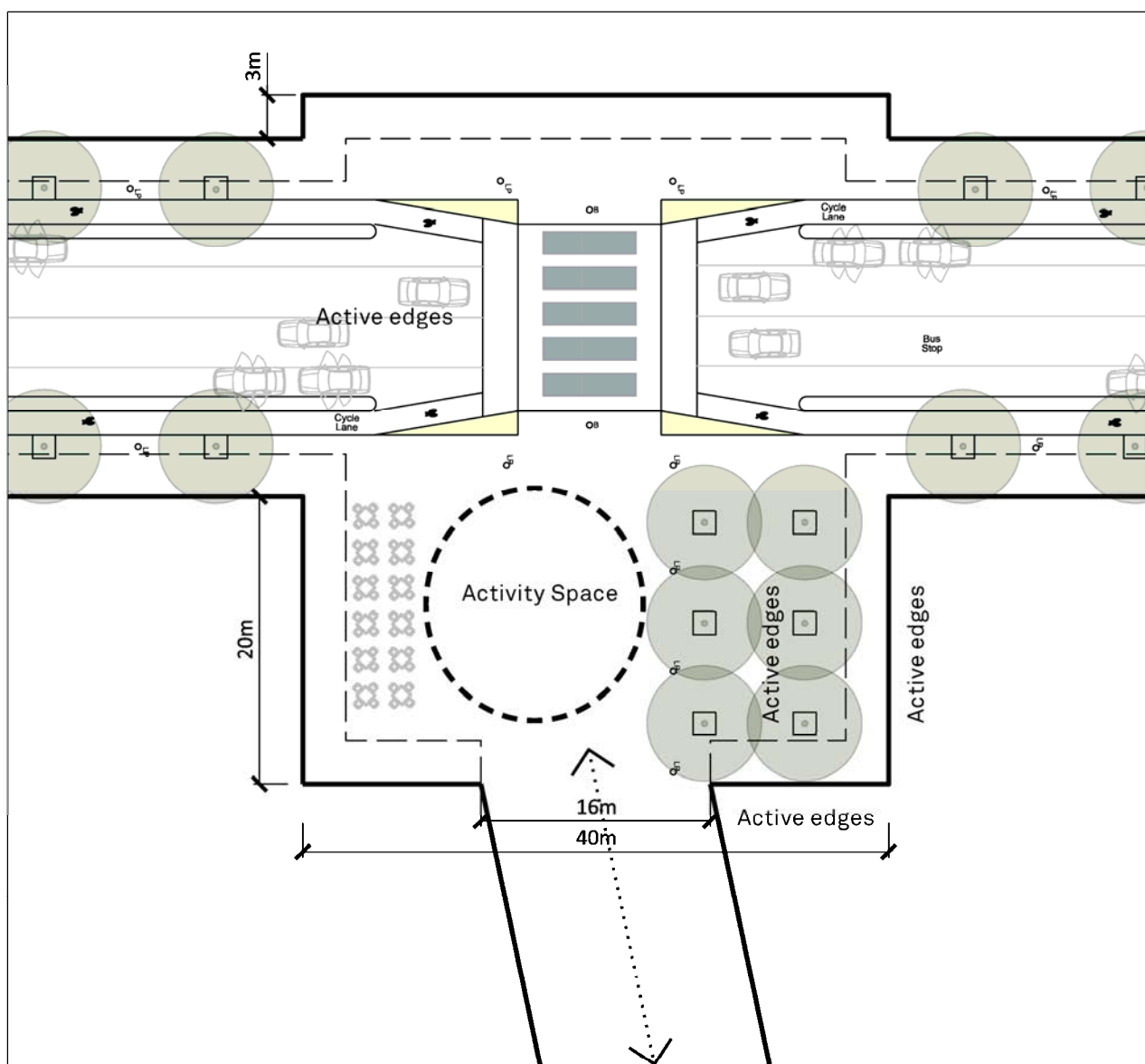


Figure 4-11: Layout of the Civic Centre Plaza

4.4.4 Small Urban Plazas and Pedestrian Through-site Links

Controls

1. Small plazas and through site links are to be integrated with the design of development in the Major Centre.
2. Pedestrian through site links are to be located mid-block and where they will enhance pedestrian connectivity within the Centre.
3. The design of the Small Plazas is to be consistent with the controls below and **Figure 4-114-11**.

Quality of Materials	<ul style="list-style-type: none"> Pedestrian pavement to be high-quality unit paver.
Trees	<ul style="list-style-type: none"> Provide shade trees in eastern corner to provide shade from the west in summer.
Activation	<ul style="list-style-type: none"> Locate outdoor dining areas at corners. Provide planter beds / awnings / retractable canopies for sun protection. Through-site links and small urban plazas are publicly accessible 24hrs. Provide multiple areas for public seating with good visual surveillance and protection from summer sun (eg. shade trees). Coordinate locations with pedestrian desire lines to avoid conflicts. Opportunity for bespoke street furniture and public art integration into public seating.
Parking loading and vehicle access.	<ul style="list-style-type: none"> Provide event and emergency vehicle access to the Civic Centre Plaza via the mid block crossing using removable bollards.
Through site link	<ul style="list-style-type: none"> Provide through-site link access to retail areas at mid-block crossing location from the plaza. Provide additional building setbacks at entrances. Through site links are publicly accessible 24hrs.
Awnings and weather protection	<ul style="list-style-type: none"> Supplement weather protection for outdoor dining areas with umbrellas and retractable awnings.
Water Sensitive Urban Design	<ul style="list-style-type: none"> WSUD to be integrated with tree planting Tree pits within the plaza are to collect and treat rain water from impervious surfaces to meet water quality standards specified in this DCP. WSUD measures to be integrated with water features where practical.
Lighting	<ul style="list-style-type: none"> In addition to street lighting, provide pedestrian lighting to plazas, mid-block crossings, marked and signalised pedestrian crossings, cycle lanes and through site links. Provide feature lighting (eg. catenary) in the Civic Centre Plaza.

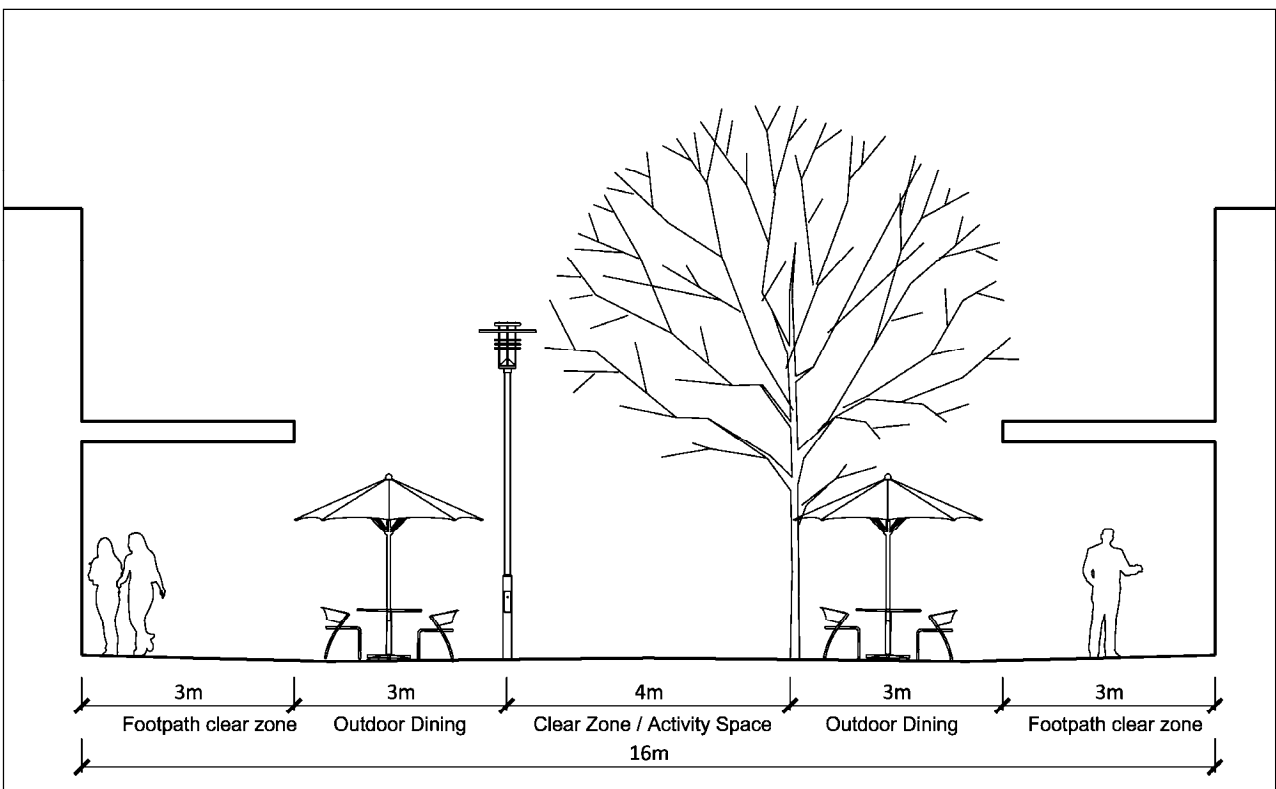
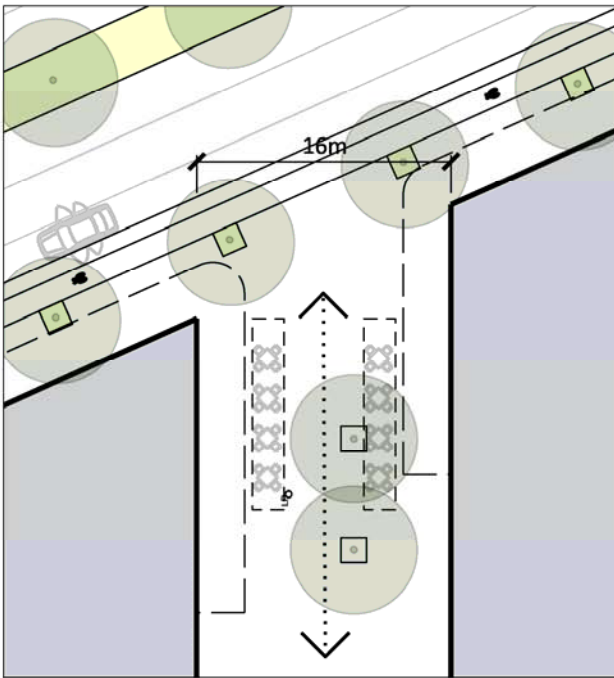


