Public Domain Guidelines

CITY OF PARRAMATTA

JULY 2017

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AMENDMENT RECORD

Date	Adoption	Description	Page No.
March 2014	Original Adopted Version – March 2014	Original version	
January 2016	Endorsed by Council - December 2015	Chapter 2 replaced – Public Domain Works Approval Process	P5-19
		Chapter 4 – Access and kerb ramps relocated to Chapter 4 from Chapter 5	P51-66
		Chapter 5 replaced – Parramatta Centres Strategy	P67-93
		Chapter 6 - City Centre Special Places relocated to Chapter 6 from Chapter 5.	P94-132
February 2016	As above	Fixed an incorrect paving material	P76
10 July 2017	Endorsed by Council	Overall document update	

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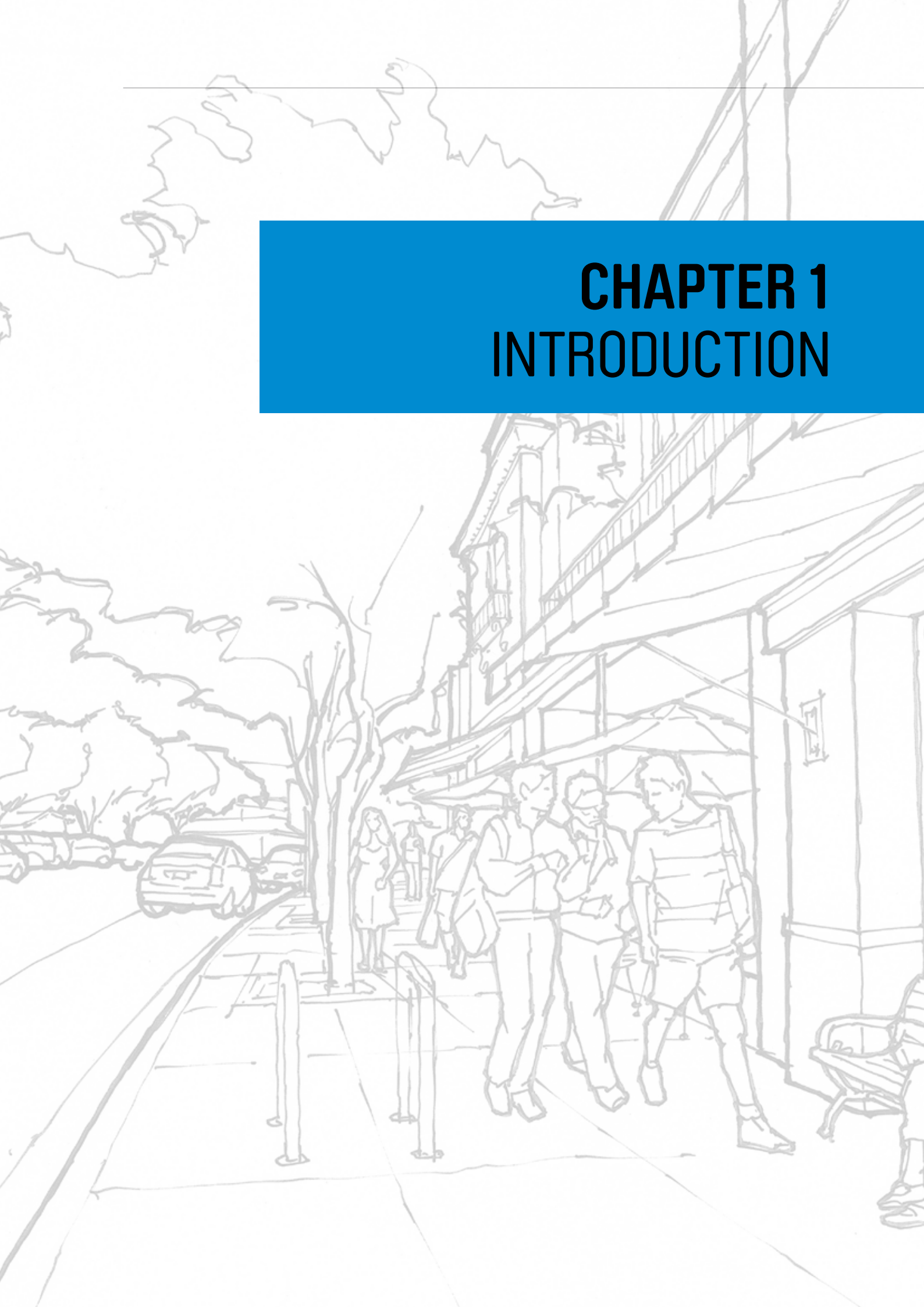

CHAPTER 1
INTRODUCTION

'In a society becoming steadily more privatised with private homes, cars, computers, offices, and shopping centres, the public component of our lives is disappearing. It is more and more important to make cities inviting, so we can meet our fellow citizens face to face and experience directly through our senses. Public life in good quality public spaces is an important part of a democratic life and a full life.' **Jan Gehl**

'A good city is like a good party – people stay longer than really necessary because they are enjoying themselves'.
Jan Gehl

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1 INTRODUCTION

1.1 PURPOSE

Parramatta's Public Domain Guidelines (PDG) provide design strategies, technical guidelines and materials palettes for streets and public places in the City of Parramatta. The guidelines ensure the co-ordination of materials, and design and construction standards across the LGA and allow for the streamlining of procurement, operational, maintenance and management processes.

This allows the City to maximise cost, time and operational efficiencies.

The PDG is supported by the DS Series Layout and Construction Drawings. These drawings provide written specifications and standard construction details for public domain and civil (road and service infrastructure) assets. These drawings are not available on the public website. Contact Council Officers to arrange access to relevant details for your project.

1.2 RELATED COP DOCUMENTS AND POLICES

Many aspects of the built form lining streets and public places have the potential to directly affect the quality of the public domain. Controls for built form development are provided by council to guide developers in the design of built form to deliver the best outcomes for the City. This information can be found in the City of Parramatta's (CoP) public planning framework of strategic plans, planning controls and policy codes. Development is also subject to State and utilities authority's requirements and relevant industry standards.

CoP strategic planning and policy documentation includes the following.

Statutory Planning:

- Parramatta Local Environmental Plan (LEP) 2011 which identifies and controls the type of development that is acceptable in any part of the LGA.
- Parramatta City Centre Development Control Plan (DCP) 2011 which addresses controls on driveway access, location of building entrances, awnings, fencing, building setbacks and signage. It needs to be read in conjunction with the PDG.

Relevant plans, strategies, policies and guidelines may include

- Parramatta Lanes Policy 2011

- Design Excellence Competition Brief
- Outdoor Dining Policy
- Parramatta Street Tree Plan providing species recommendations for the remainder of the LGA
- Parramatta Public Domain Framework

All public domain projects also need to uphold all relevant best practice industry technical , engineering and environmental standards.

1.3 SCOPE

The public domain is the publicly accessible, shared spaces in the city and neighbourhoods including streets, lanes, squares, parks and building setbacks. The City of Parramatta includes the CBD, town centres, local and neighbourhood centres, local streets and a range of parks and public spaces. The PDG addresses all public places throughout the LGA.

1.4 WHO ARE THE GUIDELINES FOR

The public domain is designed and built by many different parties including Council, utilities, other public authorities, private developers when required by DA conditions and residents when building new driveway crossings. Consistent standards are outlined to ensure co-ordinated design and construction methods are achieved in the delivery of public places as numerous separate projects. A co-ordinated suite of elements and materials will similarly facilitate the cleaning, management and maintenance of public assets.

Accordingly, the PDG is a guide, reference and checklist tool for everyone involved in the planning, design, approval, delivery and care of public domain assets for the City. These include:

- City officers in strategy, assessment, project delivery and city operations
- Developers and design professionals external to council
- Infrastructure agencies whose public domain works require coordination with the City's assets, and
- Residents

1.5 STRUCTURE OF THE GUIDELINES

The PDG needs to be read in conjunction with other relevant planning controls and polices for the City. All public domain works are subject to Council approval and will be assessed on a case by case basis via the development application process.

The main steps to using the guidelines are as follows.

- **Chapter 2 (Approval Process)**: Understand the required approval process for the project.
- **Chapter 3 (Street Design)**: Establish balanced street spatial relationships with geometry design controls for each components of the street.
- **Chapter 4 (Place Strategies)**: Identify the location and character of your project using the Parramatta Centres Hierarchy Map; Understand the key objectives and principles that apply to your project; Identify the required furniture elements and materials palette for your project.
- **Chapter 5 (Element Strategies)**: Review the design controls and considerations for all public domain elements; Review the preferred arrangement of infrastructure and elements in order to prepare street and public place designs.
- **Chapter 6 (Element Details)**: Review the typical elements details to refine project designs.
- Request relevant **DS** (Design Standards) drawings & specifications from Council's Assets Infrastructure & Urban Design teams.

1.6 USERS GUIDE

Council will require different scopes of public domain upgrades based on the scale of the developments and their impacts to the public realm. In general, the larger scale of the development will be required larger scope of public domain upgrade works, which might include widening footpath, re-aligning kerb lines, renewing drainage systems and so on, apart from the usual works such as tree planting and pavement renewal. Council recommends different processes to use this Guidelines when dealing with different scales of developments:

Figure 1.1 Users Guide Flow Chart

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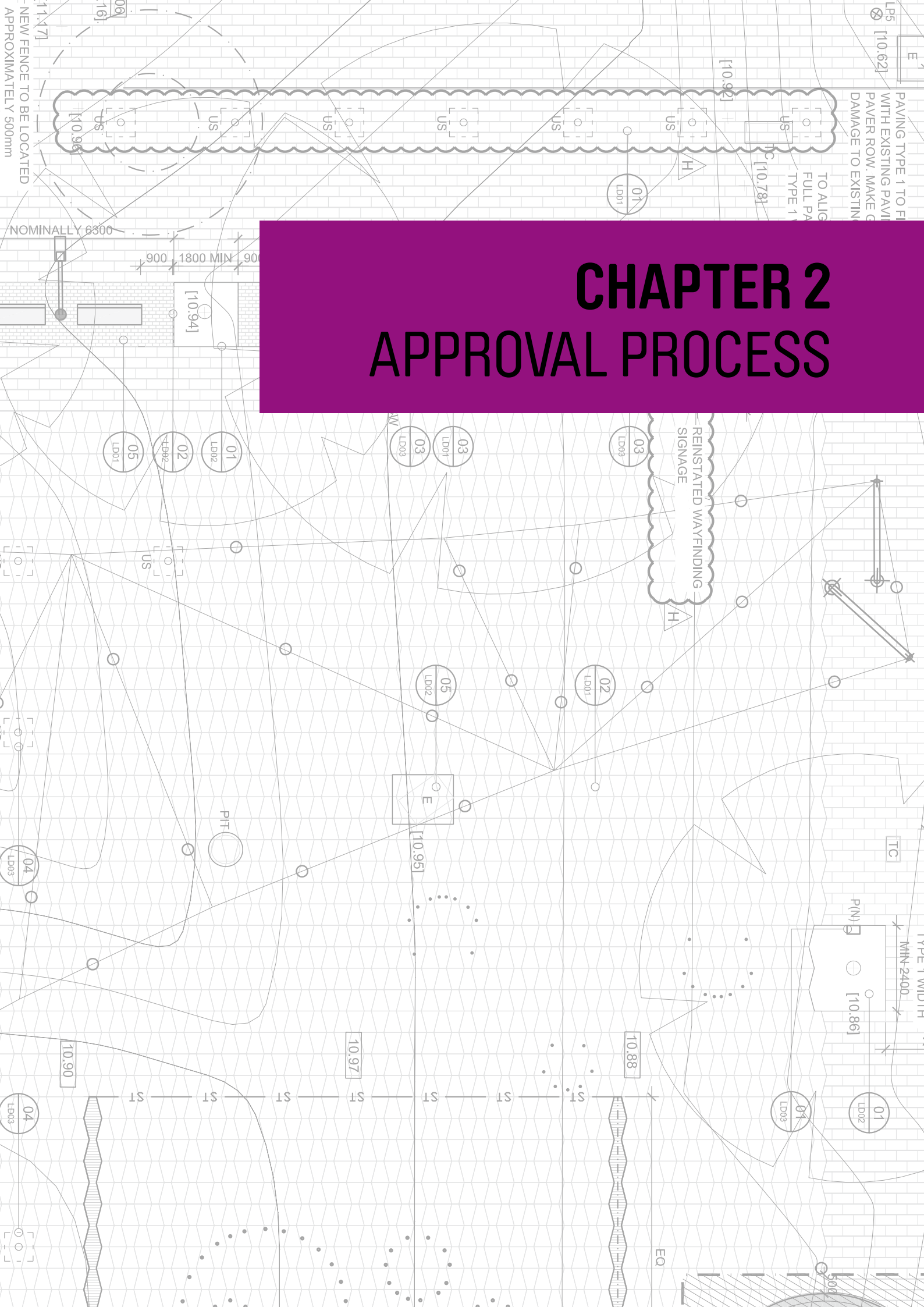

CHAPTER 2
APPROVAL PROCESS

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2 PUBLIC DOMAIN WORKS APPROVAL PROCESS

KEY POINTS OF THIS CHAPTER

- Council assessment and approval procedures
- Design considerations when preparing the submission
- Document and drawing requirements for each development stage
- Drawing format and consultant qualification requirements
- Inspection regime during construction
- Final sign-off process by Council

Approval is required to carry out works on land that is owned and/or managed by City of Parramatta Council, and land that will be dedicated to Council. This includes work on roads, drainage, footways, open spaces and other public lands referred to as the public domain. Any work required in the public domain must be documented to Council standard requirements described herein for each development stage.

2.1 COUNCIL APPROVAL PROCESS

Council's submission & approval process is summarised below:

Table 2.1 Council Approval Process for Public Domain Works

APPROVAL STAGE	SUBMISSION	RE-FERENCE
PL **Pre-Lodgement & Consultation**	**Public Domain Concept** Provide site analysis & concept design drawings showing intent of proposed public domain works. If desired, arrange a pre-lodgement to discuss.	**2.2** **Page 10**
DA **Development Application**	**Public Domain Alignment Drawings** Detailed public domain concept drawings incorporating civil engineering and landscape architectural works.	**2.3** **Page 11**
CC **Construction Certificate**	**Public Domain Construction Drawings** Construction standard drawings indicating approved public domain works based on approved Alignment Drawings and requirements in Conditions of Consent. Must be fully co-ordinated with all other design disciplines.	**2.4** **Page 16**
CP **Construction Phase**	**Inspections & Sign Offs** Site inspections carried out by Council Officers at key stages of the construction phase.	**2.5** **Page 20**
OC **Occupation Certificate**	**Work-as-Executed Drawings & Final Sign Off** As-built drawings based on a survey of the completed works. Final sign-off by Council prior to any issue of OC by Council.	**2.6** **Page 21**

2.2 PRE-LODGEMENT (PL) CONSULTATION

A Preliminary Consultation is recommended for all major projects involving works in the public domain.

Prepare preliminary site analysis and design drawings describing development concepts sufficient to allow Council Officers to consider the concepts and identify key issues. Submit drawings as described in below table to Council at least 7 days prior to the meeting.

It is recommended that a preliminary site survey and site analysis is used to inform the initial concept plan. Prepare a concept plan with indicative proposed design solutions to the issues identified in preliminary site appraisals and include the following.

Table 2.2 Submission Requirements at Pre-Lodgement Stage

DRAWINGS	INFORMATION REQUIREMENTS	PREPARED BY	SUBMISSION FORMAT	MINIMUM SCALE
Site Analysis	Prepare site analysis showing site context, opportunities and constraints to inform the concept plan. Design considerations should include desired future character, street hierarchy, adjacent amenities, land uses, street trees, heritage elements, privacy issues, overshadowing, desired access lines, building bulk and passive surveillance.	Qualified Landscape Architect	Two (2) copies of A3 drawings, and PDF format file to scale	1:500
Concept Plan	Show proposed development both on the site and on public land sufficient to allow Council staff to consider the concepts being put forward. Pedestrian access and connections around the development. Local context (local character, infrastructure, public amenity) and required access provisions. Fixtures and fittings proposed in the public domain. Indicative ground floor plans and uses and indicative levels. Interface between proposed buildings and the public domain with emphasis on pedestrian and vehicular access and service.	Qualified Landscape Architect	Two (2) copies of A3 drawings, and PDF format file to scale	1:500

2.3 DEVELOPMENT APPLICATION (DA) SUBMISSION

2.3.1 REFERENCE DOCUMENTS

Applicants should refer to the following documents when the Public Domain Alignment Drawings are being prepared:

- CoP Public Domain Guidelines (available on www.parracity.nsw.gov.au);
- CoP Design Standards (DS drawings available on request); and
- Any relevant Voluntary Planning Agreement (VPA) requirements.

2.3.2 PUBLIC DOMAIN ALIGNMENT DRAWINGS

The Public Domain Alignment Drawings shall show all of required information stated below:

- Existing and proposed levels for roads, footways, forecourts and through-site links. They should clearly document road, footway, kerb and gutter levels and cross-falls for a site, relative to Australian Height Datum (AHD) and Map Grid Australia (MGA).
- In addition to levels throughout publicly accessible areas, the proposed relationship between private and public domains. Alignment information may be included on landscape or architectural plans to demonstrate integration of buildings and private landscaping with the surrounding public domain.
- Street sections, and engineering cross and longitudinal sections based on detailed and accurate survey information and consist of plans. They should clearly show existing public domain levels and proposed changes to meet Council standards, and reflect any Council proposed changes to the public domain as applicable.

2.3.3 PREPARATION AND APPROVAL

The Public Domain Alignment Drawings must be overlaid on a survey plan prepared by a registered surveyor, and be designed by a qualified civil engineer and landscape architect. Submissions must be approved by Council prior to the issue of DA consent.

2.3.4 PURPOSE

The Public Domain Alignment Drawings are required so Council can clearly understand relationship of the horizontal and vertical levels and grades at the interface of the development and the public

domain. Ensure flush surfaces and safe grades at all proposed building entry points. Ensure improvements for accessibility are provided in accordance with Council standards, and what changes are proposed. Public Domain Alignment Drawings must also show a co-ordination and general layout of all elements, both existing and proposed, in the public domain. This allows Council to properly assess and approve the proposed work.