Figure 4-12: Design of small plazas

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4.5 Public Open Space

The Scalabrini Creek Corridor, west of the Town Centre and Civic Centre, provides the major north-south connecting open space element for the Major Centre. District level open space areas adjoin the creek corridor close to the retail core. This area of open space will act as a focus for community events and passive recreation, serving both the local residents, the Business Park and visitors to the retail core.

On the eastern side of the Major Centre, Byron Road Park provides a mix of sport facilities and a passive recreation environment serving local residents and the adjoining Business Park. Connecting north of Byron Road Park, the Bonds Creek Corridor provides a north-south connecting open space element, its recreation function serving primarily the adjoining residents.

Objectives

- a. Public open space is to be integrated with the built form of the Major Centre.
- b. Public open space is to provide a range of recreational and social opportunities for workers, residents and visitors to the Major Centre.
- c. The design of public open space is to respect the natural environment, integrating water sensitive urban design and the rehabilitation of Riparian Protection Areas.

Controls

1. The design of Parks is to take into account the following principles:
 - integrate passive and active recreation functions with environmental functions;
 - quality of social spaces;
 - safety and perceptions of safety;
 - provision for sight and mobility impaired;
 - cater for special public events, markets etc;
 - pedestrian walkways and pavement surfaces;
 - pedestrian lighting;
 - location and amount of seating;
 - visual amenity;
 - cultural significance - places for social interaction and public art; and
 - maintenance requirements.
2. The design of public open space is to be generally in accordance with the concept designs at **Figure 4-13** to **Figure 4-16**.
3. Where public open space includes or is adjacent to a Riparian Protection Area, the concepts in **Figure 4-17** are to be implemented in the design.

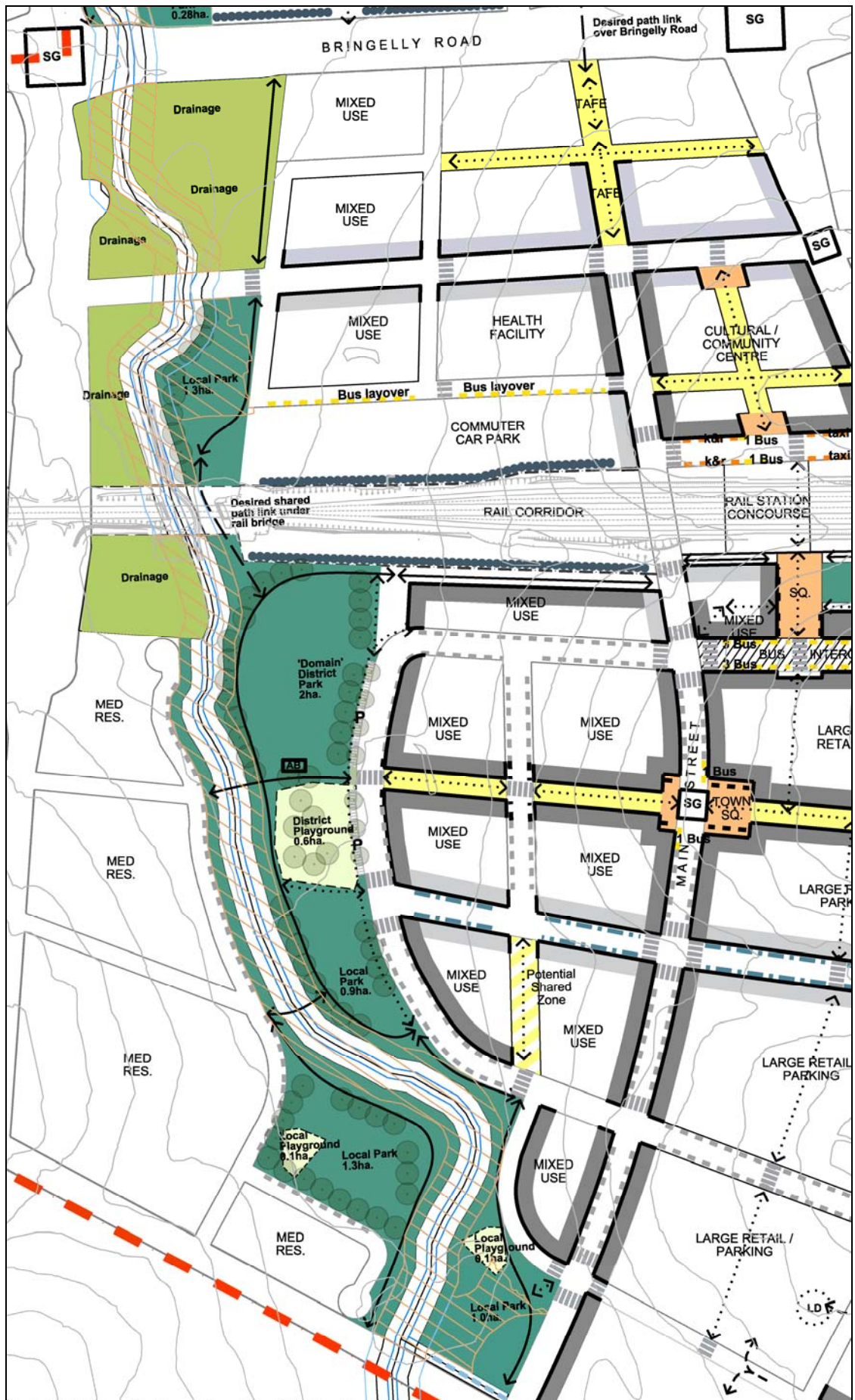
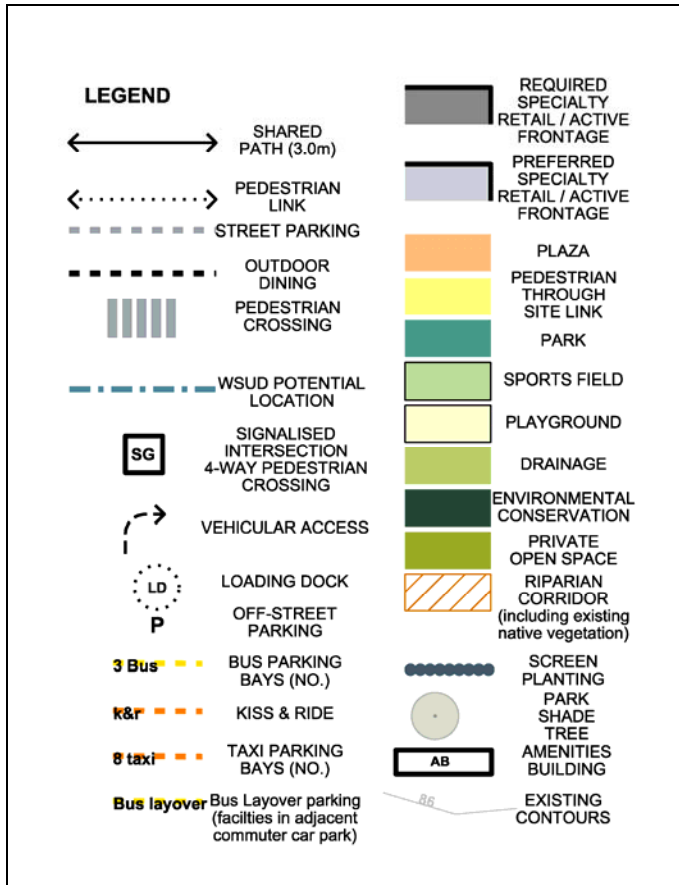


Figure 4-13: Scalabrini Creek Corridor (South) concept design



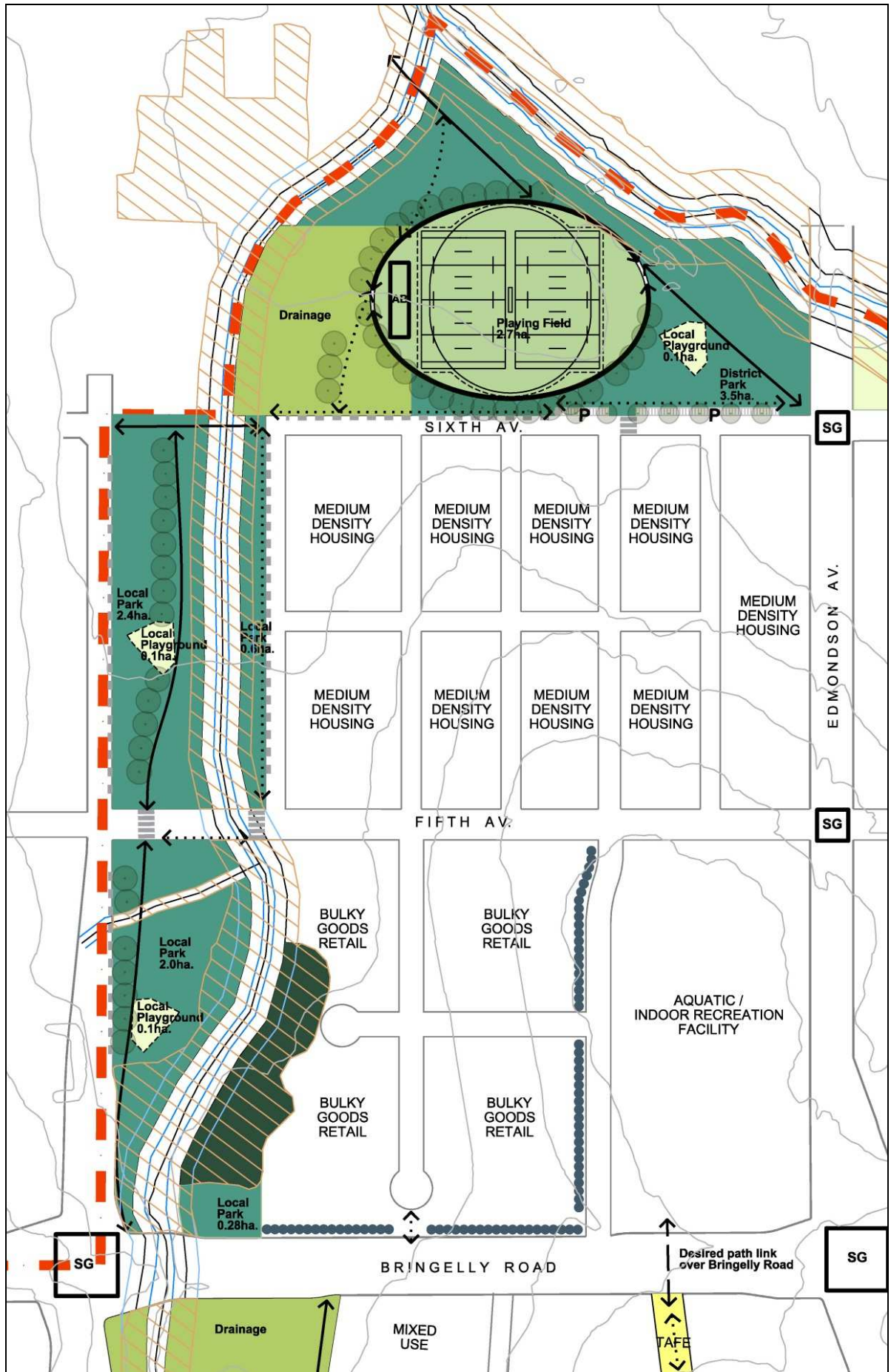
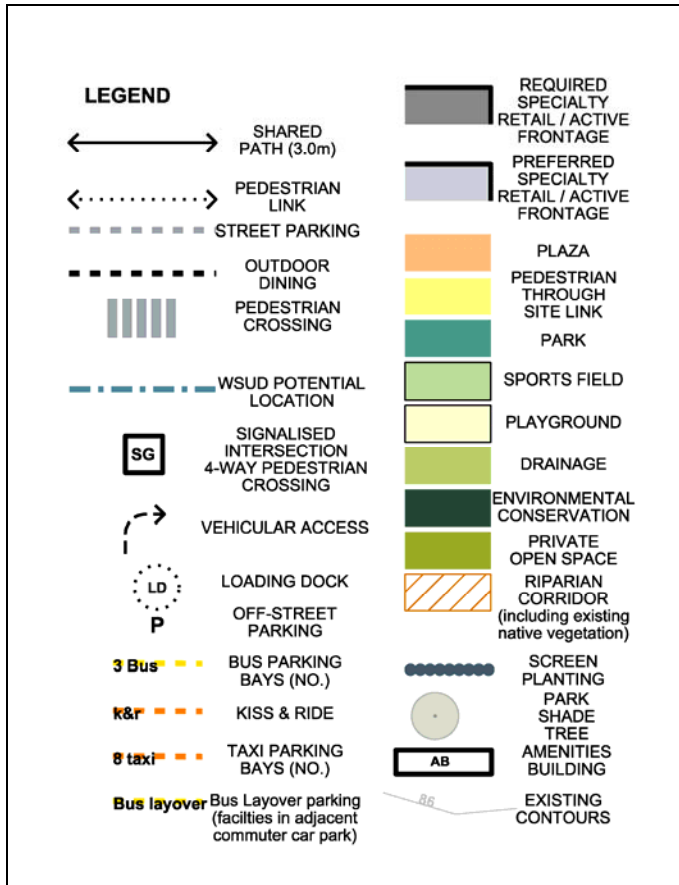


Figure 4-14: Scalabrini Creek Corridor (North) concept design



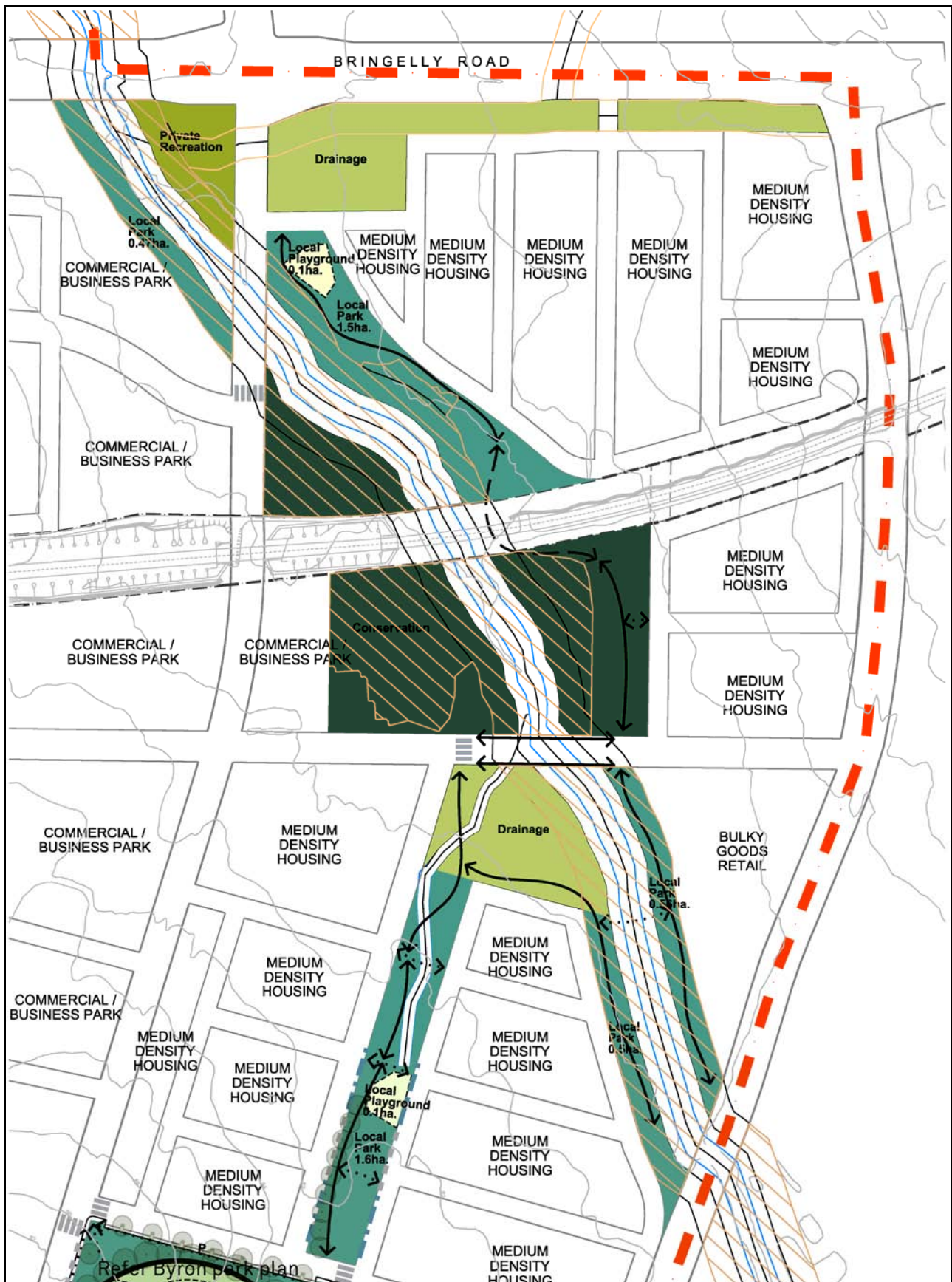
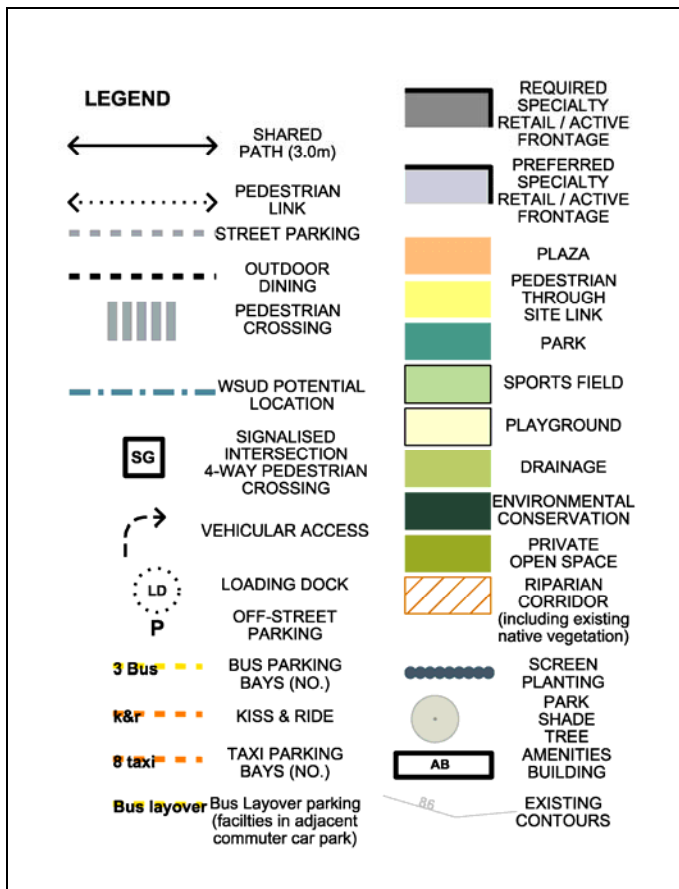