2.3.5 TRIGGER

Private development proposals that meet any of the following criteria must be accompanied by Public Domain Alignment Drawings:

- Developments in CBD, Town Centres and Future Urban Villages; or
- Developments that provide new public domain infrastructure including roads, laneways and pedestrian links; or
- Developments in land use zones including B1 Neighbourhood Centres, B2 Local Centres, B3 Commercial Core, B4 Mixed Use, B5 Business Development, B6 Enterprise Corridor (refer Parramatta City Centre LEP 2007 and Parramatta LEP 2011); or
- Some developments in R4 High Density Residential zones, subject to Council advice; or
- Any development with nil setback.

Council's Public Domain Team aims to provide feedback on Public Domain Alignment Drawings in 4-6 weeks depending on the complexity of the project, integration with other approvals, the completeness of the submission information provided, and Council's existing workload.

2.3.6 SCOPE

The Public Domain Alignment Drawings should include all frontages of the development site or project area including an extension of 20m along the footway at both ends of the development site (as applicable) and including kerb ramp connections across streets to clearly address transitions to surrounding conditions.

Street sections should extend from 2m inside the building to the kerb. Engineering cross sections should extend from the building line to the centre line of the road carriageway.

2.3.7 COORDINATION

The Public Domain Alignment Drawings must be fully coordinated with other works and consultant submissions for any proposed public domain development. This includes all civil engineering and levels, public domain, ground floor architectural, lighting and landscape design.

Failure to ensure that all work and consultant submissions are coordinated can result in delays in approvals where Council must request additional information to clarify what is actually proposed.

2.3.8 DESIGN CONSIDERATION

Table 2.3 Design Considerations for Resolution in the Public Domain Alignment Drawings

ELEMENTS	DESIGN REQUIREMENTS
Levels and Gradients	Pedestrian Path of Travel (POT) based on Council's requirements, contiguous with property line, to be clear of all obstacles and trip hazards and to have cross fall between 1-2.5%. High volume pedestrian areas may require wider POTs on advice of Council. Adjustment of footways to achieve between 1-2.5% cross fall from building line to top of kerb. All levels must be to Australian Height Datum (AHD). Building/development floor levels set to allow achievement of recommended footpath cross falls and a smooth transition between public and private land. Change of level treatments (steps, ramps) within the property line to meet footpath level design at all site entries as required. Localised adjustment of footpath levels to facilitate building entries or pedestrian or vehicular access requirements must occur within the building, not on the public way. Localised adjustment of longitudinal grades to suit building/ development entries not permissible in the public domain. Proposed finished levels (contours and spot heights to AHD) for all elements in the public domain including kerbs and walls (top and bottom levels), fences, pit lids and services. Where existing footpath levels and gradients do not comply with city standards, footpath reconstruction will be required. Small variations to the standards due to latent site conditions may be accepted, subject to consideration by the Civil Assets Manager.
Street Geometry	Indicative new road alignments and location of traffic features (such as refuge islands, kerb blisters and pedestrian crossings) in the road carriageway. Intersections designed with priority for pedestrians wherever possible including consideration of minimum kerb radii, kerb extensions, raised thresholds, continuous thresholds, marked pedestrian crossings and signalised traffic lights.
Kerbs and Gutters	Kerb line is to be parallel to and 150mm above invert of gutter. The design levels for new kerb returns must include boundary, top of kerb and gutter levels at relevant chainages.
Pavements	Proposed adjustments to general footway gradients to accommodate new pedestrian ramps and driveways. Indicative access provisions and location of fixtures in accordance with Australian standards and Council requirements. Proposed pavement finishes to concept design standard.
Ramps and Driveways	Proposed adjustments to general footway gradients to accommodate new pedestrian ramps and vehicle crossings. Note: adjustment of levels at vehicle and pedestrian entrances to address flood planning levels (e.g. for property basements) is not permitted. Any such adjustments must occur within the building.
Tree Pits	Location and dimensions of tree pits. Council may advise species during assessment.

ELEMENTS	DESIGN REQUIREMENTS
Services, Pit Lids and Permanent Survey Marks	Adjustment of existing and indicative location of new services, pit lids and permanent marks to suit required footpath longitudinal and cross-falls.
Lighting and Poles	Identification of redundant and/or relocated poles in the footway. Indicative location and type of all new poles proposed in the footway. Indicative location of underground cables where the applicant is required to underground overhead power.
Street Furniture, Signage and Structures.	Identification of redundant and/or relocated fixtures and fittings in the footway. Indicative location of street furniture and signage in the footway. Proposed walls, fences, raised planter beds, awnings and any other structure in the public domain to concept design standard.
Specialised Designs	In some cases, specialised work to the public domain is required due to the specific impact or technical complexities of a development or site. In such cases, a site specific scope of work and documentation will be required.
Encroachments	Elements related to the private property must not encroach into the public domain. This includes steps, balustrades, handrails and Tactile Ground Surface Indicators (TGSIs).
Setbacks	Setbacks and indentations between the building and property boundary line must be paved continuously with the footpath for visual consistency.

2.3.9 SUBMISSION REQUIREMENT

Table 2.4 Submission Requirements for the Public Domain Alignment Drawings

DRAWINGS	INFORMATION REQUIREMENTS	PREPARED BY	SUBMISSION FORMAT	MIN. SCALE
Layout Plans	Running chainages along the footway at 10m intervals, extending 20m beyond the property boundaries to ensure that levels adjustments are transitioned smoothly into the existing public domain. Alignment and levels (existing and proposed) at top of kerb, gutter line invert, drainage gullies, property boundary, building line, and in the road carriageway as required (e.g. for road restorations or adjustments) at the regular 10m chainages shown on the plan. Include existing street names. Existing and proposed levels at all entries. Ground level building footprint, indicative uses and levels including locations of building entries and driveways (existing, proposed and redundant), windows, building setback areas, recesses, forecourts, awnings, building overhangs and basement carparks. Ideally, existing and proposed works should be overlaid on the same plan, rather than separated onto different plans. This helps Council staff understand how the existing and new works relate to each other. North point; title block showing the project address and the type of plan; correct drawing numbers, revision numbers and dates, accurate metric scale. Extent of proposed works.	Qualified Civil Engineer and Landscape Architect	Three (3) copies of A1 drawings, and PDF format file to scale	1:200
Street Sections	Indicative street sections taken through the ground floor building interior, footpath and kerb showing level changes and fixtures within the streetscape such as garden beds, walls, fences, awnings, handrails, street furniture, trees and the like. Location of sections should favour building entries.	Qualified Landscape Architect		1:100

DRAWINGS	INFORMATION REQUIREMENTS	PREPARED BY	SUBMISSION FORMAT	MIN. SCALE
Cross Sections	Cross sections taken through the footpath and road carriageway at the same regular chainage intervals as shown on the plan for all street frontages. Include existing and proposed alignments, levels and cross falls at the property boundary, top of kerb, base of kerb and carriageway centre line. Include sections through any road restorations.	Qualified Civil Engineer	Three (3) copies of A1 drawings, and PDF format file to scale	Horizontal 1:100; Vertical 1:5
Longitudinal Sections	Longitudinal sections taken through the property boundary and top of kerb showing existing and proposed alignments, levels and falls at the same regular 10m chainage intervals shown on the plan for all site frontages. Include existing and proposed levels at driveways, kerb ramps, building entries and the like. Extend beyond the development area as necessary to ensure a smooth transition to surrounding public domain areas. Where a redesign of kerb returns is required, a separate longitudinal section is to be provided and must include existing and proposed levels at the boundary, top of kerb, gutter invert and pram ramps at relevant chainages.	Qualified Civil Engineer		Horizontal 1:200; Vertical 1:5

2.4 CONSTRUCTION CERTIFICATE (CC) SUBMISSION

2.4.1 REFERENCE DOCUMENTS

Applicants should refer to the following documents when the Public Domain Construction Drawings are being prepared.

- CoP Public Domain Guidelines (available on www.cityofparramatta.nsw.gov);
- CoP Design Standards (DS drawings available on request);
- Any relevant Voluntary Planning Agreement (VPA) requirements; and
- The conditions of DA consent.

2.4.2 PUBLIC DOMAIN CONSTRUCTION DRAWINGS

The Public Domain Construction Drawings package is a set of construction documentation which details the approved works shown on the Public Domain Alignment Drawings and any additional requirements stated in 2.4.1 Reference Documents above, in particular conditions of the DA consent. The drawings shall be based on an accurate survey plan showing proposed works and/or changes to roads, kerbs, gutters, footpaths, signage, lighting, street trees, nature strips and other public spaces. It will clearly show which elements are retained, protected, removed or replaced as well as all new work proposed to deliver a public domain in accordance with Council standards.

The drawings shall consist of plans, cross-sections, longitudinal sections and construction details.

2.4.3 PREPARATION

The Public Domain Construction Drawings must be prepared by a civil engineer and a landscape architect. Submissions must be approved by Council prior to the issue of Construction Certificate.

2.4.4 PURPOSE

The Public Domain Construction Drawings are required so Council can clearly understand what changes are proposed to the public domain and ensure that proposed work is properly co-ordinated to allow for assessed and approved.

2.4.5 TRIGGER

The Public Domain Construction Drawings are required to be prepared and approved by Council prior to the issue of Construction

Certificate (CC) for the developments listed in Section 2.3.5, and:

- As a condition of consent under a DA; or
- In association with a Voluntary Planning Agreement (VPA).

Council's Public Domain Team aims to provide feedback on Public Domain Construction Drawings in 2-3 weeks depending on the complexity of the project, integration with other approvals, the completeness of the submission information provided and Council's existing workload.

2.4.6 SCOPE

The Public Domain Construction Drawings should include all frontages of the development site or project area from the building line to the gutter showing the full scope of the work proposed. Any work proposed in the road carriageway must also be included such as footpath extensions, kerb and gutter works, or any road and drainage related work.

2.4.7 COORDINATION

The Public Domain Construction Drawings must be properly coordinated with other submissions required for all sites so that information on one plan does not contradict with other plans for the site. Ensure that all critical elements such as kerb alignments, building facade and levels, location of light poles and other fixtures, street trees and existing/proposed services and pits are shown in the same locations and with consistent materials on all plans across all sets.

Failure to ensure that all work and consultant submissions are coordinated can result in delays in approvals where Council must request additional information to clarify what is actually proposed.

2.4.8 DESIGN CONSIDERATION

Table 2.5 Design Considerations for Resolution in the Public Domain Construction Drawings

ELEMENTS	DESIGN REQUIREMENTS
Levels and Gradients	Levels, gradients and spot levels generally in accordance with the approved DA drawings and reflecting minor design changes and any DA consent conditions.
Street Geometry	New road alignments and levels to suit Council standards. Location and level of existing and proposed relevant road, drainage and traffic features including drainage gullies and inlets, refuge islands, traffic signals, kerb returns and blisters, chicanes, refuge islands and pedestrian crossings to suit Council standards.
Kerbs and Gutters	New, renovated and replaced sections of kerb and gutter shown in accordance with Council standards. The repair and realignment of stone kerb where required to provide uniform longitudinal grades and a vertical grade of 150mm above the gutter invert (unless otherwise advised by Council).

ELEMENTS	DESIGN REQUIREMENTS
Pavements	Paving material, finish, sealant, set out and paving pattern including coordination at all junctions and integration with exiting pavement. Access provisions including path of travel and location and type of tactile surface indicators in accordance with relevant standard guidelines (AS1428.1 and DR04019) and the PCC Public Domain Guidelines. Heritage pavement components - specialised design consideration may be required to address heritage components in footpath paving. In such cases, a heritage review and site specific scope of work and documentation will be required.
Ramps and Driveways	Removal of redundant ramps and crossovers and reinstatement of kerb, gutter and footpath pavement. Provision of new pedestrian kerb ramps and vehicle crossings. (Note this includes providing additional ramps across the street to ensure a complete crossing). Adjustment of existing vehicle crossings and kerb ramps (to ensure 90 degree orientation to the roadway). Footpath construction, driveways and pedestrian kerb ramps must comply with Council standards.
Services, Pit Lids and Permanent Survey Marks	Location (and depth) of all existing above ground and underground services (as advised by Dial-Before-You-Dig). Proposed adjustments to level, orientation, and infill material for existing service pit covers to match adjacent paving finishes. New service pit covers - proposed location, alignment, level, size, type and infill material of all new service pit covers and other permanent markers to suit new ramps, driveways, unit paving set out and footway design levels. Location (accurate alignment and depth) of Council required conduits for future CCTV network connections.
Lighting and Poles	Provision and upgrade of street and pedestrian lighting to meet the lighting levels and types required by Council and Australian Standards. This may include removal or relocation of existing poles, installation of new poles, undergrounding or bundling of aerial cables, construction of conduits and the relocation of utilities, signage and services as required.
Street Furniture, Signage and Structures	Removal and/or relocation of existing fixtures and fittings including street furniture, directional and regulatory signage in accordance with Council standards. Reinstatement of any footway openings remaining following removal of redundant fixtures and fittings as necessary. Location, model, colour, finish and installation details and specifications as required for all proposed fixtures and fittings in the footway including directional and regulatory signage.
Street Trees and Other Plantings	Retention and protection of existing street tree and understorey planting unless otherwise approved by Council. Renovation of existing street tree bases and surrounds to meet City standard, or removal and making good of approved redundant street tree bases and surrounds. Refined plant schedule showing proposed new street trees and other planting including species (botanic and common names), locations, spacing, mature height, pot sizes and numbers Location, dimension and details of proposed tree pits and surrounds, mass planted garden beds and rain gardens including fixtures such as conduits and root barriers, and connections for drainage and irrigation (as advised by Council staff) all in accordance with Council standards. Note: locations for proposed trees should be coordinated with services locations to ensure tree pits can be accommodated in accordance with the City's standards.

2.4.9 SUBMISSION REQUIREMENT

Table 2.6 Submission Requirements for the Public Domain Construction Drawings

DRAWINGS	INFORMATION REQUIREMENTS	PREPARED BY	SUBMISSION FORMAT	MIN. SCALE
Plans	All new work proposed in the footway. Updated levels and alignment information to reflect design changes and DA consent conditions. Levels (existing and proposed) of all existing and new fixtures, fittings, structures and finishes within the footpath including service pits, drainage pits, tree pits, furniture and the like. North point; title block showing the project address and the type of plan; correct drawing numbers, revision numbers and dates. Extent of proposed works.	Qualified Civil Engineer and Landscape Architect	Three (3) copies of A1 drawings, and PDF format file to scale	1:100
Cross sections	Cross sections as for Alignment Submission adjusted to reflect any design or DA consent condition changes. Typical street sections Street sections (minimum 1 per frontage), showing the relationship between interior floor levels, footpaths, cross falls, street trees, fixtures and fittings, at each driveway and pedestrian entry or as required to describe the project.	Qualified Civil Engineer and Landscape Architect		Horizontal 1:100; Vertical 1:5
Longitudinal sections	Longitudinal sections as for Alignment Submission adjusted to reflect any design or DA consent condition changes.	Qualified Civil Engineer		Horizontal 1:200; Vertical 1:5
Construction Details	Details are to be drawn at scale 1:20 and be appropriate to the specific site conditions and to address all proposed changes in the public footway. **Note: it is not acceptable to copy and paste the City's DS drawings without verifying to suit actual projects and site conditions.**	Qualified Civil Engineer and Landscape Architect		1:20

2.5 CONSTRUCTION PHASE

2.5.1 INSPECTIONS

A series of Council inspections will be required for all public domain projects the construction and defects periods. The Contractor or Site Manager shall contact Council's Civil Assets Inspector on **(02) 9806 8250** for each required inspection. At least **48-hours notice** must be given for all inspections.

The required Council inspections include the following and apply to all Council and privately certified projects.

- Commencement of public domain works including tree protection measures installed and set out of tree pits;
- Subgrade inspection following excavation for footings, drainage and pavements, tree pits showing root barriers, structural soil cell, sub-surface drainage and irrigation system as required;
- Installation of required underground conduits:
- Blinding layer / concrete slab base completion and initial (indicative) setout of pavers, street fixtures and fittings as applicable to ensure compliance with the requirements of the guidelines;
- Delivery of street trees to site. Trees shall be installed within 24hrs of delivery. Council Officer to inspect street trees on site prior to their installation;
- Final defects inspection after all work has been completed to view paving sealant, tactile surface indicators, service lids, nature strip/vegetation and location of fixtures and fittings

Additional daily inspections by Council officers may occur to view progressive paving set out and construction depending on the project size and type.

Where a land dedication (e.g laneway, pedestrian link) is proposed in the development, refer to conditions of consent on a project by project basis.

2.5.2 DEFECTS

Any defects raised by Council officers during the above construction and defects period inspections will be notified in writing. Defects may include incorrect location of elements, unsatisfactory construction techniques or finishes, or any other noncompliance with the approved plans and specifications or the Public Domain Guidelines.

All defects raised by Council's officer during the contractual construction period or defects liability period need to be rectified prior to and signed off at the final inspection by Council's Officers in order to achieve any issue of Occupation Certification. This applies to both Council and privately certified projects.

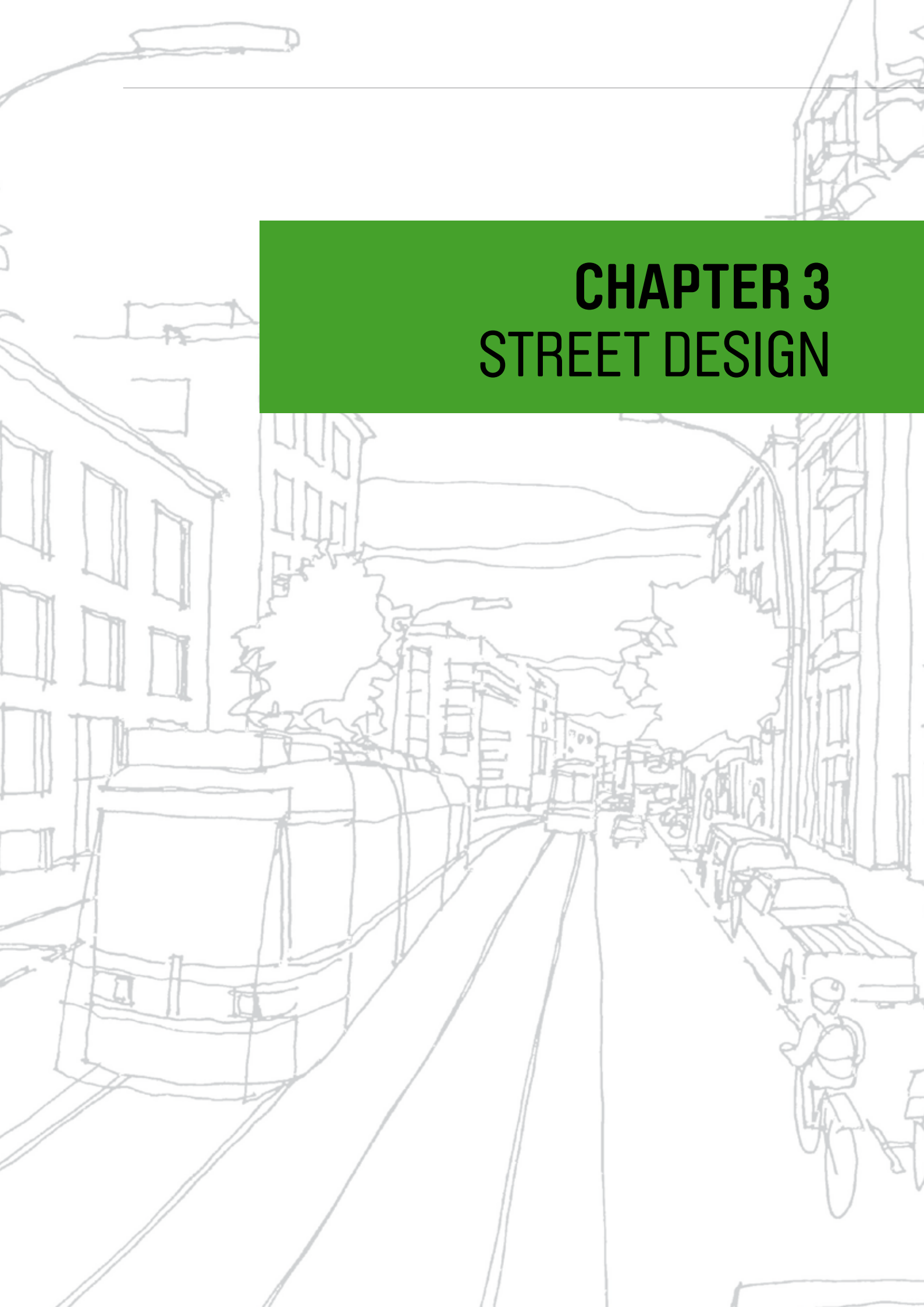
2.6 OCCUPATION CERTIFICATE (OC) & FINAL SIGN OFF

Prepare and submit to Council Works-as-Executed (as-built) plans to scale showing the approved constructed public domain works.

A final Council sign-off for the completed public domain works, including defects rectification, will be given once the Works-as-Executed drawings are submitted to, and accepted by, Council.

No issue of any Occupation Certificate (including a preliminary OC) can be issued by Council Officers or Private Certifiers without the final public domain works sign-off.

Private Certifiers are not permitted to sign off on any public domain works.



CHAPTER 3
STREET DESIGN

'Streets are almost always public: owned by the public, and when we speak of the public realm we are speaking in large measure of streets. What is more, streets change. They are tinkered with constantly: kerbs change to make sidewalks narrower or wider, they are repaved, lights are changed, the streets are torn up and repaved again. The buildings along them change and in doing so change the streets. Every change brings with it the opportunity for improvement. If we can develop and design streets so that they are wonderful, fulfilling places to be, community building places, attractive public places for all people of cities and neighbourhoods, then we will have successfully designed about one-third of the city directly and will have an immense impact on the rest.' **Allan Jacobs**

'In a society becoming steadily more privatised with private homes, cars, computers, offices, and shopping centres, the public component of our lives is disappearing. It is more and more important to make cities inviting, so we can meet our fellow citizens face to face and experience directly through our senses. Public life in good quality public spaces is an important part of a democratic life and a full life.' **Jan Gehl**

'Cultures and climates differ all over the world, but people are the same. They'll gather in public if you give them a good place to do it'. **Jan Gehl.**

TABLE OF CONTENTS

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3 STREET DESIGN

KEY POINTS OF THIS CHAPTER

- General street design principles
- Traffic and parking lane design
- Cycleway design
- Footpath design & street types
- Laneway, pedestrian link & arcade design
- Intersection design
- Footpath accessibility design manual

The majority of the public domain comprises streets. Streets are the most important element of the public domain connecting private and public places and linking different parts of neighbourhoods. They are the main ordering component determining the form and function of the urban environment.

In every type of street, the safe and efficient movement of people should be the primary design consideration. Well-appointed, good looking streets, that are comfortable for pedestrians, benefit the city by attracting people and encouraging economic activity, and supporting health and well-being, public safety, and social engagement. When designing public places it is also important to acknowledge and respond to special local characters that have developed and to creating a co-ordinated appearance and consistent image for the City of Parramatta.

3.1 STREET STRUCTURE & THE PUBLIC DOMAIN

The location of elements in the footway needs to be considered to minimise clutter and maintain a clear path of travel. This section provides general principles and design considerations for the street design.

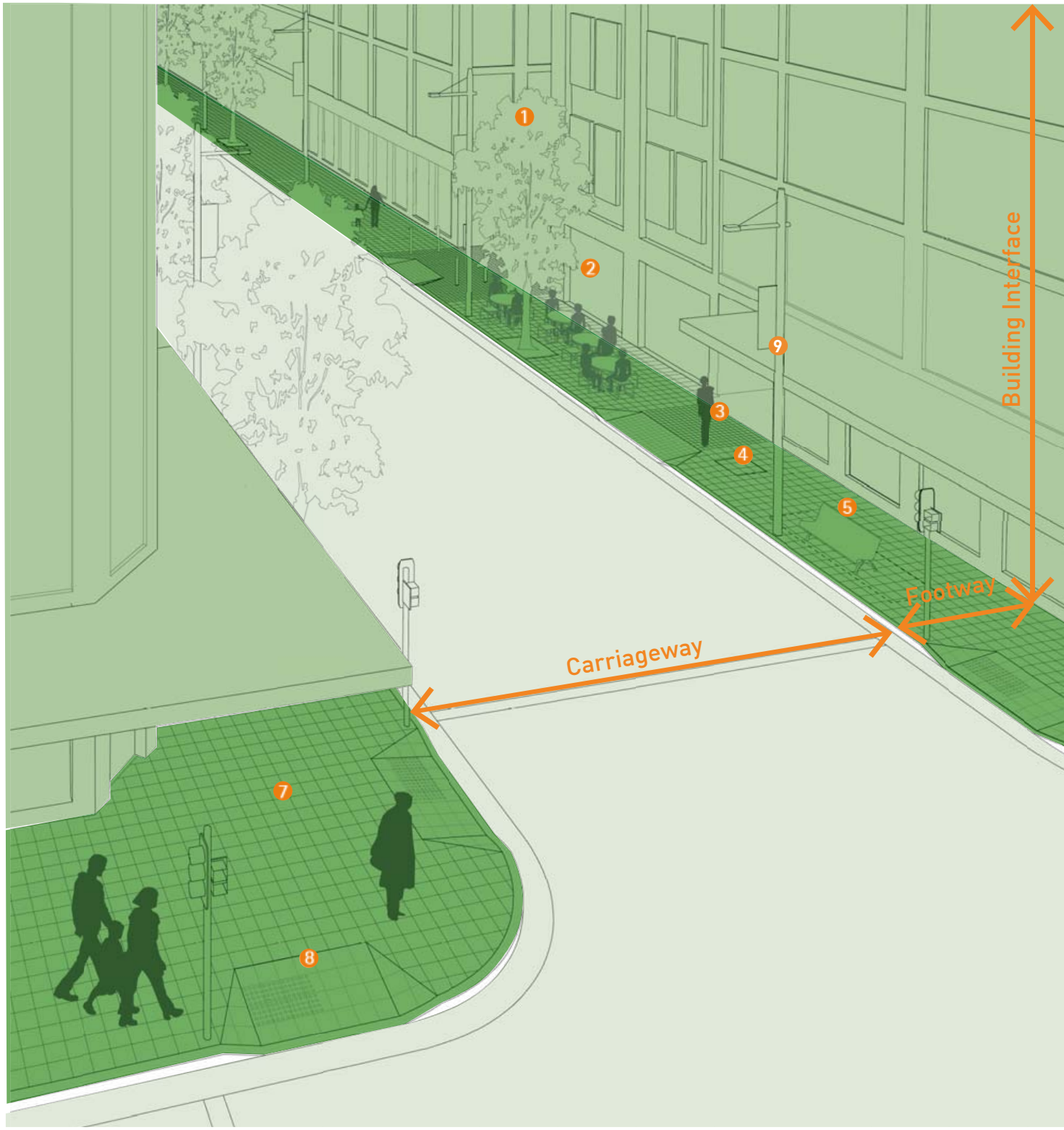


Figure 3.1 Street Structure and Public Domain Elements

STREET STRUCTURE

Footway - provides access for people.

Building Interface - frames the street and create a transition between public and private property.

Carriageway - provides access for public transport, servicing trucks, private vehicles and cyclists.

PUBLIC DOMAIN ELEMENTS

1. New **street trees** are required and their spacing and species should be co-ordinated with existing trees on the street or City's relevant street tree strategies. The location of trees also needs to be coordinated with streetlights, entrances and awnings.
2. Sometimes buildings include **setbacks** at ground level for entrances or create colonnades. Whilst privately owned these areas effectively form part of the City's public domain. They are to have continued levels and be finished in the same material as the public footway.
3. **Driveways** form part of the footpath and need to be designed for pedestrian priority.
4. Ensure **pit lids** align with pavement layout and vertical alignment
5. New **seating and/or bins** may be required and should be located in the street furniture zone.
6. **Bike racks** may be required.
7. **Widening footway** should be considered if the existing footway is narrower than minimum requirements. It should accommodate awnings with street trees and provide more opportunity for outdoor dining.
8. **Kerb ramps** are to be aligned with path of travel and with kerb ramps across the road. The location of traffic signals, or other poles, may need to be adjusted as not to conflict with ramp locations. This may require coordination with the RMS and a Traffic Management Plan.
9. **Multi Functional Poles** are to be provided in CBD and Town Centre retail streets in according to the Pole Strategy Maps (Chapter 4).

3.1.1 DESIGN PRINCIPLES

Well designed streets are safe, coherent and comfortable for all users. Designs must be co-ordinated and communicated via the development application process to achieve the following key principles for streets in the City of Parramatta.

LIVELY AND FUNCTIONAL

Streets that offer a high quality setting for active public life and activity.

Street settings that are durable and timeless in design.

Well-balanced street geometry and element settings that create memorable experieces to all street users.

ATTRACTIVE AND DISTINCTIVE

Consistent palettes for paving materials, street furniture, signage, wayfinding and other elements that create a coherent public domain image.

Local distinctiveness and character are respected by retaining heritage items and including special elements.

UNIVERSALLY ACCESSIBLE

Footpath the provide access for people with all abilities, and ages.

A clear path of travel zone along the building façade gives continuous and unobstructed pathways and sightlines

Pedestrian and cycle network facilitates safe, accessible and convenient connections to destinations.

Providing good access and comfort furniture to major destinations.

SAFETY FOR EVERYONE

Balance the needs of all street users including pedestrian and cyclists.

Raised pedestrian crossings that provide safe access for pedestrians.

Kerb ramps that are aligned and provide smooth transitions.

Pavements that have complying non-slip surfaces.

High quality lighting that addresses all users needs.

PROTECTED AND COMFORTABLE

Awnings the give shelter from rain and sun in the busiest pedestrian areas.

Seating options that cater to all requirements.

Trees and landscape treatments that provide shade and amenity.

SUSTAINABILITY

Tree-lined streets with increased tree canopy coverages that provides biodiversity, comfortable micro-climatic conditions and contribute to energy saving.

WSUD solutions that are integrated with streetscape.

Robust and enduring street materials and elements that require low maintenance, and suit City's long-term operational capacity.

3.1.2 DESIGN COORDINATION

The City of Parramatta is on the brink of significant renewal throughout the LGA as a result of development uplift permitted in the Local Environmental Plan. Major development will trigger a need to develop new and upgrade existing streets to suit new previously unimagined urban contexts.

The design and delivery of new or upgraded streets is a complex process due to the range of stakeholders included and the many factors requiring. Space in the carriageway for vehicle, cycleway and transport, and in the verge for foot traffic, trees, furniture, signage, services and road infrastructure is highly contested. Well negotiated multidisciplinary design and delivery processes are essential to deliver the best outcomes. This is most critical for street trees. Where street trees are proposed they can contribute significant amenity if they are able to thrive. However, their living requirements are frequently compromised in the design and delivery process.

The following design considerations are recommended for all new and street upgrade projects to achieve the best street amenity:

- Provision of generous verges for pedestrian movement everywhere. For street upgrade projects relocation of existing kerbs by narrowing of travel lanes to achieve more generous verge widths must be considered.
- Street upgrades on a full street or logical block by block basis to achieve consistent alignments and treatments.
- Consideration of efficient and cost effective water sensitive urban design opportunities and passive watering for street trees.
- Provision of ideal soil volumes for each and every proposed street tree to allow it to thrive for its projected life span.
- Provision of pavement support in CBD and town centre streets, where street trees are proposed and large tree pit openings cannot be achieved, to minimise the negative impact of soil compaction.
- General conformance to the street design controls identified in the following sections.

3.2 STREET LAYOUT

The appropriate allocation of space in streets is important for functional success and safety. There are numerous competing factors for the limited space available. An analysis of requirements should consider:

- Space for pedestrian and vehicular movements
- Anticipated levels of pedestrian activity
- Traffic type, volumes, speed and parking patterns
- Safety and accessibility
- Growing conditions for street trees
- Required street elements
- Service infrastructures.

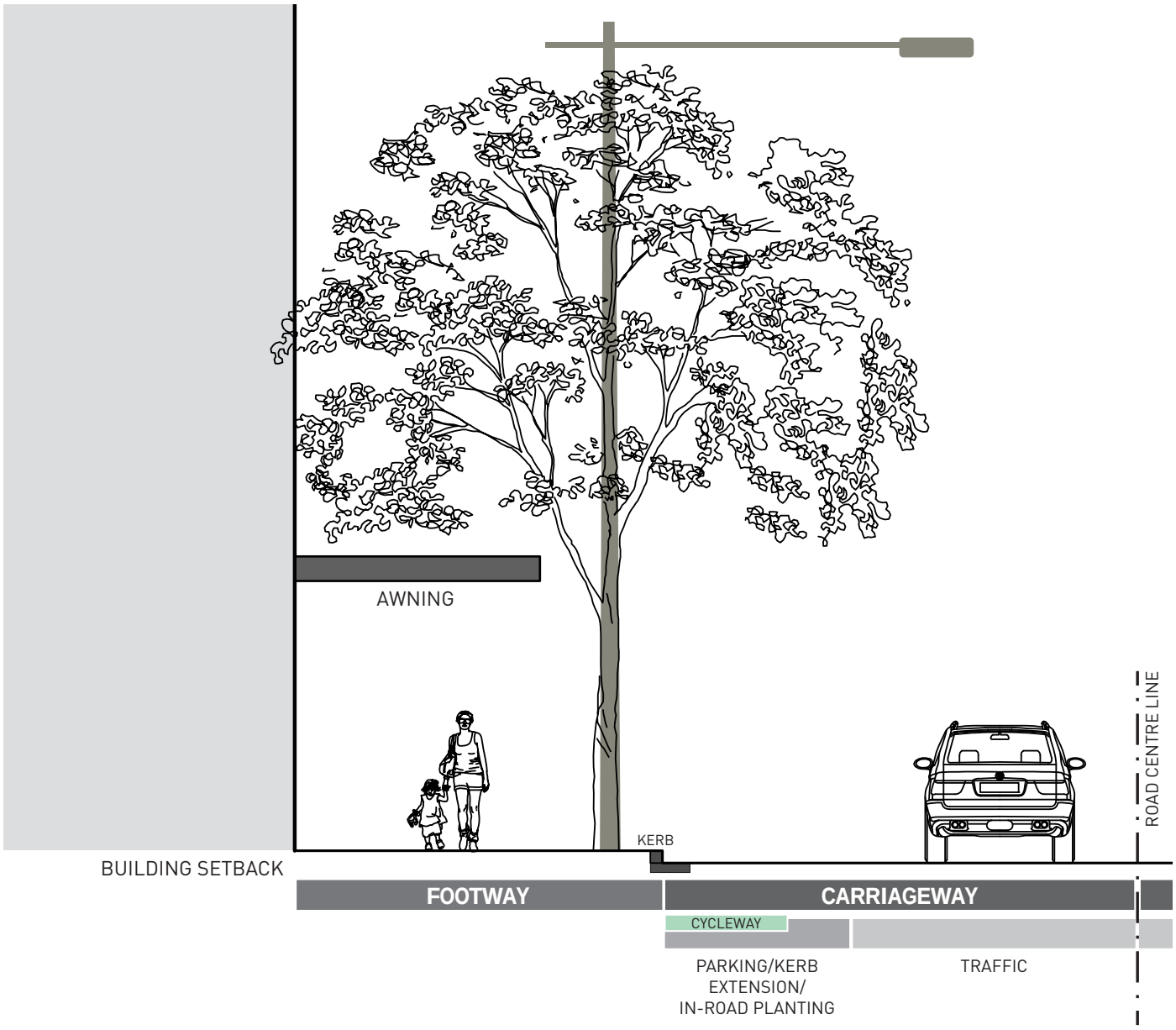


Figure 3.2 General Street Layout

Great streets balance the needs of all users, both in vehicles and on foot. In well-designed streets carriageways properly accommodate vehicles and well appointed footways encourage people to gather, sit, eat and socialise as well as to walk. Streets can be memorable places, and even destinations, in our urban places.

The following sections provide guidelines for designing new streets and major street upgrades to balance the needs of all users and to maximise pedestrian amenity. This includes determining typical street layouts and design criteria for:

- Carriageways (traffic and parking lanes)
- Cycleways (on-road and off-road types)
- Footways (awning structure, clear path of travel, foot traffic, planting, furniture, and egress zones - refer Figure 3.3)

3.2.1 FOOTWAYS

A hierarchy of street types is determined according to visual character and patterns of use. Key contributing factors include:

- the way a street engages with surrounding land uses at its edge;
- its RMS classification;
- the amount and type of traffic it is designed to carry (public transport, vehicle type, pedestrians, cyclists);
- street width, dimensions, alignment and gradient;
- visual character, and
- any special character (for example Eat Street, George Street, light rail routes and conservation areas have special street characters).