Figure 4-15: Bonds Creek Corridor concept design



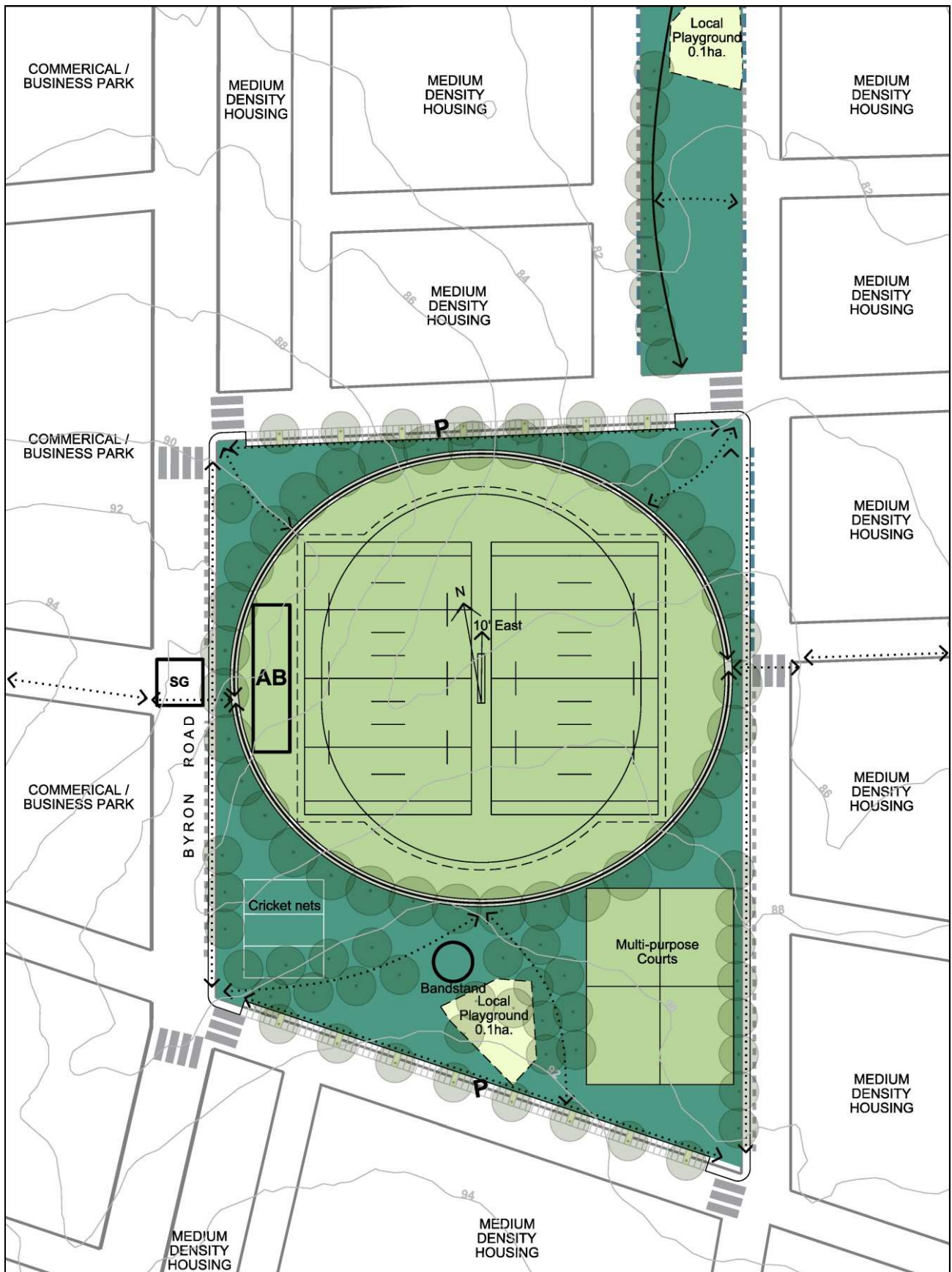
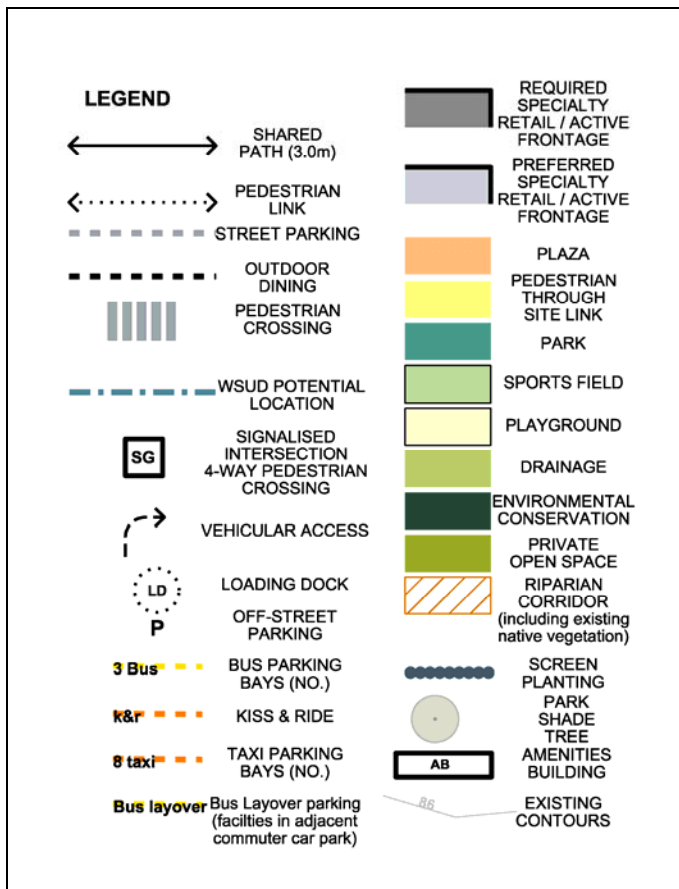