The following table articulates general street types in relation to land use zoning and other contribiuting factors.

GENERAL STREET TYPES		**LAND USE ZONING**
Commercial	CBD Commercial Core	B3, B4
	CBD Ring Road	Varied
	Town and Neighbourhood Commercial	B1, B2, B4
Residential	Urban Living (Mixed Use)	B4, R4
	High - Medium Density	R3, R4
	Low Density	R1, R2
Industrial	General Industrial	IN1, IN2
	Heavy Industrial	IN3 (Subject to site-specific designs)

LANEWAYS	
Service Lane	Refer to *Chapter 4 - Centre Strategies & Parramatta DCP 2011.*
Shared Zone	
Pedestrian Lane	

THRU-SITE LINKS	
Open Air Pedestrian Link	Refer to *Parramatta DCP 2011.*
Arcade	

SPECIAL STREETS	
Eat Street	To future design (liaise with Council officers)
George Street	
Light Rail Routes	
Conservation areas	

Based on these general street types, the below table articulates the minimum required setouts and dimensions for functional zones in the footway as identified in Figure 3.3 and provides general arrangement approaches for typical streets in the City.

Table 3.1 Footway Width Recommendation

STREET TYPES	FOOTWAY ZONES							KERB	FOOTWAY WIDTH		AWNING
	FOOT TRAFFIC		PLANTING		CLEAR PATH OF TRAVEL^ (Min.)	FURNITURE	PARKING EGRESS	KERB WIDTH	**Preferred***	Min.**	Preferred
	Preferred	Min.	**Preferred**	Min.							
CBD Commercial Core	**3.0m**	2.4m	**1.5m**	1.2m	2.4m	Refer to ***Section 5.2 - Furniture Strategy***	0.6m	0.15m unless stone kerb is required	**4.65m**	3.55m	To provide minimum clearance of **1.9m** from the edge of awning to kerb face
CBD Ring Road	**2.0m**	1.8m	**1.8m**	1.5m	1.8m				**3.95m**	3.45m	
Town & Neighbour-hood Retail	**2.4m**	1.8m	**1.8m**	1.5m	1.8m				**4.35m**	3.45m	
Urban Living (Mixed use)	**2.4m**	1.8m	**1.8m**	1.5m	1.8m				**4.35m**	3.45m	
High - Medium Density Residential	**1.8m**	1.5m	**2m**	1.8m	1.5m	Refer to ***Section 6.5.2 - Bus Stops/ Shelters***			**3.95m**	3.45m	Nil
Low Density Residential	**1.5m**	1.5m	**2m**	1.8m	1.5m		Not required	0.15m	**3.65m**	3.45m	
Industrial	**1.5m**	1.5m	**2m**	1.8m	1.5m				**3.65m**	3.45m	

*** Preferred Footway Width**

The preferred footpath width is calculated based on the required widths for Foot Traffic and Planting Zones (plus kerb width), as measured from the face of kerb to property boundary.

All new streets should strive to meet the recommended footway widths.

For town centre /retail streets in new master planned projects, where zero building setbacks are proposed, wider footways minimum 5m are required in order to better accommodate street trees, outdoor seating and awnings.

Major streetscape upgrade projects should evaluate opportunities to widen footways to the recommended widths, as conditions allow.

**** Minimum Footway Width**

The minimum width is calculated based on the minimum requirements for Foot Traffic and Planting Zones (plus kerb width), as measured from the face of kerb to property boundary.

Minimum footway widths are permissible only with specific council approval. They should only be considered for short length, minor connector streets.

^Clear Path of Travel (CPoT) is the zone of pedestrian movement on the footway which complies to the access standard AS1428.1. The CPoT needs to provide a clear shoreline, or other means, to assist people with vision impairment to navigate footpath areas safely. In local areas the path of travel is clearly delineated by the footpath in the nature strip. In centres, where the footway is fully paved, the CPoT is generally provided next to the property line.

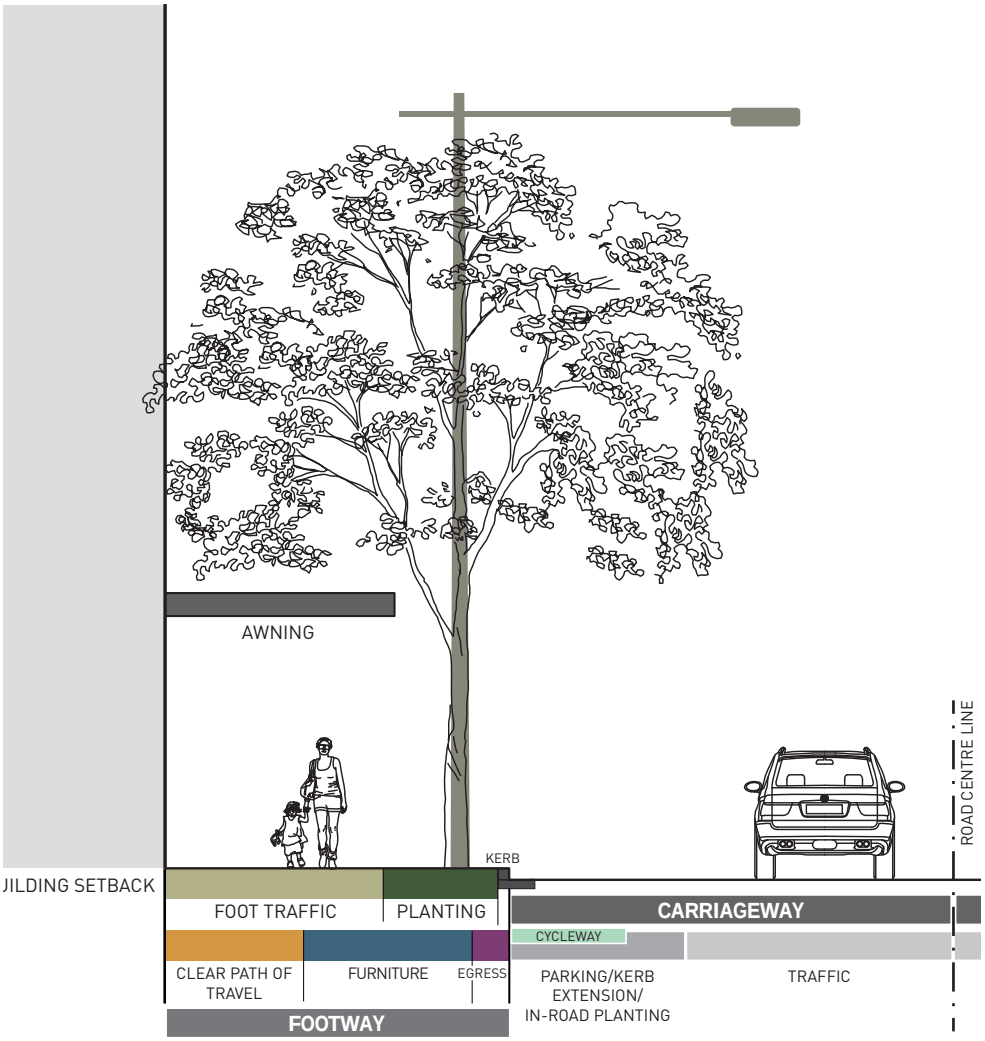


Figure 3.3 Footway Allocation in a CBD Street

3.2.2 CARRIAGEWAYS

The City encourages minimising traffic and parking lane widths to achieve higher levels of pedestrian amenity in all streets. The following recommended lane widths are provided to guide **the design of new streets and major street upgrade projects.**

Table 3.2 Recommended Carriage Widths for New Streets and Major Streetscape Upgrades

RMS CLASSIFICATION		PRIMARY TRAFFIC LANE	ADDITIONAL LANE	PARKING LANE
State Roads *(i.e. arterial roads)*		Managed by RMS		
Regional Roads *(i.e sub-arterial roads)*		Subject to RMS requirements and site design		
Local Roads *with high - moderate trafic flow (i.e. collectors)*	Two lanes of traffic in either direction	3.0-3.4m	3.0m	2.1-2.5m
	One lane of traffic in either direction	3.0-3.4m	N/A	2.1-2.5m
Local Roads *with low traffic flow (i.e. local access)*	One lane of traffic in either direction	3.0-3.2m	N/A	2.1-2.3m
	Single lane, bi-directional streets and lanes	3.2-3.5m	N/A	2.1-2.3m
	Single lane, one-way streets and laneways	3.2-3.5m	N/A	2.1-2.3m
Shared Zone		To comply with RMS Shared Zone Guidelines		

3.2.3 CYCLEWAYS

City of Parramatta supports cycle-friendly street design and encourages well designed cycling provisions to be integrated into street infrastructure. Refer to the *Parramatta Bike Plan (May 2017)* for the proposed bike lane strategy for the City. The following table lists the preferred widths for typical cycleway types.

Table 3.3 Recommended Cycleway Widths

CYCLEWAY TYPES		PREFERRED
On-road Cycleways		
Physically Separated Single Direction Each Side		1.5-2.0m
Physically Separated Bi-directional one Side		2.8-3.5m
Dedicated Lanes (Painted Markings)	with buffer	min. 1.5m
	without buffer	min. 1.4m
Mixed Traffic with Contraflow		1.5-2.0m
Mixed Traffic		Normal traffic lane width
Shared Zone		To comply with RMS Shared Zone Guidelines
Off-road Cycleways		
Shared Path		2.5-4.0m
Separated Bi-directional		3.0m
Shared Bridge		min. 4.0m

PHYSICALLY SEPARATED SINGLE DIRECTION EACH SIDE

- Single direction separated cycleways on each side of the carriageway.
- A 0.4m and 1.0m wide physical barrier (e.g. raised kerb, or planting bed) is provided along the adjoining traffic lane and parking lane respectively.
- Green paint on cycleway is required.

PHYSICALLY SEPARATED BI-DIRECTIONAL ONE SIDE

- A designated two-way cycleway located on one side of the carriageway physically separating cyclist from traffic and pedestrians. Located between footway and parking/traffic lane.
- A 0.4m wide physical barrier (e.g. raised kerb, or planting bed) is provided along the adjoining traffic lane and parking lane respectively.
- Separated lane for each direction of movement with clear surface markings. Green paint on cycleway is required.

DEDICATED LANES (PAINTED MARKINGS) WITH/WITHOUT BUFFER

- Suitable for a street with low traffic speed and flow with low parking lane turn-overs.
- A 0.4m wide buffer is required between the cycleway and traffic lane or parking lane if space is allowed.

MIXED TRAFFIC WITH CONTRAFLOW

- Cyclists mix with one-way traffic in the direction of one-way traffic.
- A separated contraflow cycleway for cyclists is provided against the one-way traffic flow.
- Median separation may be required subject to site conditions and risk assessment.
- Green paint on the contraflow lane is required.

MIXED TRAFFIC

- Suitable for low traffic flow streets. No additional width of traffic lane is required unless otherwised advised by the City.
- Bicycle symbols are clearly applied on road surface at regular intervals and at intersections.

SHARED ZONE

- Shared zones can be used where low vehicle traffic conditions permit a low speed10km/h environment.
- Shared zones must comply with RMS requirements and approval.
- Adequate signage is required to alert the shared road condition.
- Refer to Chapter 4 - Place Strategies - for special finishes and fixtures requirements.

OFF-ROAD CYCLEWAYS

- Separated off-road cycleways separate pedestrian and cyclist use.
- Shared path cycleways allow for shared use by both cyclists and pedestrians.
- Located on the footway or in open spaces and reserves for recreation and commuting use.
- Height clearance of minimum 2.4m.
- Cross fall between minimum 2% and maximum 5%.
- Surface tolerances 5mm maximum variance.
- Adequate pavement marking and signage.
- The speed limit may be reduced depending on the volume of pedestrian flow.

3.3 TYPICAL STREET DESIGN GUIDELINES

The following sections identify the characteristics of, and provide design guidelines for, the varied urban contexts.

3.3.1 CBD COMMERCIAL CORE

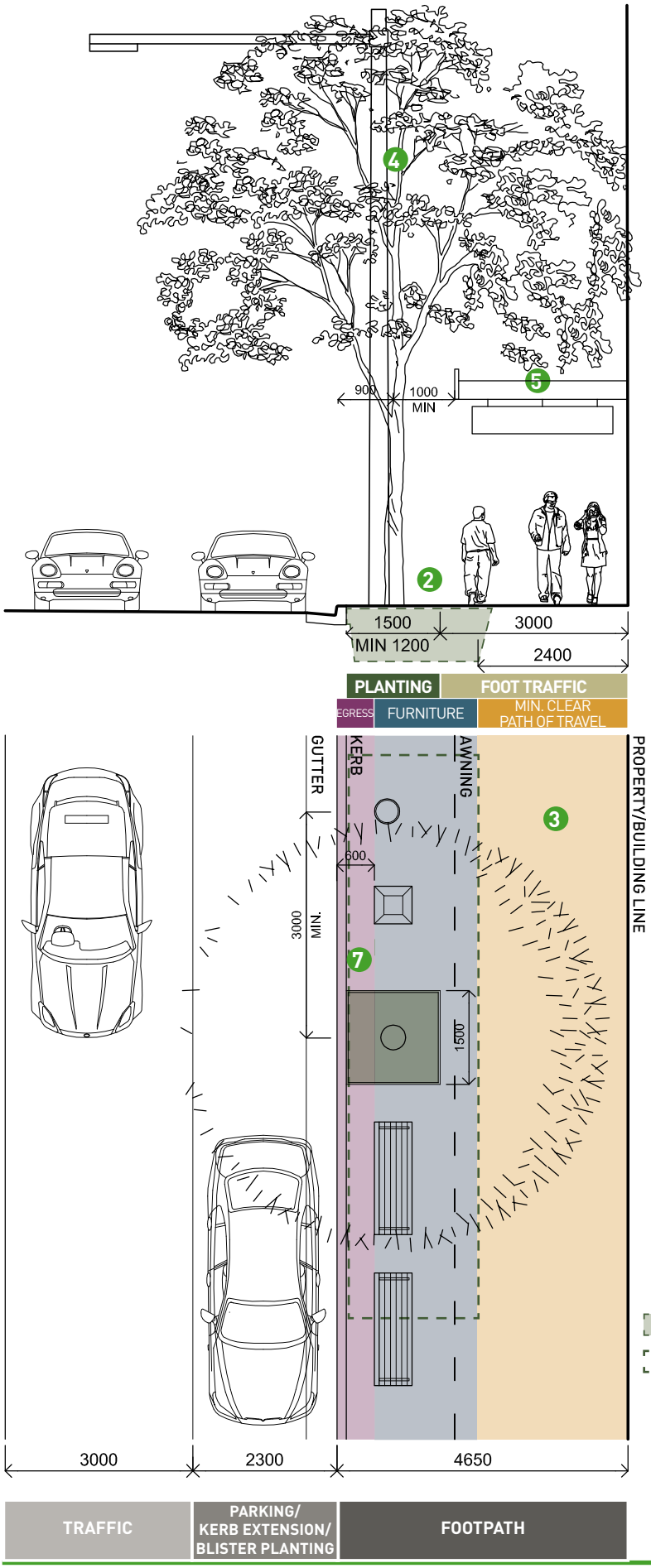
CBD commercial core streets cater to a high volume of local and visiting pedestrians, and accommodate high levels of activity throughout the day and night. CBD retail core streets require generous footways, high levels of pedestrian amenity, distinctive designs, and high quality finishes, fixtures and fittings.

DESIGN CONSIDERATIONS

1. Achieve a safe and comfortable pedestrian environment that accommodates large pedestrian flows.
2. Provide a widened footway to accommodate large canopy trees and awnings where possible.
3. Provide an unambiguous clear path of travel in accordance with Table 3.1.
4. Provide large street trees and optimum soil volume in the root zone (refer Section 5.2).
5. Carefully co-ordinate awning lengths and widths with street tree planting to achieve the required continuous covered walkways and to maximise street trees.
6. Create rest places where space permits.
7. Provide vehicle egress zones to allow access to cars alongww parking lanes.

Figure 3.4 Typical street type -CBD commercial core

Figure 3.5 Typical Street Type Layout - CBD Commercial Core



3.3.2 CBD RING ROAD

CBD Ring Roads are mostly classified sub-arterial roads. They move significant volumes of vehicles around the CBD in a variety of travel modes. Vehicular traffic on these streets tends to be relatively fast and continuous and bus service is frequent. The widths of traffic lanes are usually more generous to support smooth traffic flow. As a result, these streets are often lacking in pedestrian comforts, especially at street intersections.

These streets must still offer a safe and comfortable pedestrian environment with amenities such as large shade street trees and corner kerb extensions.

DESIGN CONSIDERATIONS

1. Achieve a safe and comfortable pedestrian environment with shady street trees.
2. Favour large street tree species with high branching habit to minimise conflict with tall passing vehicles.
3. Optimise soil volume in the root zone for the selected tree species (refer 5.2).
4. Prioritise street tree planting over the provision of awnings. Reduce the width of awnings if they are trequired to accommodate street trees.
5. Consider understorey planting in large tree pits to optimise tree growth conditions and providing separation for pedestrians.
6. Encourage suitable planted areas in building setbacks to contribute to softening of the streetscape.

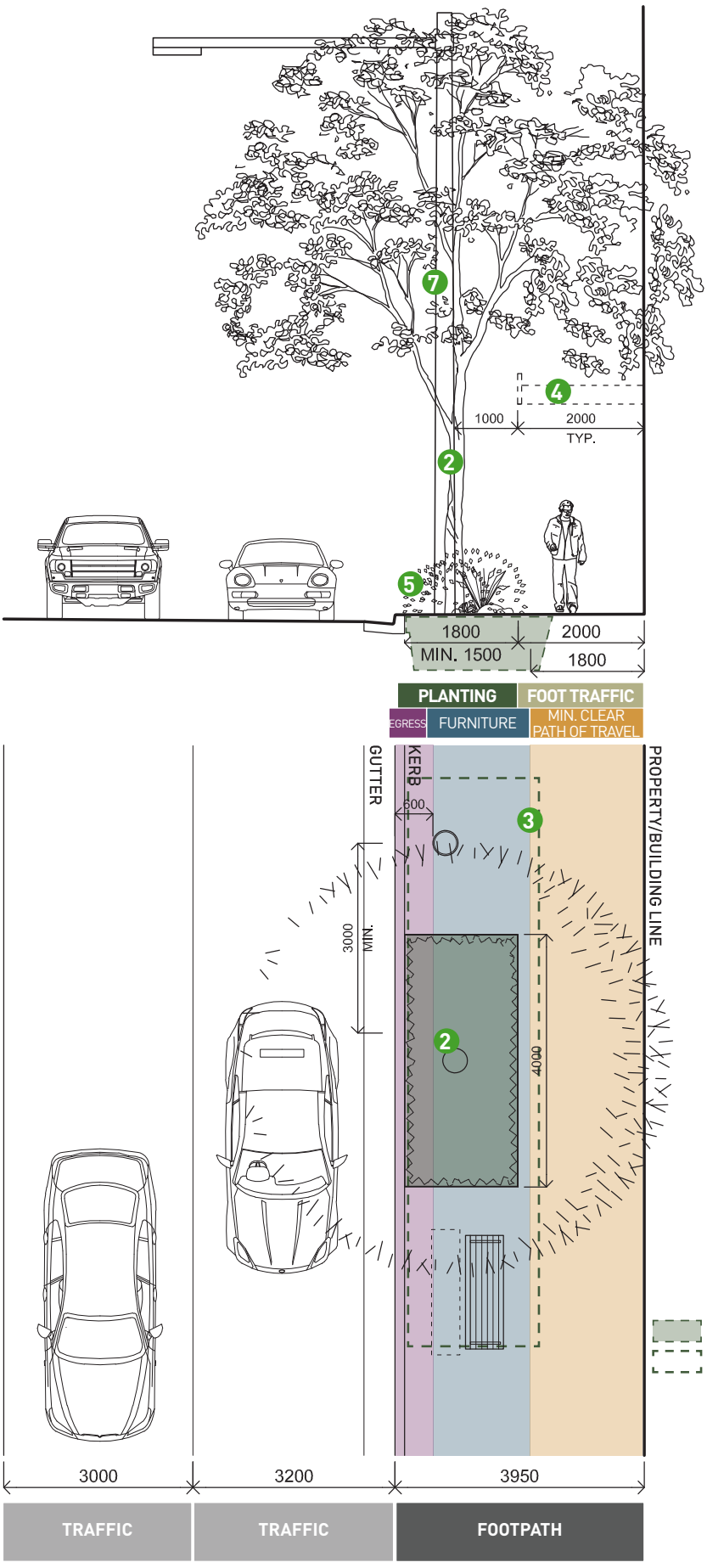


Figure 3.6 Typical Street Type Layout - CBD Ring Road

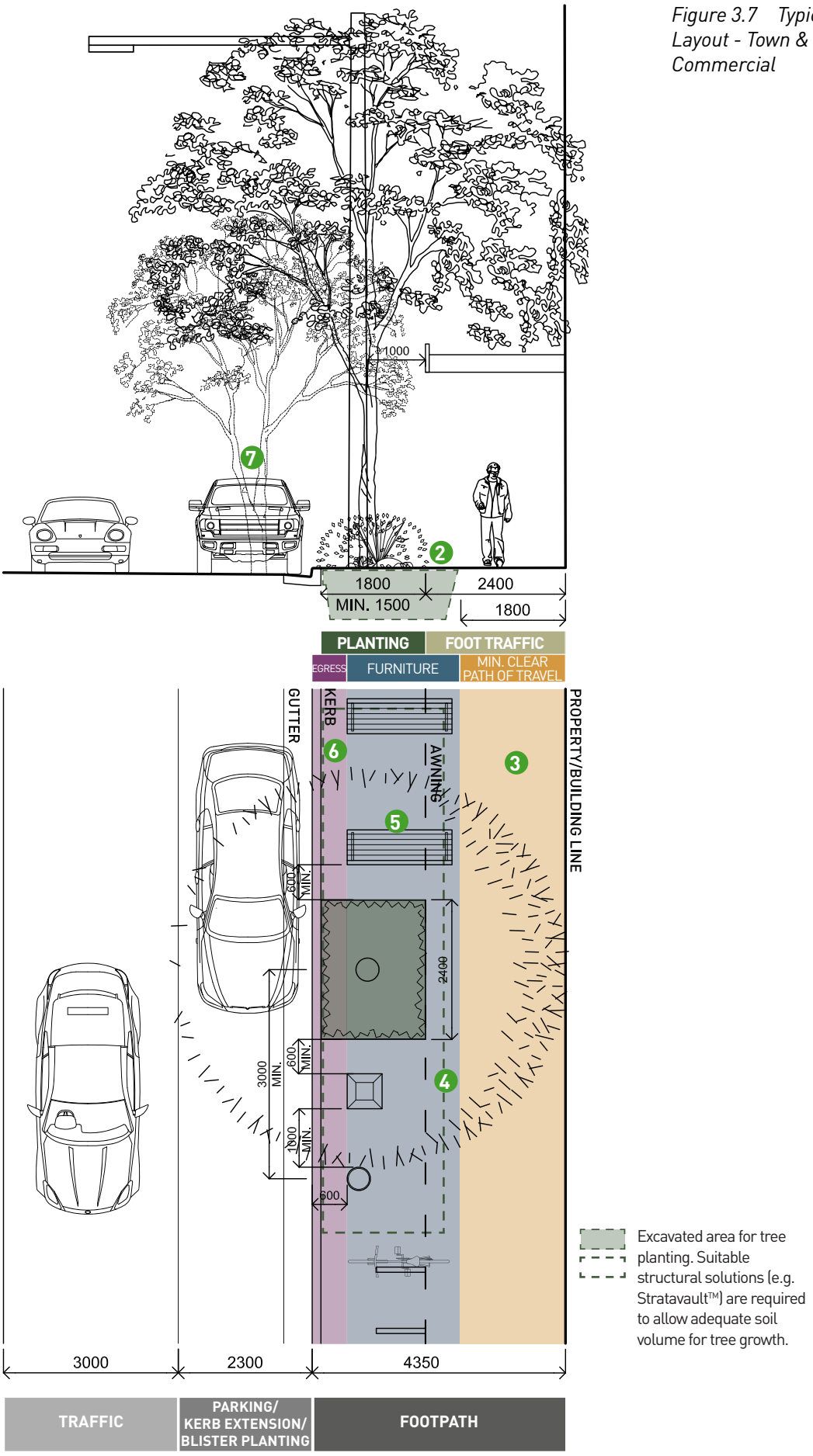
3.3.3 TOWN & NEIGHBOURHOOD COMMERCIAL

Active retail strips in town centres and neighbourhood/local centres include many of Parramatta's most vibrant streets, such as Wigram Street in Harris Park. Many of these accommodate continuous activity throughout the day and into the night. They are the streets where local residents do their daily shopping, meet and socialise with friends, and entertain on the weekends.

These streets should be distictive and memorable local destinations with special design treatments, generous footways and high quality of finishes, fixtures and fittings.

DESIGN CONSIDERATIONS

1. Achieve a safe and comfortable pedestrian environment that accommodates large pedestrian flows.
2. Provide a widened footway to accommodate large canopy trees and awnings where possible.
3. Provide an unambiguous clear path of travel in acordance with AS1428 and Table 3.1.
4. Provide large street trees and optimum soil volume in the root zone (refer Section 5.1).
5. Create a generous furniture zone to allow for resting and varied street activities including outdoor dining.
6. Provide vehicle egress zones to allow access to cars in parking lanes.
7. Considering blister planting in the parking lane when planting in the footway is constrained.



Excavated area for tree planting. Suitable structural solutions (e.g. Stratavault™) are required to allow adequate soil volume for tree growth.

Figure 3.7 Typical Street Type Layout - Town & Neighbourhood Commercial

3.3.4 URBAN LIVING

Considerable density uplift in existing centres and new urban villages are proposed in Parramatta. These areas are characterised by mixed use, high rise developments around new or expanded retail and commercial centres. New and upgraded streets and public places are anticipated to service significantly increased residential, worker and visitor populations.

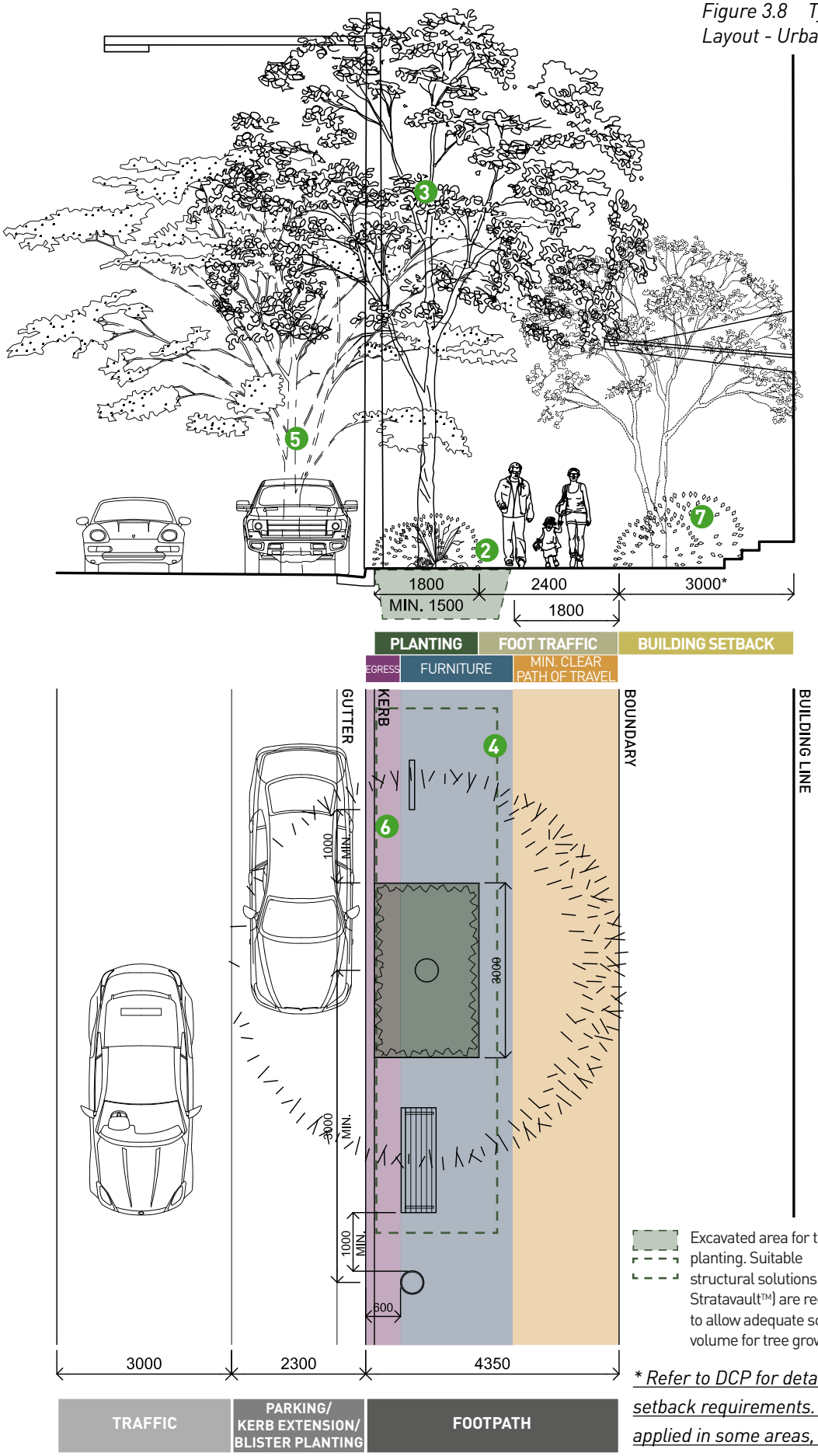
These streets also should be distictive and memorable destinations for local people embellished with special design treatments, generous footways, and high quality of finishes, fixtures and fittings.

Undergrounding existing over-head power lines is considered key to achieving a suitable urban setting in these places.

DESIGN CONSIDERATIONS

1. Achieve a safe and comfortable pedestrian environment that accommodates large pedestrian flows.
2. Provide a widened footway to accommodate large canopy trees and awnings where possible.
3. Favour large canopy trees and minimum 5m width footway to balance the scale of high rise buildings.
4. Provide large street trees and optimum soil volume in the root zone (refer Section 5.1).
5. Considering blister planting in the parking lane when planting in footway is constrained
6. Provide vehicle egress zones to allow access to cars in parking lanes.
7. Encourage suitable planted areas in building setbacks to contribute to softening of the streetscape.

Figure 3.8 Typical Street Type Layout - Urban Living



** Refer to DCP for detailed building setback requirements. Nil setback may be applied in some areas, such as CBD.*

3.3.5 MEDIUM-HIGH DENSITY RESIDENTIAL

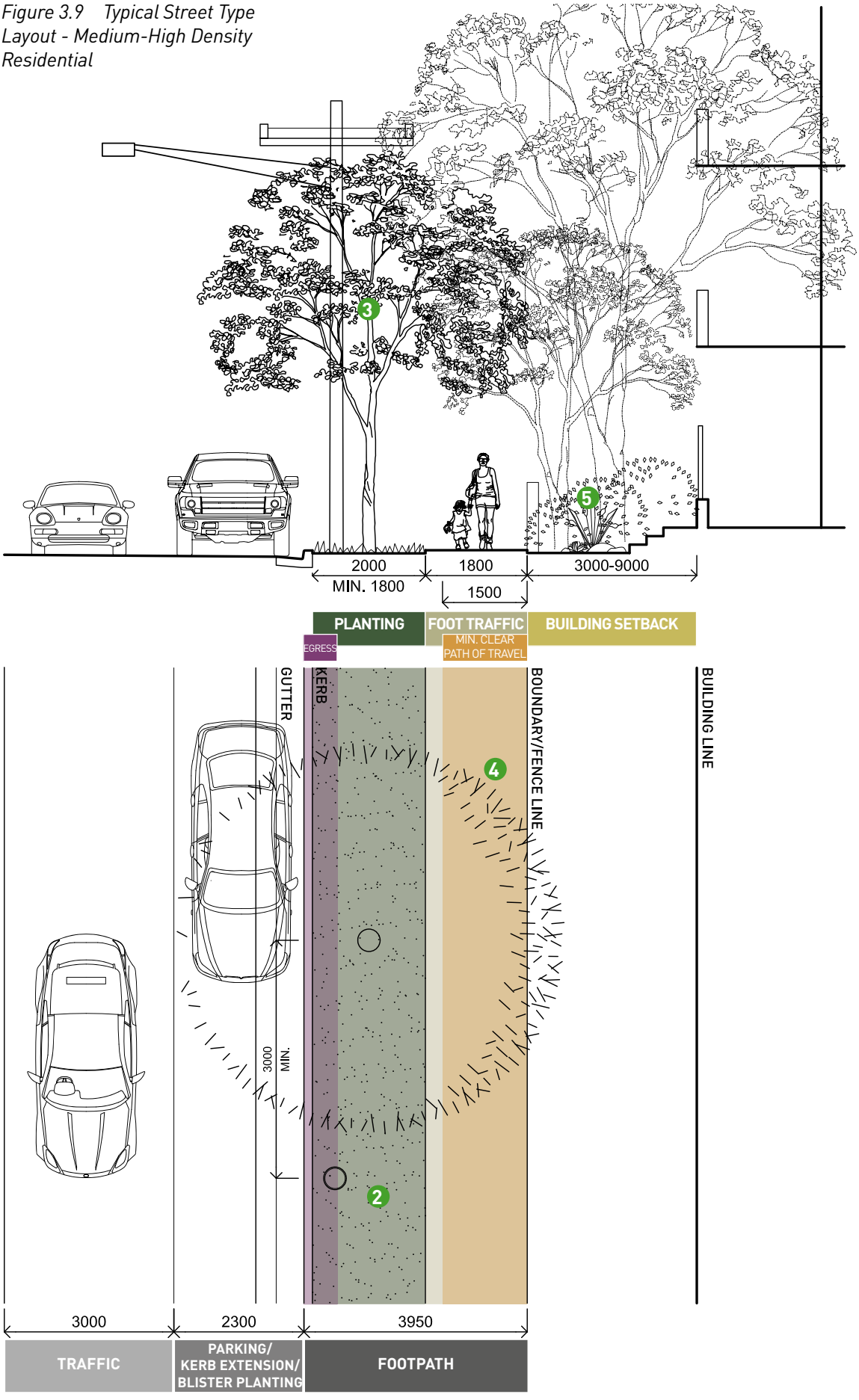
These streets comprise residential apartment buildings with predominant residential ground floor use. Buildings are set back from the front boundary providing additional landscape to the streetscape. Medium to high density residential development is typcially located near train stations or other public transport hubs. The streets attract bust vehcile and pedestrain activities during morning and evening peak hours.

The Parramatta Ways Strategy, promoting the creation of a strong network of walkable green connections through local neighbourhoods, affects many local streets. Refer to the strategy for the scope and requirments for these streets.

DESIGN CONSIDERATIONS

1. Achieve a safe, comfortable and attractive environment for all street users.
2. Provide a generous turf verge with tree planting to suit street character and to accommodate constraints such as overhead wires.
3. Maximise tree canopy coverage and enhance green networks and connections to open spaces (refer to the *Parramatta Ways Walking Strategy*).
4. Provide a consistent concrete footpath in the footway abutting the property boundary and aligning with adjoining streets.
5. Provide front setbacks to new buildings that are free of basement car parking and that offer additional tree planting and landscaping to contribute to a comfortable, shady streetscape.