Figure 4-16: Byron Road Park concept design



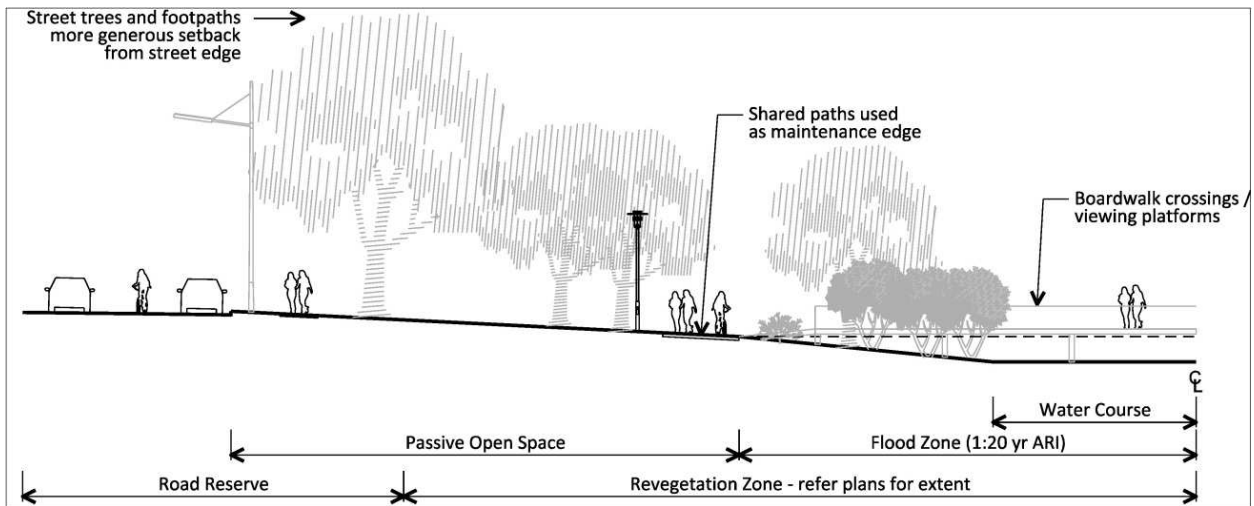


Figure 4-17: Concept design for open space corridors incorporating Riparian Protection Areas

5 Building Controls

5.1 Building envelopes and setbacks

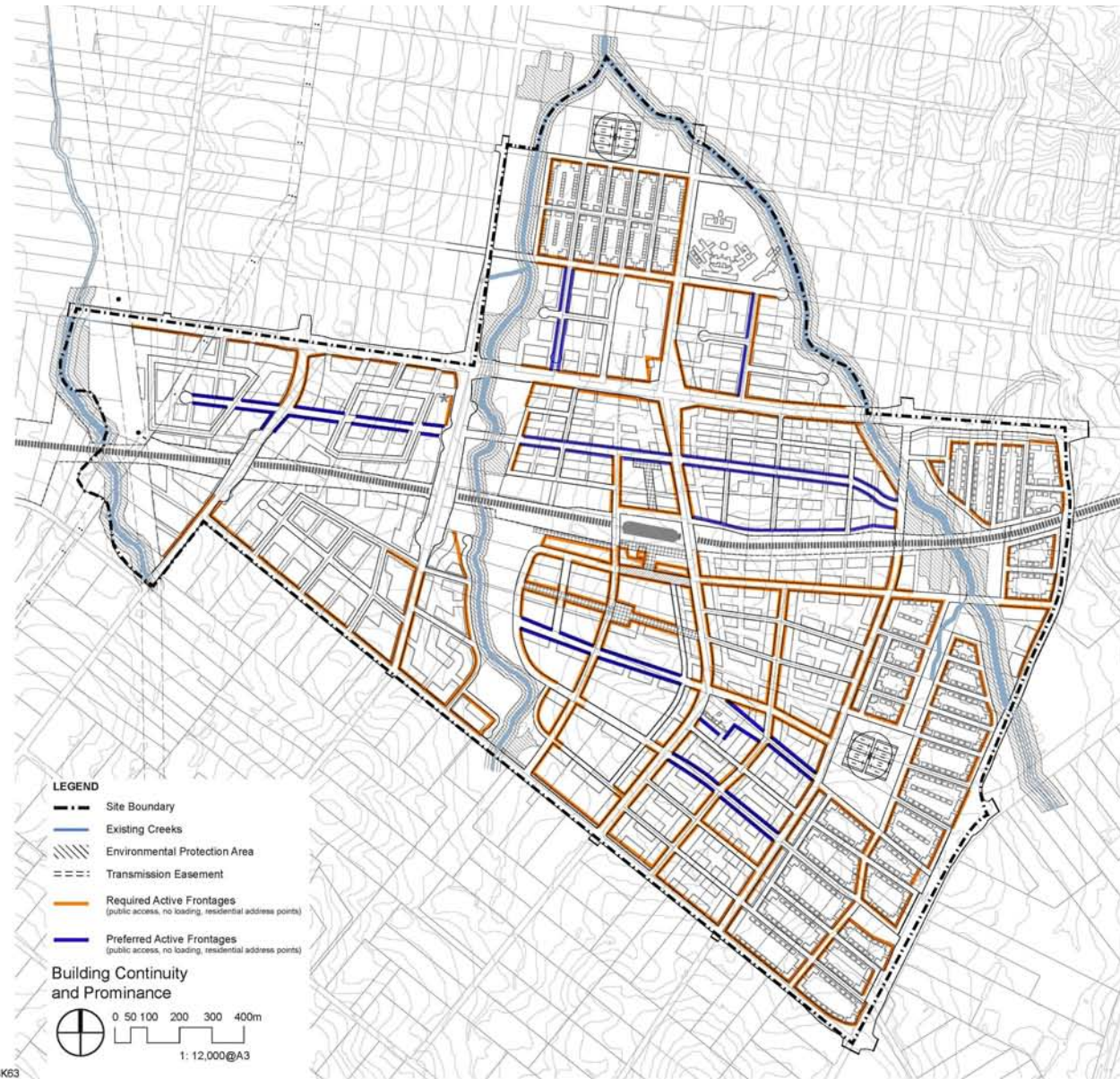
5.1.1 Building orientation

Objectives

- a. To establish a positive interface between buildings, streets, parks, plazas and squares.
- b. To provide passive surveillance and activity within the public domain.
- c. To ensure that buildings are positioned and orientated to maximise energy efficiency, take advantage of sunlight and provide protection from inclement weather.

Controls

1. Buildings are to be orientated towards and provide active frontages at street level, to Rickard Road, the Main Streets and preferably to Town Centre Streets, as shown on **Figure 5-15-1**.
2. Active ground floor uses that include outdoor seating and/or openable shopfronts are best orientated towards the north or east, however these uses are encouraged facing Rickard Road, the Main Street and Town Centre Streets regardless of their orientation.
3. The main pedestrian entries to buildings, including ground floor retail and commercial premises that face the street, are to be from the streets listed in the controls above with active frontages.
4. Buildings are to be orientated towards major access roads in the Leppington Major Centre, including Eastwood Road, Dickson Road, Ingleburn Road, Bringelly Road, Byron Road, Edmondson Avenue, Camden Valley Way and Cowpasture Road. Blank walls are not to face these roads, and glazing is to occupy at least 50% of the building façade width facing these roads.
5. Service and utility bays, loading docks and car park entries are to be orientated towards Service lanes, or where this is not possible, to streets that are not specified as requiring at Active Frontage in **Figure 5-15-1**. Where vehicle entry is provided from a Town Centre Street, car parks, service bays and loading docks are to be screened from view from the street.
6. Large format retail such as supermarkets and parking areas are to be sleeved or hidden by retail and commercial uses, or designed with a high proportion of glazing where the building fronts directly onto the Main Street or Town Centre Streets.
7. Buildings are to be orientated to provide attractive, active building frontages and passive surveillance to public open space, land zoned for drainage purposes, plazas, squares and pedestrian through-site links.



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Figure 5-1: Building orientation

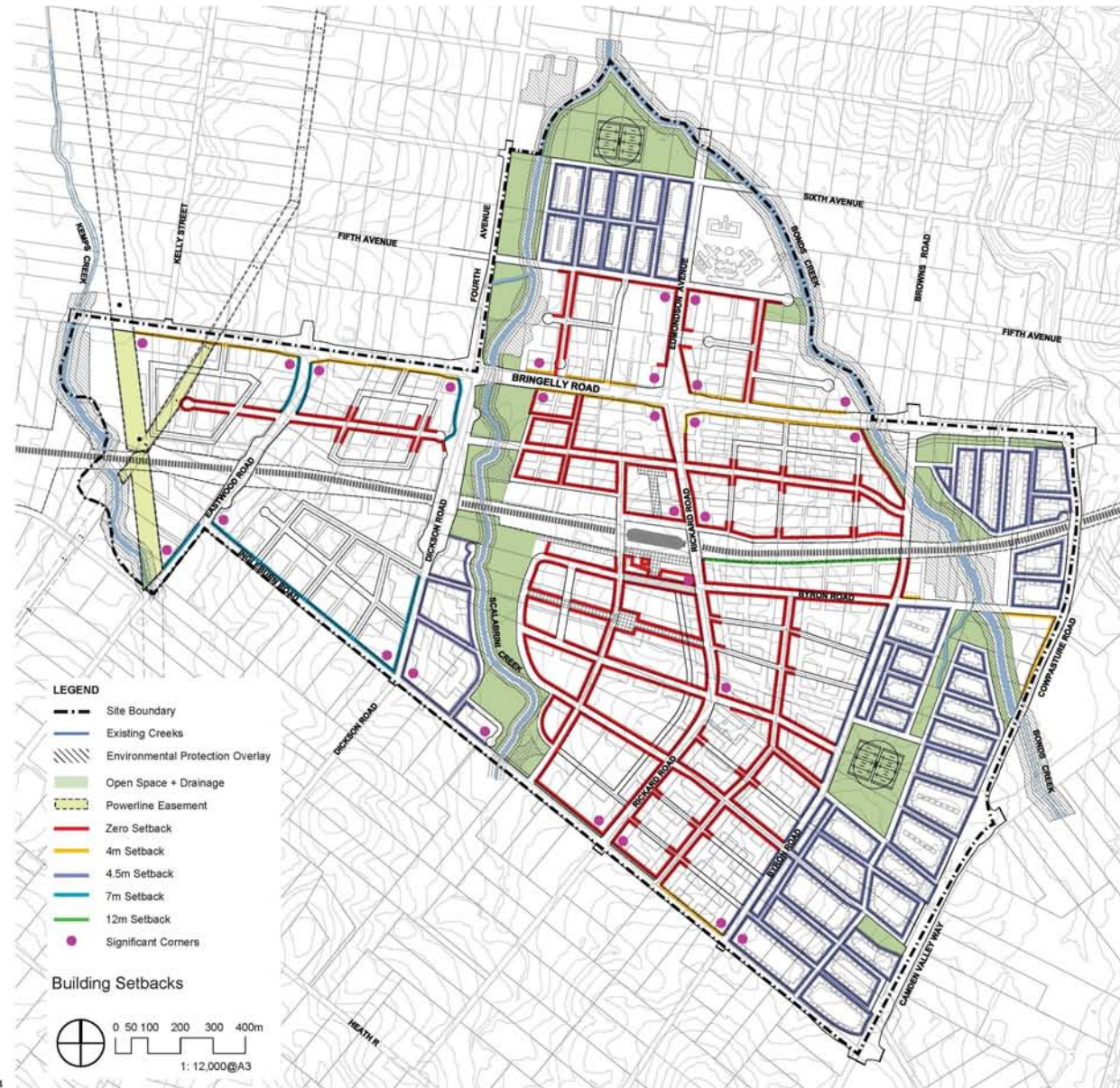
5.1.2 Setbacks

Objectives

- a. To establish consistent building lines fronting streets and other elements of the public domain.
- b. To provide sufficient space between buildings and the street for landscaping where necessary.
- c. To establish the desired vertical and horizontal spatial proportions of streets and other public places.
- d. To provide a defined street edge within a town centre context.
- e. To encourage passive surveillance of streets and other public spaces.

Controls

- 1. Building setbacks are to be in accordance with **Figure 5-25-2**.
- 2. Where **Figure 5-25-2** identifies a zero setback, buildings are to be built to the property boundary (i.e. a zero setback), for at least the ground floor and first floor.
- 3. Projections beyond the zero setbacks lines may include awnings, verandas, balconies, roof overhangs and blade walls above street level.
- 4. On land where a front setback other than a zero setback applies, façade articulation elements may extend into the front setback to a maximum of 1.5 metres and for a maximum of 50% of the length of the building facade.
- 5. Setbacks for residential buildings (apart from residential buildings that contain retail or commercial uses at the ground floor), are to be in accordance with the residential setback controls in Part 4 of the main body of this DCP.



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Figure 5-2: Building setbacks

5.1.3 Building height and envelope controls

Objectives

- a. To control the height, bulk and scale of buildings to be consistent with the Leppington Major Centre Vision and Planning Principles.
- b. To ensure appropriate sunlight penetration to streets and public spaces.

Controls

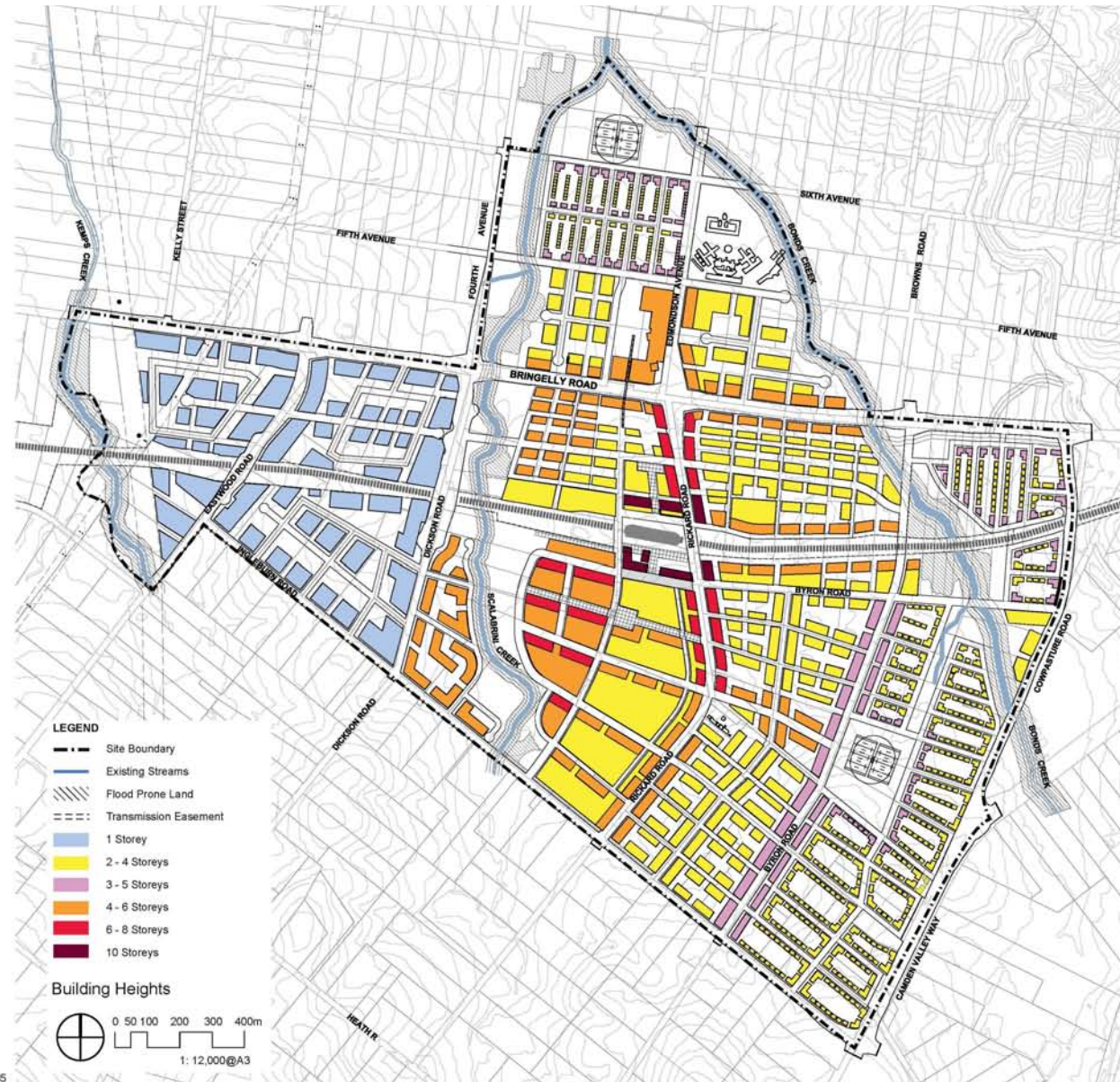
1. Maximum building heights are to be in accordance with **Figure 5-35-3**.

Note: *The Growth Centres SEPP specifies maximum building heights. The controls in this DCP are intended to provide more detailed guidance on appropriate building heights to achieve urban design, amenity and environmental sustainability outcomes for the Leppington Major Centre.*

2. The Rickard Road Transit Boulevard, Leppington Station, and prominent street corners should be reinforced in a visual context through concentrating building height and built form, as illustrated at **Figure 5-35-3**.
3. Taller buildings may also be concentrated along other major roads and adjacent to public open space, plazas and squares to emphasise and assist in way-finding to these public spaces, providing solar access requirements can still be achieved.
4. Above the first floor, building setbacks and separation distances are to be provided in accordance with the controls in Part 5 in the main body of this DCP.

Note: *it may be necessary to vary building setbacks and separation distances on upper floors from the numeric controls in Part 5 of the DCP, to ensure that privacy, amenity and solar access are provided in accordance with the relevant DCP controls.*

5. Buildings are to be designed to ensure a human scale is maintained at street level.
6. Minimum floor to finished ceiling heights are as follows:
 - Ground floor of all buildings (regardless of use): 3.6m
 - First floor for retail and/or commercial use: 3.3m
 - All other retail and/or commercial floors: 3.3m
 - All other residential floors: 2.7m



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Figure 5-3: Building heights

5.2 Façade design

Objectives

- a. To ensure that the design of building facades contributes positively to an attractive streetscape.
- b. To encourage materials and finishes that are attractive, compliment the public domain, and are durable and easy to maintain.
- c. To maximise activity and surveillance at street level.