Figure 3.9 Typical Street Type Layout - Medium-High Density Residential



3.3.6 LOW DENSITY RESIDENTIAL

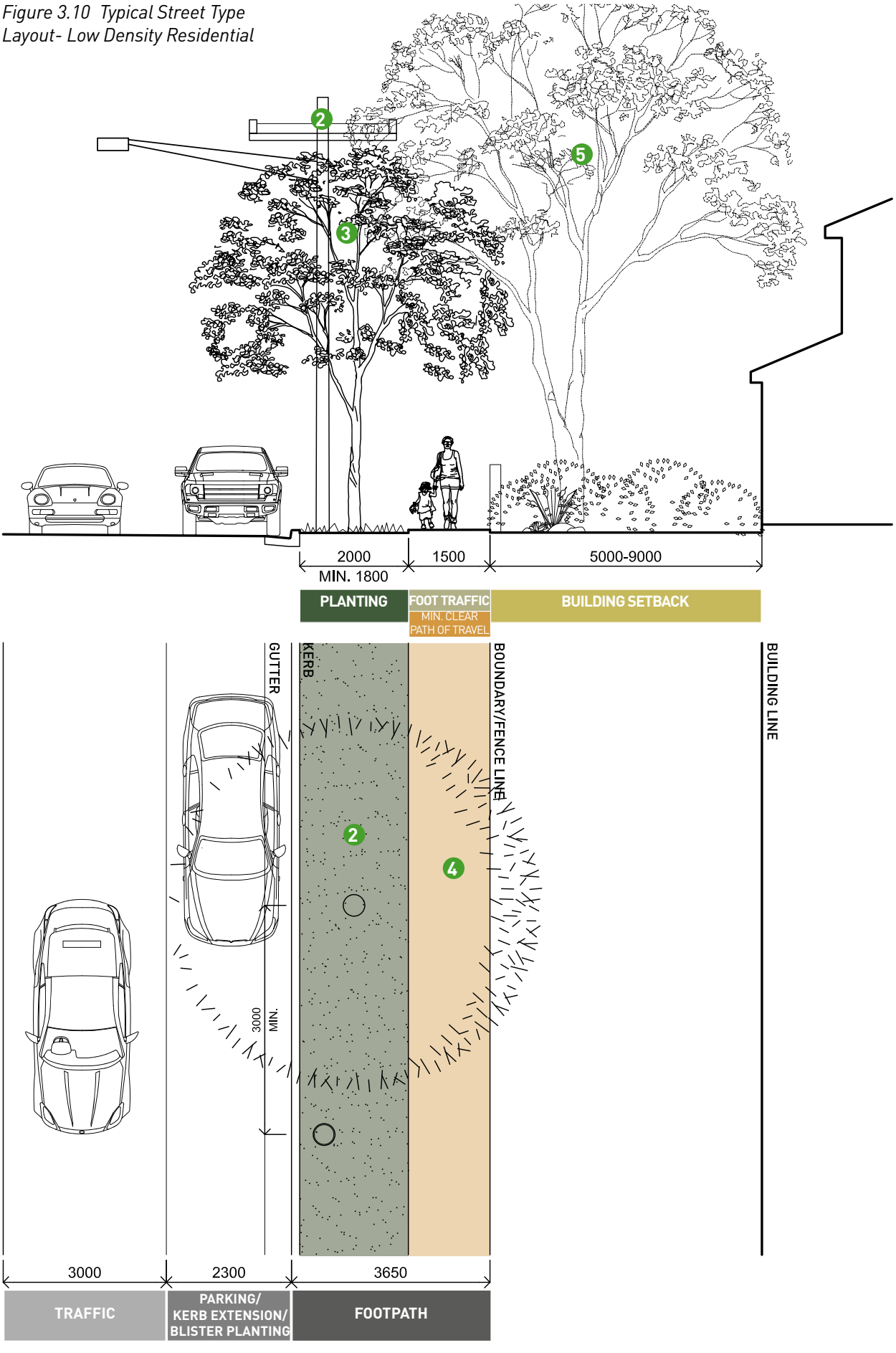
Low density residential streets represent the majority of streets in LGA. They are quiets streets with relatively low traffic and pedestrian volumes. Although they are less busy than other street types, they play a key role in supporting social interaction and healthy outdoor lifestyle and activity in neighbourhoods.

The Parramatta Ways Strategy, promoting the creation of a strong network of walkable green connections through local neighbourhoods, affects many local streets. Refer to the strategy for the scope and requirments for these streets.

DESIGN CONSIDERATIONS

1. Achieve a safe and attractive street environment with strong local character.
2. Provide a generous turf verge with tree planting to suit street character and to accommodate constraints such as overhead wires.
3. Maximise tree canopy coverage and enhance green networks and connections to open spaces (refer Parramatta Ways Walking Strategy).
4. Provide a consistent concrete footpath in the footway abutting the property boundary and aligning with adjoining streets.
5. Respect significant landscape features in private properties contributing to the public domain, especially in Heritage Conservation areas.
6. Provide appropriate traffic-calming devices to manage traffic speed.

Figure 3.10 Typical Street Type Layout- Low Density Residential



3.3.7 INDUSTRIAL

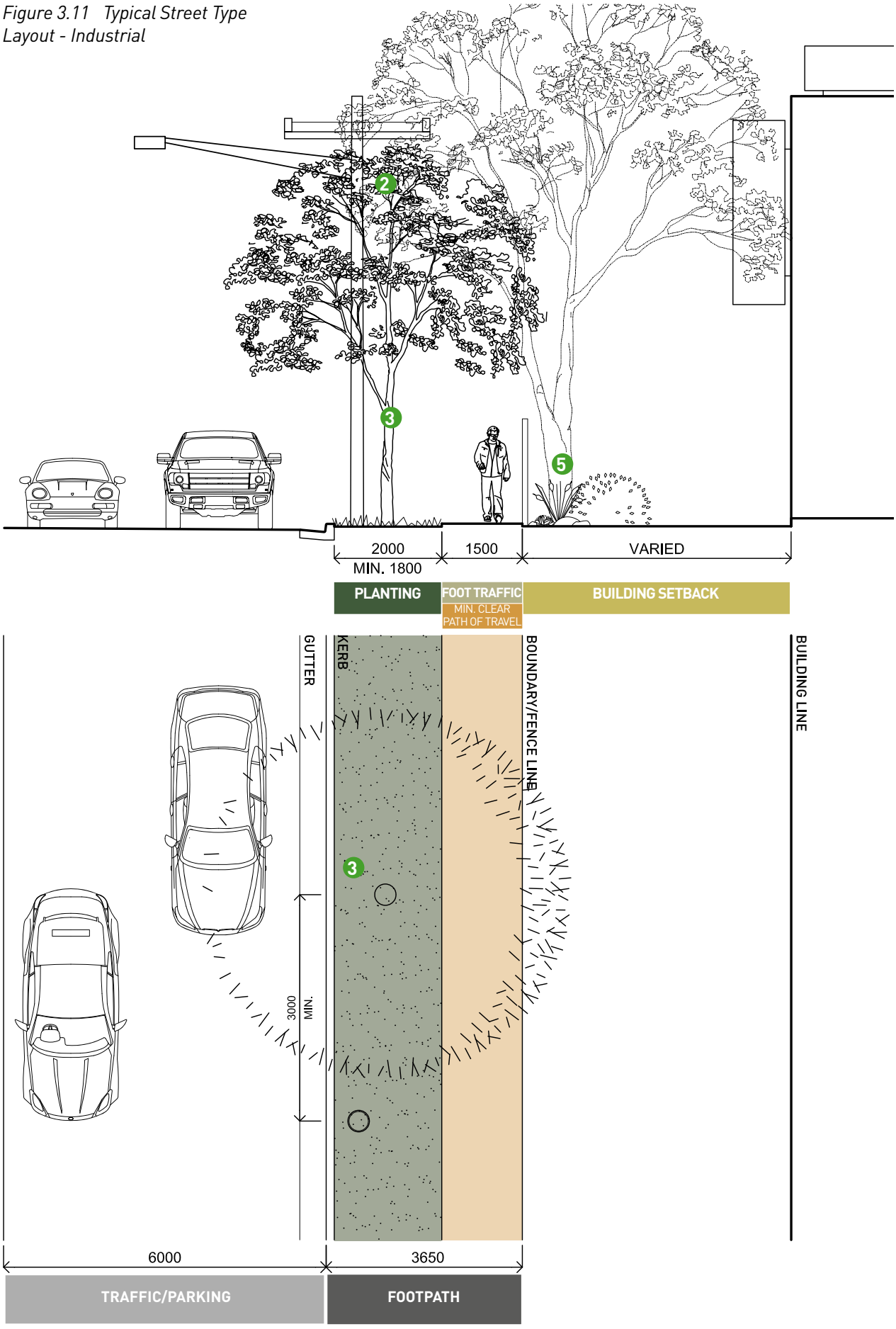
Public streets in industrial areas traditionally support low levels of street frontage activity. They typically comprise wide carriageways to suit truck movements, large driveway entries, loading docks, and other service facilities to cater for industrial land use activities. Footpaths and landscaping amenities are often minimal.

Many industrial areas are facing major urban renewal. A more diverse land use mix is envisaged offering cafe, food and other services to support the large worker populations. New streets in these zones must address pedestrian amenity, comfort and safety as well as the requirements for heavy vehicular movements in order to create desirable and walkable working communities.

DESIGN CONSIDERATIONS

1. Achieve an attractive, clean and safe environment for all users.
2. Maximise tree canopy coverage and enhance green networks and connections to open spaces (refer Parramatta Ways Walking Strategy).
3. Favour large street tree species with high branching habit to minimise conflict with tall passing vehicles.
4. Select tree species with air pollution tolerance and low maintenance requirements.
5. Encourage generous landscape planting in front setbacks to contribute to the street scape.
6. Provide appropriate traffic-calming devices to manage traffic speed.

Figure 3.11 Typical Street Type Layout - Industrial



3.3.8 LANEWAYS

SERVICE LANES

Service lanes provide service and vehicle access to support commercial and retail properties in major centres. The lanes need to be safe and functional. Safe pedestrian access through service lanes is provided on a narrow footway separated from the carriageway as in all other streets. Provisions for pedestrians and cyclists should be determined subject to specific site context, adjacent destinations and traffic conditions in surrounding streets.

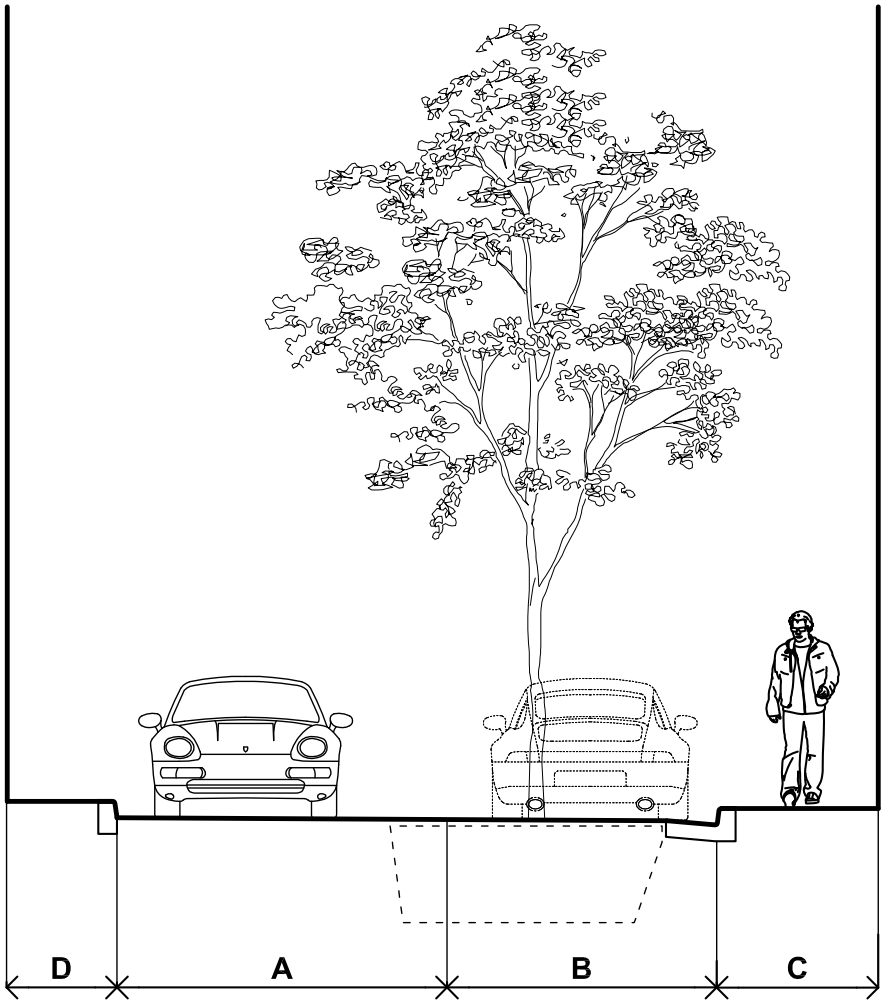


Table 3.4 Recommended Service Lane Widths

A	B		C	D
TRAFFIC LANE	TRAFFIC LANE	PARKING/ PLANTING	PRIMARY FOOTWAY	SECONDARY FOOTWAY
3.0-3.2m	2.5-3.2m	2.1-2.3m	1.0-2.4m	nil-1.5m

SHARED ZONES

Shared zones can be considered where pedestrian flow is high and traffic flow is relatively low. In shared zones there is no separation between pedestrians, cyclists and vehicles across the laneway and vehicle speed is limited to 10kph. There are no fixed spatial requirements for shared zones, however, designs must comply with RMS shared zone requirements and RMS approval needs to be obtained prior to construction.

PEDESTRIAN LANES

Pedestrian lanes are publicly owned links providing access between private properties to the local road network. They are for the exclusive use of pedstrias providing permeability through large city and centre blocks. Design controls to maximise lane safety and legibility include the following.

- Direct at-grade street to street connections. Stairs and changes of level to suit adjacent development is not permitted.
- Direct street to street sightlines along lanes. Changes in direction along the lanes are not prefered.
- Open to sky with no overhanging structure above except approved awnings.
- Lighting levels to meet recommended levels and Australian Standards.
- Active frontages along the lanes are preferred and encouraged.
- No basement car parking under.

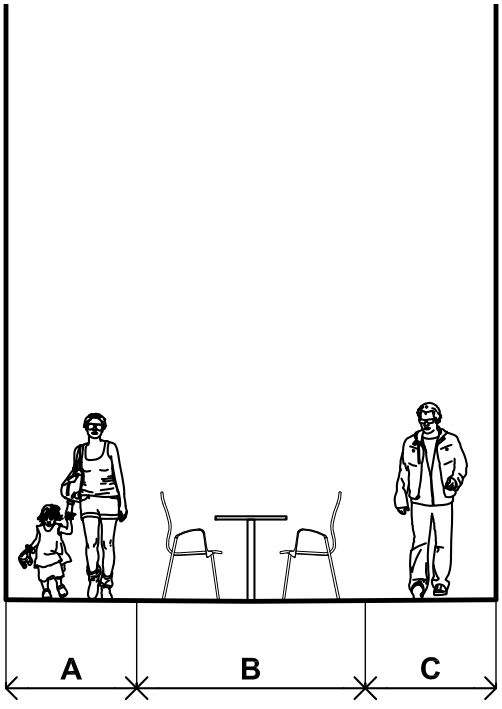


Table 3.5 Recommended Pedestrian Lane Widths

A	B	C
PRIMARY FOOTPATH	**FURNITURE ZONE**	**SECONDARY FOOTPATH**
2-2.5m	Min. 1m	nil-1.5m

THRU-SITE LINKS

Thru-site links are privately owned and managed zones through private developments. Where thru-site links are proposed, a public easement (right of way) is required at the development stage to confirm the required public access conditions.

Note: the following design controls for the thru-site links may not be applicable subject to relevant site specific DCPs.

ARCADES

Arcades are located within buildings. They provide direct access between public streets through buildings. Design controls for arcades include the following:

- Double ceiling height preferred
- Clear & legible entries from the street
- Active interior edges
- Generous dimensions.

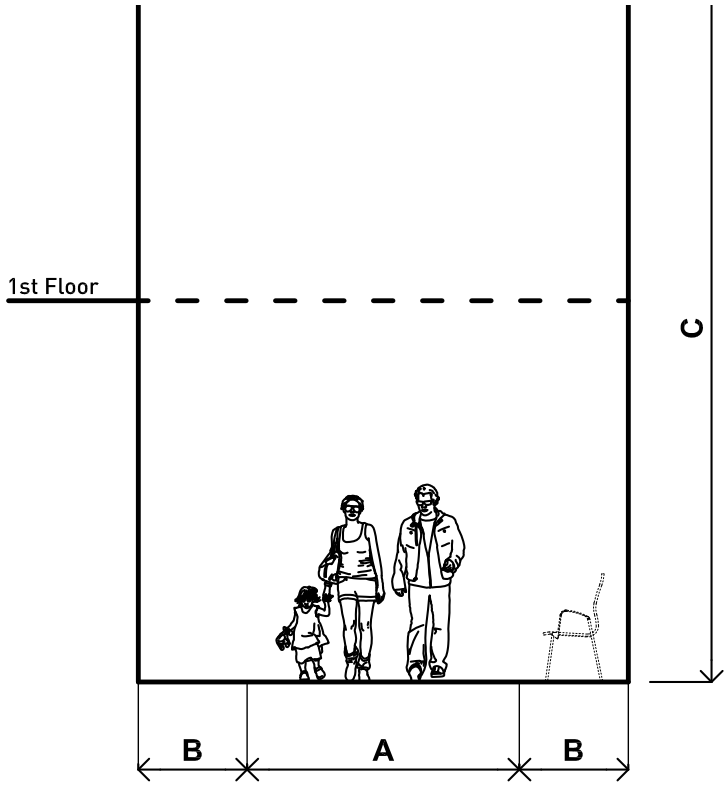


Table 3.6 Recommended Arcade Widths and Heights

A	B	C
PEDESTRIAN MOVEMENT	**RETAIL INTERFACE**	**CEILING HEIGHT**
Min. 2.5m	Min. 1m	Double storey height preferred (i.e. >8.0m)

OPEN AIR

Open air thru-site links are located between buildings. These are privately owned versions of pedestrian links. Design controls for open air thru-site links include the following:

- Direct street to street sight lines along lanes. Changes in direction along the lanes are not preferred.
- Open to sky with no overhanging structure above except approved awnings.
- Lighting levels to meet Council recommended levels and Australian Standards.
- Active frontages along the lanes are preferred and encouraged.

3.4 FOOTWAY ARRANGEMENT

The footway is perhaps the most contested zone for space for services and facilities in our urban places. Careful coordination and placement of street elements is required to achieve successful, functional footways in all streets and for all project contexts.

The table below identifies the suitablility of common footway elements in busy commercial streets (i.e. street tree, furniture and outdoor dining) based on different footway widths.

Table 3.7 Footway Elements in CBD, Town Centres and Active Strips

FOOTWAY WIDTH	CBD			TOWN CENTRES & ACTIVE STRIPS		
	Street Tree	Furniture	Outdoor Dining (in Furniture Zone)	Street Tree	Furniture	Outdoor Dining (in Furniture Zone)
>4.5m	√	√	√	√	√	√
4.0-4.5mm	√	√	X	√	√	√
3.65-4.0m	√	Restricted*	X	√	√	X
3.0-3.65m	√	X	X	√	Bin only	X
<3.0m	X**	X	X	X	X	X

Seat may be restricted, but bins and bike racks (parallel to kerb) can be considered.