Controls

1. Articulation zones should be provided to compliment the building mass and emphasise key design elements such as entrance points and respond to environmental conditions including solar access, noise, privacy and views.
2. External security shutters are not permitted.
3. On corner sites, shop fronts are to wrap around the corner.
4. Entries to residential or commercial lobbies, facing Rickard Road, Main Town Centre Streets or Internal Access Streets, are to be a maximum of 50% of the building frontage width or 10 metres, whichever is the lesser.
5. Architectural expression should be diverse across building groups/blocks and facades should be articulated to create visual interest.
6. There should be a contemporary architectural style based on simple primary building forms and a fine grained assemblage of elements (which may incorporate the diversity of character of streetscapes in historic towns such as Camden).
7. Façade design should create a series of vertical elements along a building length reflecting a traditional main street façade.
8. Building facades are to be designed to accentuate key architectural features and clearly delineate points of interest such as building entries, vertical and horizontal elements.
9. Building facades are to incorporate a variety of finishes and materials which provide visual relief to the built form and which complement the materials and colours adopted for the public domain (refer to **Part 4** of this Schedule).
10. Sleeve buildings are to be used to minimise the visual impact of large boxes, service areas and to define streets.
11. Roof forms and structures such as clock towers/spires are encouraged for key sites and roofs should be designed to break up the overall mass of a roof on a large building.
12. Roof elements should be used to screen mechanical plant.

5.3 Landscaping

Objectives

- a. To integrate landscaping within development sites with the design of buildings and with the landscape character of the public domain.
- b. To ensure landscaping contributes to an attractive streetscape, a safe environment for people, and to minimising the impacts of development on the natural environment.

Controls

1. A landscape plan is to be submitted for all development within the Leppington Major Centre where landscaped areas are required or proposed at ground level.
2. Where buildings require a setback of more than zero from the street, the setback area is to be landscaped and is to consist of predominantly soft ground with deep soil (ie. solid paving, concrete, or other impervious materials are to be minimised).
3. Landscaping within development sites is to complement the landscape character of adjoining streets and other public spaces (refer to the controls in **Part 0** of this Schedule).
4. The proportion of the site that is unpaved is to be maximised to enable maximum water infiltration. Planting is to include deep rooted tree species to assist in maintaining an appropriate water table.
5. Rainwater storage and re-use is required for all landscaping irrigation, with mains water only to be used as a backup. The capacity of on site water storage is to consider the likely water consumption required to maintain landscaped areas within the site.
6. Landscaping of development sites adjacent to Scalabrini Creek and Bonds Creek is to integrate with the natural characteristics of the existing vegetation or vegetation to be re-established along these creek corridors. Native (locally indigenous) plant species are to be the dominant landscape species in these locations.
7. Landscape plans submitted for development on bushfire-prone land (refer to the **Bushfire Risk and Asset Protection Zone Requirements** figure in **Schedule 1**) must be prepared in accordance with the NSW Rural Fire Service Planning for Bushfire Protection Guidelines.
8. Landscaping design and tree species selection is to consider solar access (in winter) and the provision of shade (in summer) to buildings, the public domain and outdoor areas within the development (including private or communal open space areas).

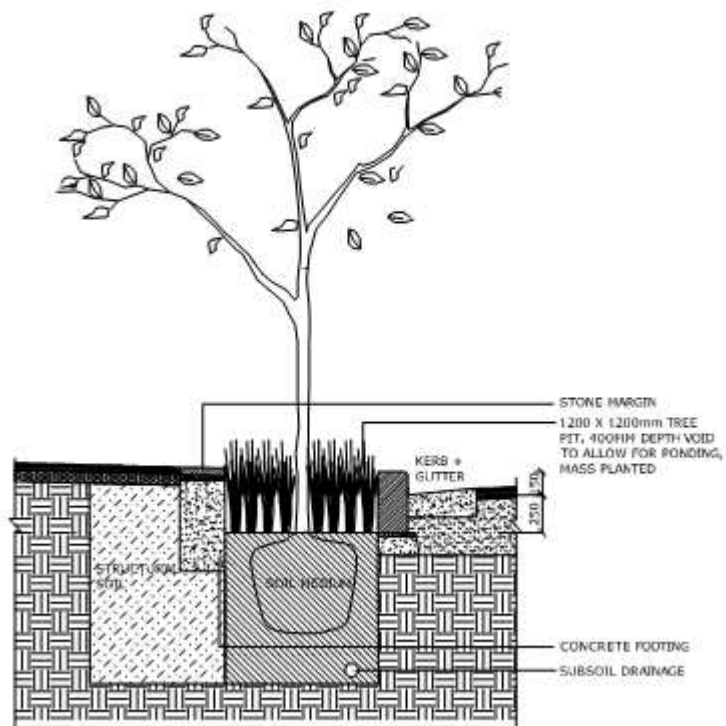
5.4 Water Sensitive Urban Design

Objectives

- a. To protect and enhance natural water systems which may be affected by urban development.
- b. To reduce storm water run-off and peak flows effected by urban development.
- c. To meet stormwater quality targets through treatment systems such as bio-retention, swales, wetlands and raingardens.
- d. To integrate stormwater detention and treatment with the urban structure of the Leppington Major Centre.

Controls

1. The Water Sensitive Urban Design controls in Clause 6.5 of the main body of the DCP also apply to development in the Business zones (B3, B4, B5 and B7) in Leppington Major Centre.
1. A Leppington Major Centre Water Sensitive Urban Design Strategy (WSUD Strategy) has been prepared by the Department of Planning and Infrastructure and is available from Council. Development applications must demonstrate compliance with the WSUD Strategy and the controls in this DCP (which take precedence over the Strategy) to Council's satisfaction.
2. Trunk stormwater detention basins and channels as shown on the Indicative Layout Plan have been designed to detain stormwater volume up to the 100 year ARI storm event from streets, residential zoned land and public spaces within the Leppington Town Centre. Detention of additional stormwater runoff as a result of other development is to be managed within the development site (on site detention) to ensure there is no increase in runoff in events up to the 100 year ARI event.
3. Where development adjoins or incorporates streets that follow drainage paths (low points), WSUD measures should be incorporated into the design of the street. Measures such as bioswales and tree pits are to be located in the road verge (as opposed to in a central median).
4. For individual Development Applications, a Water Cycle Management Strategy should be prepared by a suitably qualified consultant to demonstrate how the proposed development manages run off quantity and quality, reduces potable water use, minimises effluent production and integrates landscape irrigation with recycled water.
5. Measures to treat stormwater quality, to achieve the targets specified in clause 2.3.3 of the main body of this DCP, are to be incorporated into each development. The design and location of water quality treatment devices is to be consistent with the WSUD Strategy, and integrated with elements of the development such as car parks, landscaped areas, private open space, communal outdoor areas and setback zones.



Source: City of Ryde Public Domain Strategy

Figure 5-4: Design of tree pits

5.5 Parking, loading and access

Objectives

- a. To ensure an appropriate number of parking spaces are provided within the Leppington Major Centre to service the needs of businesses, residents and visitors.
- b. To encourage modes of travel other than private cars for travel within and to the Leppington Major Centre.
- c. To ensure efficient and safe access for delivery and service vehicles to businesses within the Leppington Major Centre.
- d. To provide integrated vehicle, bicycle and service access points without compromising streetscape character or pedestrian amenity.

Controls

1. On street parking to be provided throughout the centre in accordance with the cross sections in **Part 4** of this Schedule to contribute to street life and surveillance.
2. Rates of provision for car parking are to be determined with reference to the car parking rates specified in Part 4 of this DCP for residential development, Part 5 for commercial and retail development and Part 6 for industrial development. Rates may be modified (subject to agreement by Council), or Council may restrict the provision of parking to a maximum number of spaces because:
 - Access to public transport means that dependence on private cars is reduced within the Leppington Major Centre, or
 - Traffic congestion is likely to occur because parking provision generates traffic volumes in excess of planned road capacity, or
 - The required rate of car parking would result in detrimental impacts on the character and amenity of the centre, or
 - On street parking is available in proximity to the proposed development, reducing demand for internal car parking, or
 - Provision is made for other modes of transport eg. Walking and cycling that would reduce the demand for car parking, or
 - Efficiencies in car parking use are achieved by locating the proposed development adjacent to another development or land use that has spare car parking capacity (in general or at certain times of the day) or where parking provision can be shared between the developments, or
 - Shared use of car parking by commuters and the development is proposed, or
 - A detailed assessment of required provision of car parking demonstrates that parking will be appropriately provided at a rate which differs from the standards.

3. Rooftop parking is discouraged to preserve the future amenity for residential flat buildings located in the centre.
4. Below ground car parking is encouraged for higher density residential and mixed-use development and for major retail and commercial development.
5. The majority of car parking is to be provided under or behind buildings, and on street to limit visual impact and maintain pedestrian amenity.
6. Where multi-level parking is proposed above ground, the car park is to be screened from view from Rickard Road, Main Town Centre Streets and Internal Access Streets by buildings that present an active façade to the street.
7. Parking, loading and service areas are to be accessed predominantly from Secondary Town Centre Streets.
8. At grade car parking is permitted where the main access is from a Secondary Town Centre Street and where site landscaping and buildings provide appropriate visual screening from public places.
9. Car parks are not to be visible from public parks, squares or plazas.
10. Where below ground parking is along a street edge and cross ventilation is desirable, any exposed section of car park wall is to be appropriately modelled and scaled.
11. Natural ventilation of basement and sub-basement parking areas is encouraged to be provided wherever possible.
12. Service vehicle access points should be consolidated where possible to limit the potential for conflict points.
13. Bicycle racks/storage areas are to be provided in all developments in accordance with the requirements of Part 5 of the main body of this DCP. Bicycle racks/storage areas should be provided for both residents/employees and site visitors.
14. Within the B5 Business Development zone, between Bringelly Road and Fifth Avenue, car parks are to be located internally (i.e. behind buildings that provide frontages to Bringelly Road, Fifth Avenue and Edmondson Avenue).
15. Within the B5 Business Development zone, where car parking, loading or service areas are located adjacent to land zoned for public recreation, landscaping is to be used to screen the car park from view from the public recreation land.
16. Loading and service areas are not to be located adjacent to or across a road from land zoned for residential or public recreation purposes.

5.6 Development and use of flood prone land

Objectives

- a. To enable development that is appropriate to the level of flood risk that applies to parts of Leppington Major Centre.
- b. To maximise the development potential of land in Leppington Major Centre, and the productive use of land that is affected by flooding.
- c. To ensure that development does not create an increased risk of flooding or changes to flooding conditions.

Controls

1. Development within the 100 year ARI flood extent, as shown on the Floodprone Land figure in Schedule 1, is only to occur where the controls relating to flood prone land in Part 2 of the main body of this DCP are met.
2. Use of flood prone land for activities that are ancillary to development on adjoining (non flood prone) land are encouraged, subject to compliance with Council's Floodplain Risk Management Policy and the Precinct Water Cycle Management Strategy (available from Council), and may include:
 - Communal areas or private open space associated with residential or mixed use development or development in the Business Park.
 - Landscaping.

5.7 Heritage

Objectives

- a. To conserve and enhance the heritage significance of heritage items.
- b. To retain an appropriate landscape setting for the item and views associated with the place.
- c. To encourage ongoing use of heritage items, including adaptive reuse where this will contribute to the conservation of the item.

Controls

1. Developments in the vicinity of Leppington School Heritage Item must be sympathetic to the scale, massing and character of the significant weatherboard buildings and their garden setting. Buildings shall not exceed two storeys in height within 10 metres of the curtilage of the Leppington School site. Developments shall incorporate landscape treatments to ensure an appropriate transition of building scale between the heritage item and adjacent development.
2. Developments that coincide with the former Eastwood Road historic road alignment shall conserve elements of the original road alignment within the landscape, either by means of a natural landscape corridor or other forms of interpretation such as explanatory signage.

5.8 Staging of development

Objectives

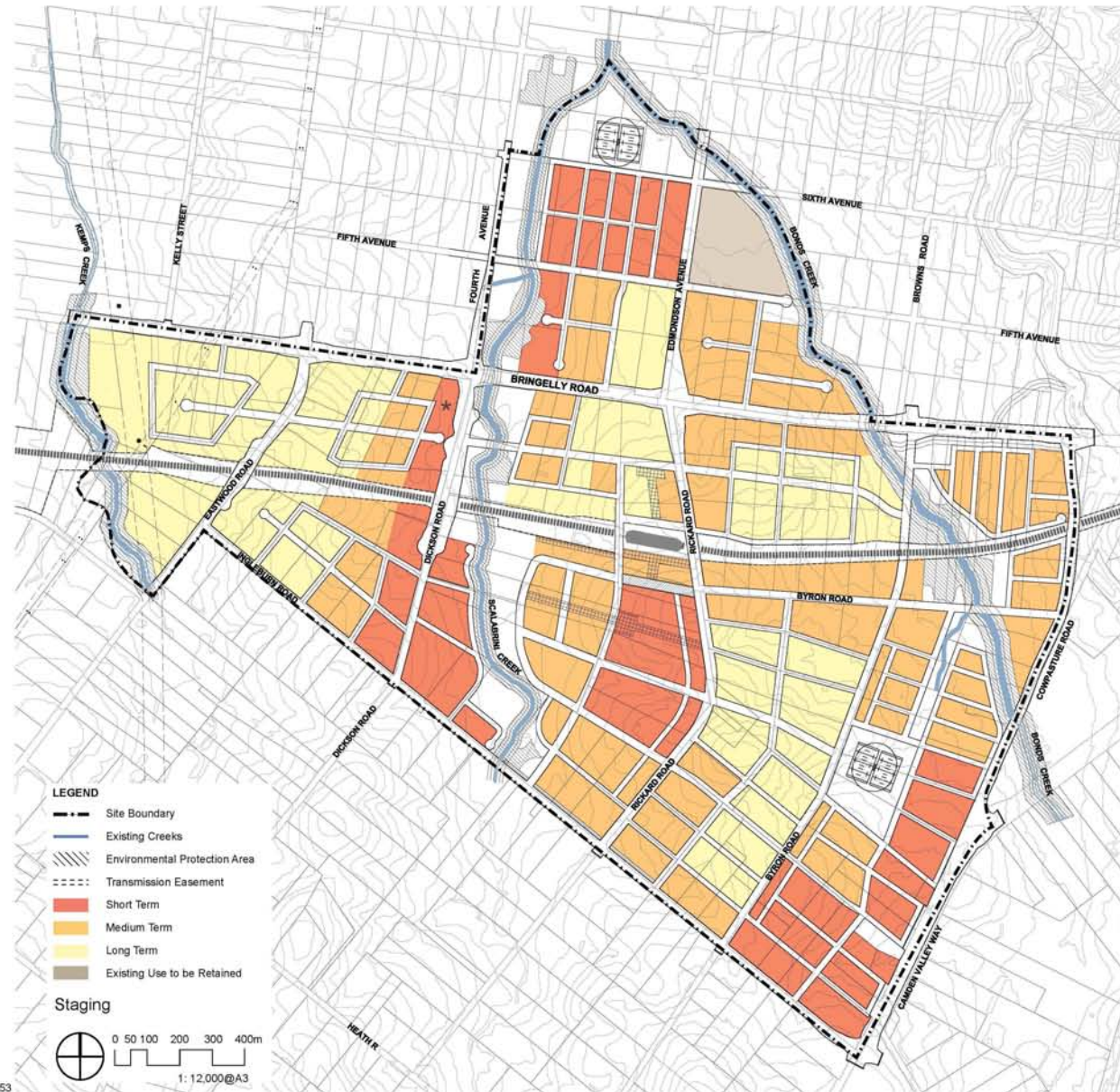
- a. To recognise that development of the Leppington Major Centre will occur progressively over a number of years and that early stages of development have the potential to influence long term outcomes for the centre.
- b. To ensure that development, at all stages of the development of the centre, is consistent with the Leppington Major Centre Vision and Planning Principles.
- c. To maximise the efficient delivery of infrastructure necessary to enable development to occur in the centre.

Controls

1. Development in the early stages of growth in the centre should be designed, oriented and located to comply with the relevant controls in this schedule, or to not preclude future development from complying with the controls and Planning Principles.
2. To the extent that it is practical, early development in the centre is to consider the layout, orientation and scale of future stages of development that may occur and whether the proposed development will enable future stages of development to occur.
3. In support of Control 2, Council may require the applicant to submit concept plans showing how the proposed development would integrate with potential future stages of development on the land or on adjoining land, in a manner that is consistent with the controls in this Schedule.
4. Temporary access arrangements may be agreed to by Council in situations where the road network is not sufficiently developed to enable compliance with the parking, loading and access requirements of clause 5.4. Where temporary access arrangements are proposed, applicants are to demonstrate how the development will enable transition to permanent access arrangements that comply with clause 5.4 when the road network is sufficiently completed.
5. To enable the efficient development of land in the early stages of the centre, Council may consider amendments to the locations of roads as shown on the Indicative Layout Plan, where necessary to maximise the development potential of land or to ensure that appropriate access is provided.
6. Despite Control 5, the locations of the Main Street, Bus Interchange Street and Town Centre Streets are generally fixed and applicants will be required to construct these roads at, or as close as possible to, the locations shown on the Indicative Layout Plan.
7. Council will generally require the full width of roads to be constructed as part of any development proposal that requires the construction of a new road, except for the road verge and footpath on the side opposite the development, where applicants can demonstrate to Council that that verge and footpath is not required to service the proposed development. Where the new road straddles a property boundary, Council may accept amendment to the location of the road to ensure the full road

carriageway width (and full width of verges/footpaths where required) can be constructed within the development site.

8. Construction of half road widths will only be permitted where the applicant can demonstrate to Council that the half road will have sufficient capacity and be safe for the predicted traffic volumes. Half roads will not be permitted where they form the primary means of vehicular access to parking areas for retail premises or commercial premises.
9. **Figure 5-55-4** illustrates the potential staging of development in Leppington Major Centre, based on factors including likely water, sewer and electricity servicing, development of the road network and demand for different types of development in the town centre. The staging of development is not required to occur as shown on **Figure 5-55-4**, but is to consider the other requirements of this clause to contribute to the orderly and efficient development of the centre.



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CM⁺ Conyngham Morrison

Client: Department of Planning | Jun 2012 | 10027-SK53

Figure 5-5: Indicative development stages in Leppington Major Centre