** Tree planting is encouraged in blisters/parking lane wherever possible.*

The following diagrams provide further articulate requirements for the arrangement of elements in typical footways widths as described above.

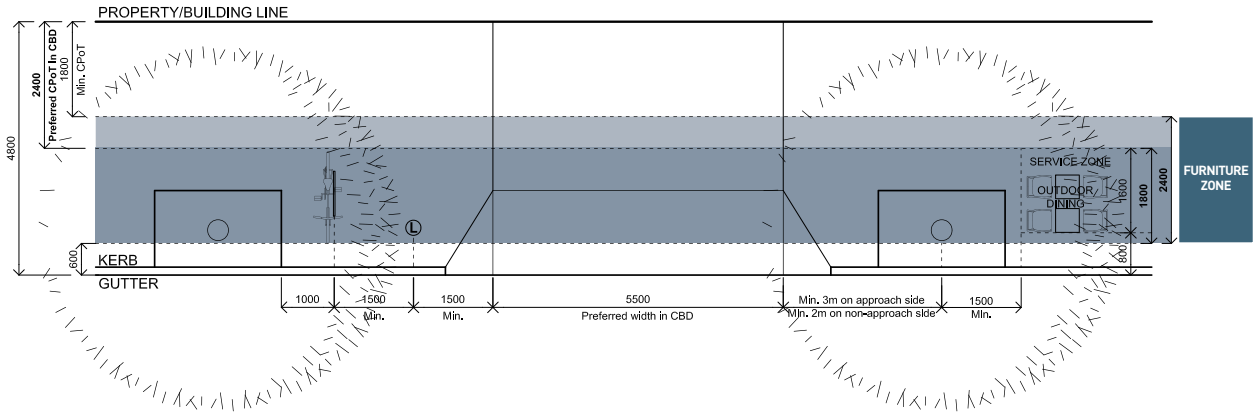


Figure 3.12 Typical Element Arrangement Diagram - 4.8m Wide Footway

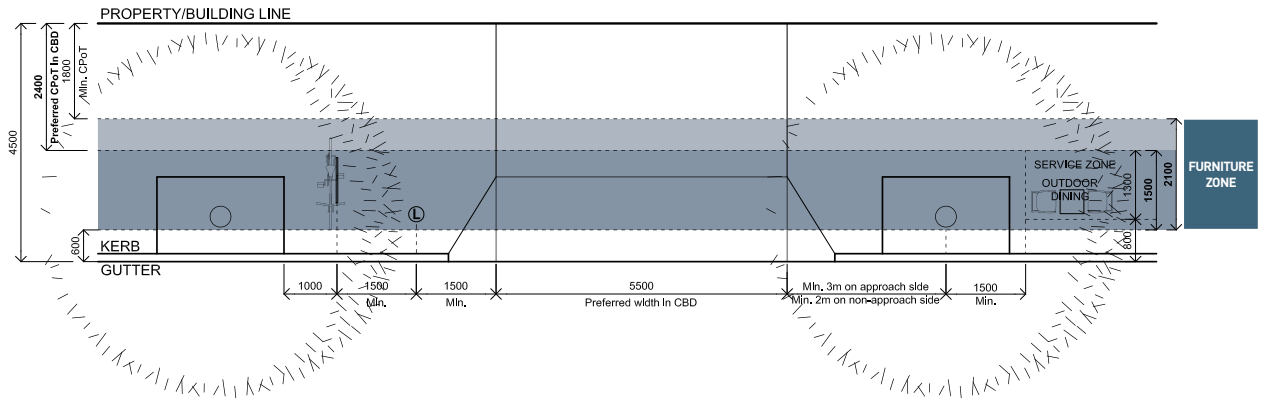


Figure 3.13 Typical Element Arrangement Diagram on a 4.5m wide Footway

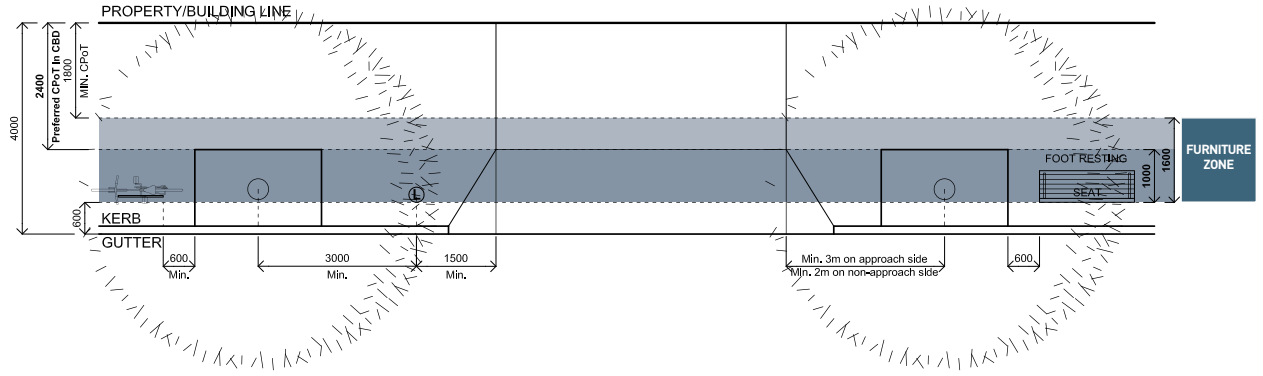


Figure 3.14 Typical Element Arrangement Diagram - 4.0m wide Footway

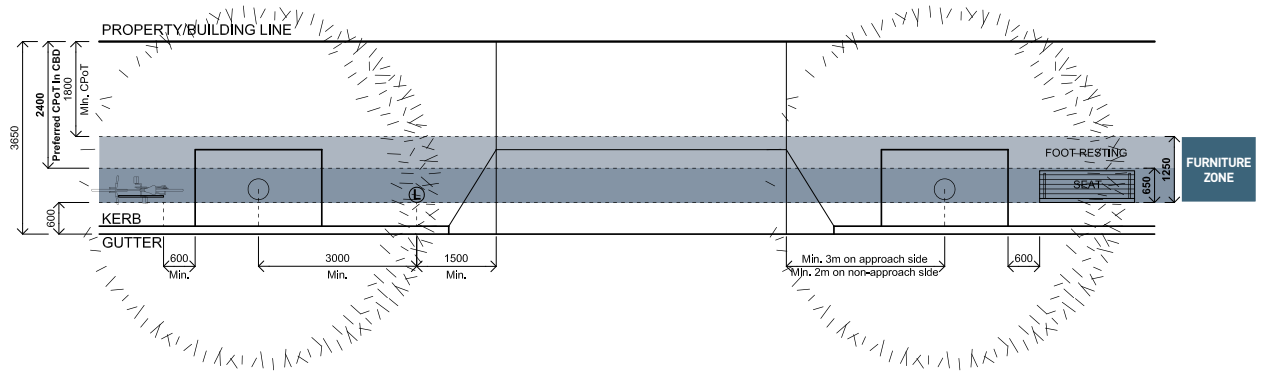


Figure 3.15 Typical Element Arrangement Diagram - 3.65m wide Footway

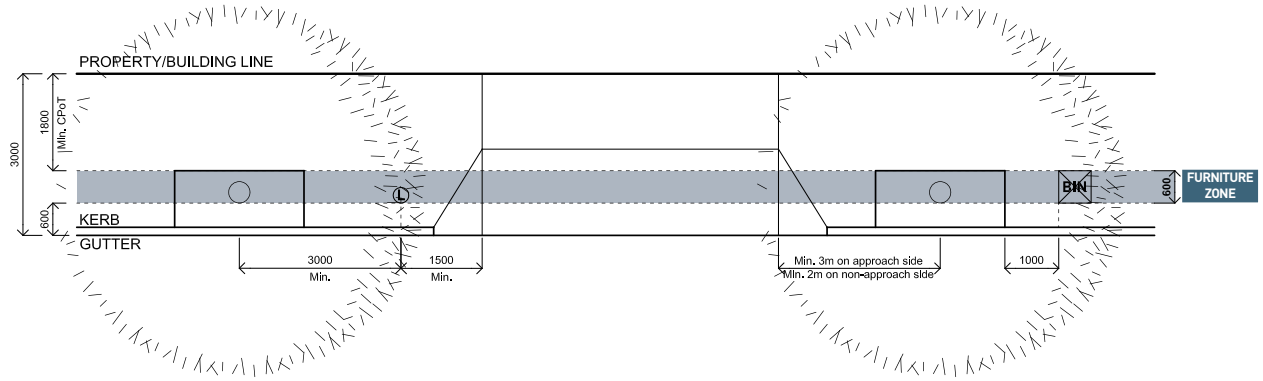


Figure 3.16 Typical Element Arrangement Diagram - 3.0m wide Footway

3.5 STREET INTERSECTION

Intersections should be designed to promote pedestrian safety and comfort. Intersection design should prioritise the following principles:

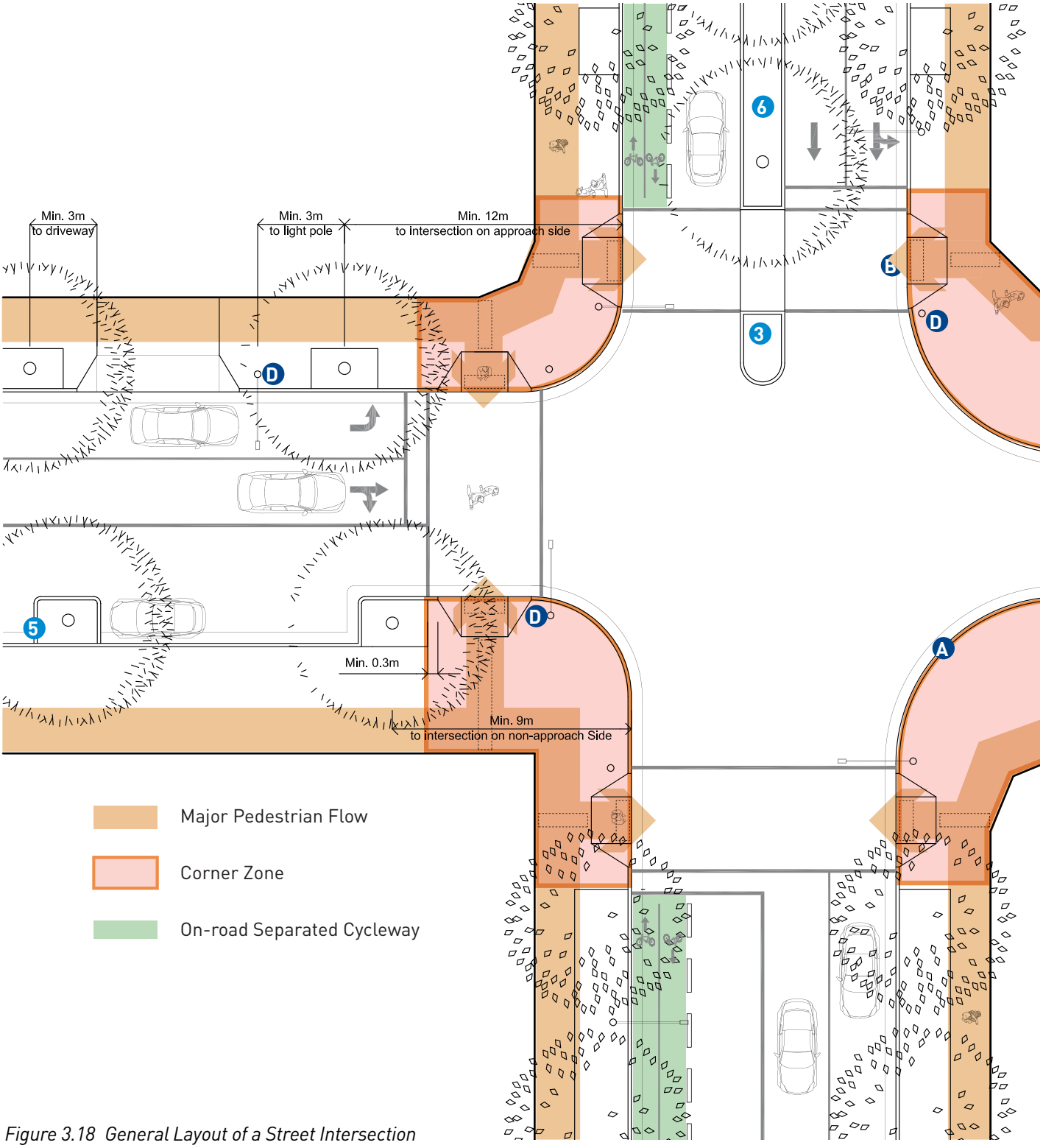
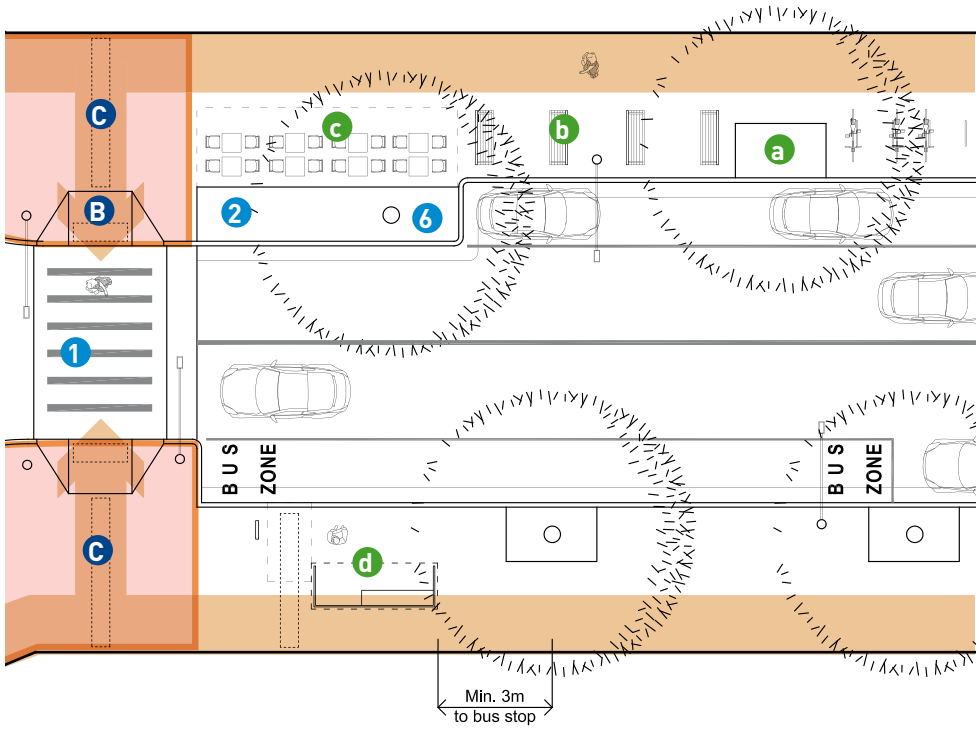


Figure 3.18 General Layout of a Street Intersection

- Minimising kerb radii, pedestrian crossing distance and maximising visibility
- Integrating traffic claiming devices into landscape treatments to slow down the traffic
- Providing accessibility indicators, such as kerb ramp, TGSI
- Generous Landing zone without clutters of unneccessary elements (refer to Design Tips for Landing Zone)
- Well-lit for all users



Elements of an Intersection

- **A** Kerb Radii *(Section 3.5.1)*
- **B** Kerb Ramp & Crossing *(Section 3.5.2 & 6.1.4)*
- **C** TGSI *(Section 6.1.4 & 6.1.5)*
- **D** Pole (e.g. light pole, traffic pole, street sign pole) *(Chapter 4)*

Special Features

- **1** Pedestrian Crossing
- **2** Kerb Extension *(Section 3.5.4)*
- **3** Refuge Island
- **4** Central Median
- **5** Blister Planting
- **6** WSUD Treatment

Elements on Footway

- **a** Street Tree *(Section 5.1)*
- **b** Furniture *(Section 5.2)*
- **c** Outdoor Dining *(Section 5.3)*
- **d** Bus Stop/Shelter *(Section 6.5.2)*

3.5.1 KERB RADII

The internal radii of turn for a typical service vehicle (8.8m long) is about 8m, it will be seen that a kerb radii of 9m will be needed for such vehicles to maintain a constant distance from the kerb while turning the corner. However, a kerb radii of 9m in all cases would mean large areas of carriageway at intersections, and longer pedestrian crossing distances, inappropriate in scale in many places, particularly in local areas, where traffic volumes are low.

Kerb radii should be designed individually based on the lane widths and other site conditions. The following table provides the recommended radiis for road types in genenral conditions.

INTERSECTION TYPE		**KERB RADII**
Road A	**Road B**	
Regional road (sub-arterial)	Any other road	**9m**
Local road - major access	Local road - major access	**9m**
Local road - major access	Local road - minor access	**6m**
Local road - minor access	Local road - minor access	**4.5m**
Single lane, one-way streets and laneways	Any other road	**4m**
Shared Zone	Any other road	**3m**

3.5.2 KERB RAMP & CROSSING

Kerb ramps should be aligned with both the footway path of travel as much as possible (see below figure) and with corresponding ramps across intersections. However, site constraints often make this difficult to achieve. For complex sites, the alignment of kerb ramps across intersections is prioritised over alignment with footway path of travel.

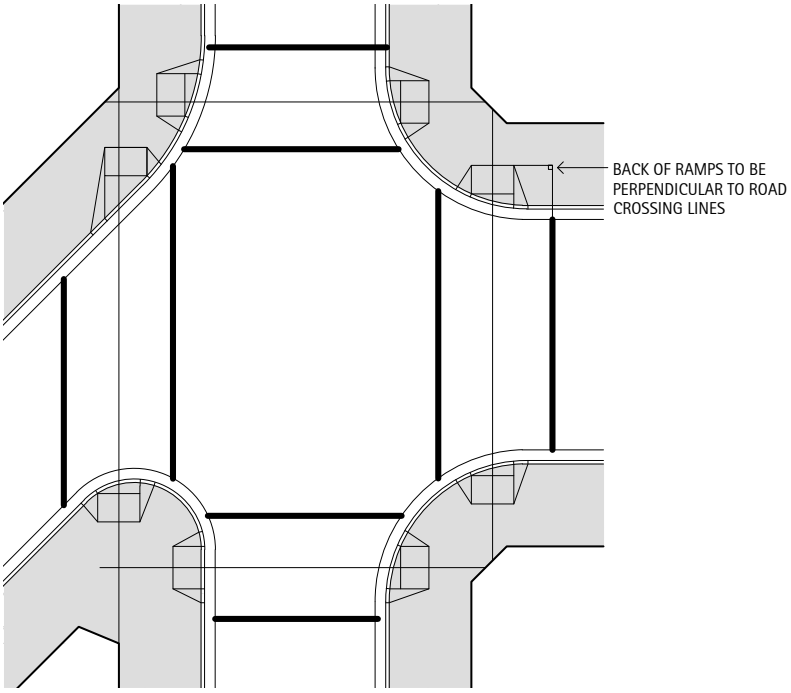


Figure 3.17 Kerb Ramps Aligned Across Intersections

For safe crossings, the importance of kerb ramps cannot be underestimated. Their location, design and construction in compliance with the current AS1428.1 (2009) ensures safe, equitable and dignified access through the streets for people of all ages and abilities.

3.5.3 POLES

There are a number of pole types appearing in the street footways, including light pole, traffic pole, street sign pole and so on. They could cause a significant visual clutter, especially in the footway Corner Zones. The following principles should be considered before a pole is to be placed at/near a street intersection:

- Poles should never placed within the clear path of travel;
- Minimise poles and the placement of the poles should avoid creating visual clutter in the footway;
- Poles for Street name/way finding should be placed in a consistent location at each street corner;
- The material and finishes of the poles should be co-ordinated in a same area, and for the same type of poles;
- When different types of poles needs to be placed in a same location, a shared pole (e.g. multi functional pole) should be used for the multiple purposes.

3.5.4 KERB EXTENSION

Kerb extension extends the footway into the carriageway to narrow the distance between the kerbs across the street and provide additional pedestrian space at the Corner Zone, or other key locations. Kerb extensions enhance pedestrian safety by increasing visibility, shortening crossing distance, slowing turning vehicles, and visually narrowing the street.

Kerb extensions should be considered on streets with following conditions:

- New streets;
- Streets with high pedestrian volumes, such as neighbourhood/local active strips, Parramatta Way routes;
- Wide streets with long crossing distances;
- Streets with high traffic flow and historic pedestrian safety concerns;
- Streets with lack of seating/resting places.

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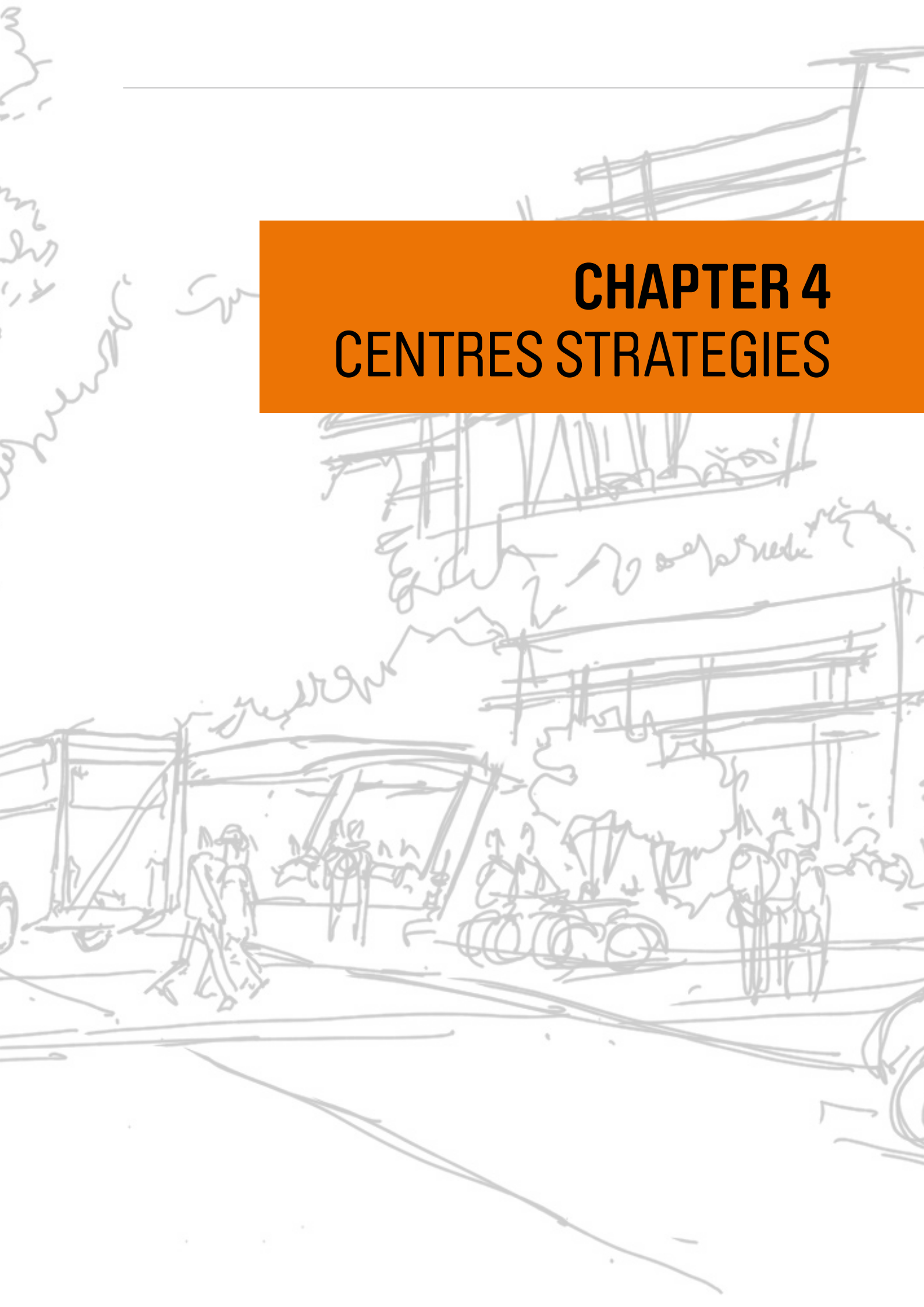

CHAPTER 4
CENTRES STRATEGIES

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TABLE OF CONTENTS

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4 CENTRES STRATEGIES

KEY POINTS OF THIS CHAPTER

- City of Parramatta Centres Hierarchy Map
- Definition of CBD, town centres, urban villages and neighbourhood local centres
- Strategy maps and materials palettes for paving, street tree, overhead power line, furniture lighting, pole and banner for CBD and town centres
- Strategy maps for paving, street tree and overhead power line for Carlingford Urban Village

This section defines Parramatta's main centres and provides guidance about public domain finishes, fixtures and fittings required for each centre. This will assist developers to understand the City's requirements for public domain works triggered by development proposals. Centres are identified and located in the Centres Hierarchy Map in Figure 4.1. The hierarchy of centres has been determined on analysis of demography, proximity to public transport modes, land use type, and a review of state government objectives.

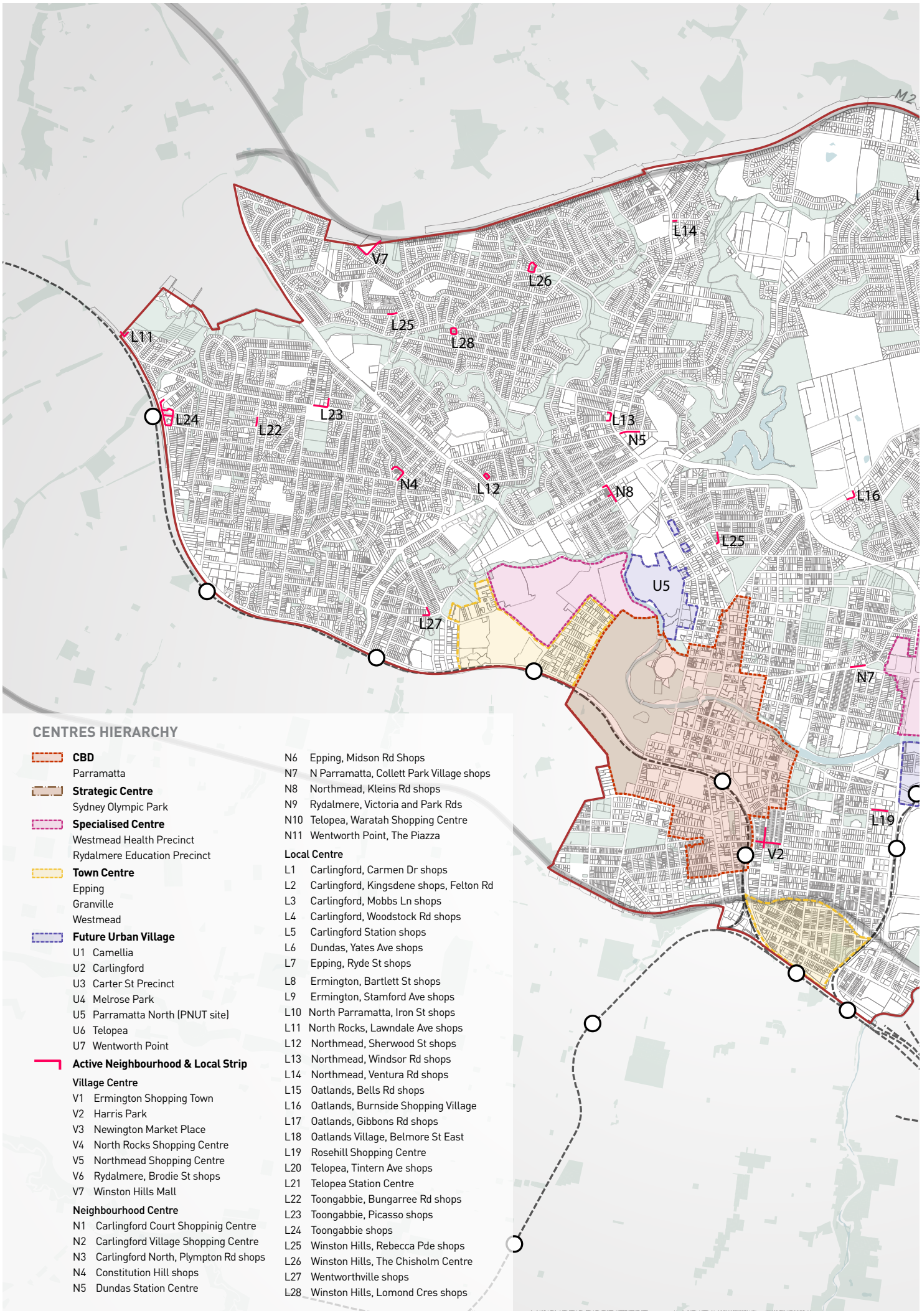
The hierarchy of centres includes the following:

- CBD
- Strategic Centre
- Specialised Centre
- Town Centre
- Future Urban Village
- Active Neighbourhood and Local Centres

Defining and spatially mapping City of Parramatta's centres assists in determining appropriate public domain treatments. This section also addresses public domain requirements for local streets.

Centre strategy maps and material palettes articulating the required public domain finishes, fixtures and fittings for each centre are provided.

Key element strategies observed in the preparation of the centre strategies and material palettes are identified in Chapter 5.



CENTRES HIERARCHY

CBD
Parramatta

Strategic Centre
Sydney Olympic Park

Specialised Centre
Westmead Health Precinct
Rydalmere Education Precinct

Town Centre
Epping
Granville
Westmead

Future Urban Village
U1 Camellia
U2 Carlingford
U3 Carter St Precinct
U4 Melrose Park
U5 Parramatta North (PNUT site)
U6 Telopea
U7 Wentworth Point

Active Neighbourhood & Local Strip

Village Centre
V1 Ermington Shopping Town
V2 Harris Park
V3 Newington Market Place
V4 North Rocks Shopping Centre
V5 Northmead Shopping Centre
V6 Rydalmere, Brodie St shops
V7 Winston Hills Mall

Neighbourhood Centre
N1 Carlingford Court Shoppinig Centre
N2 Carlingford Village Shopping Centre
N3 Carlingford North, Plympton Rd shops
N4 Constitution Hill shops
N5 Dundas Station Centre
N6 Epping, Midson Rd Shops
N7 N Parramatta, Collett Park Village shops
N8 Northmead, Kleins Rd shops
N9 Rydalmere, Victoria and Park Rds
N10 Telopea, Waratah Shopping Centre
N11 Wentworth Point, The Piazza

Local Centre
L1 Carlingford, Carmen Dr shops
L2 Carlingford, Kingsdene shops, Felton Rd
L3 Carlingford, Mobbs Ln shops
L4 Carlingford, Woodstock Rd shops
L5 Carlingford Station shops
L6 Dundas, Yates Ave shops
L7 Epping, Ryde St shops
L8 Ermington, Bartlett St shops
L9 Ermington, Stamford Ave shops
L10 North Parramatta, Iron St shops
L11 North Rocks, Lawndale Ave shops
L12 Northmead, Sherwood St shops
L13 Northmead, Windsor Rd shops
L14 Northmead, Ventura Rd shops
L15 Oatlands, Bells Rd shops
L16 Oatlands, Burnside Shopping Village
L17 Oatlands, Gibbons Rd shops
L18 Oatlands Village, Belmore St East
L19 Rosehill Shopping Centre
L20 Telopea, Tintern Ave shops
L21 Telopea Station Centre
L22 Toongabbie, Bungarree Rd shops
L23 Toongabbie, Picasso shops
L24 Toongabbie shops
L25 Winston Hills, Rebecca Pde shops
L26 Winston Hills, The Chisholm Centre
L27 Wentworthville shops
L28 Winston Hills, Lomond Cres shops

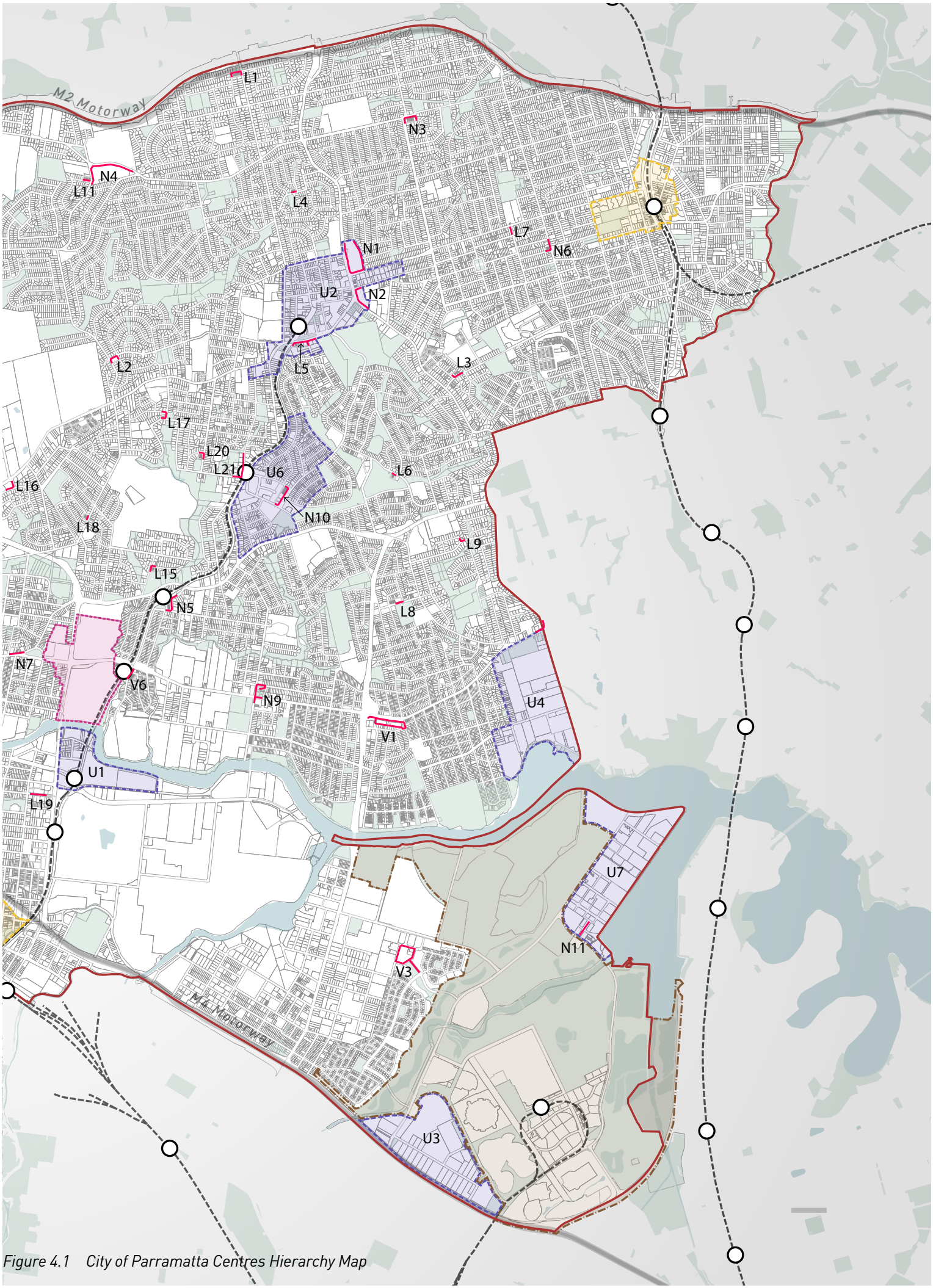


Figure 4.1 City of Parramatta Centres Hierarchy Map

PARRAMATTA CBD

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4.1 PARRAMATTA CBD

The NSW Government's MEtropolitan Strategy - 'A Plan for Growing Sydney' identifies Parramatta as a dual CBD with the same status as the City of Sydney.

The CBD is the main business and commercial centre for the Parramatta LGA. It services the highest levels of pedestrian use in a hub of commercial, retail, mixed use and business development. A high quality, durable palette of streetscape materials distinguishes the central city core and responds to the rich cultural mix of heritage buildings and new development, day and night time trading, culture and the arts.

Strategies and Materials Palettes

The City has nominated materials and finishes requirements for all public domain components in the CBD including:

- paving
- street trees
- overhead power
- street furniture
- lighting levels
- light poles
- banners

Proposed strategy maps and materials palettes for the CBD are as follows:

Figure 4.2 CBD - Paving Strategy

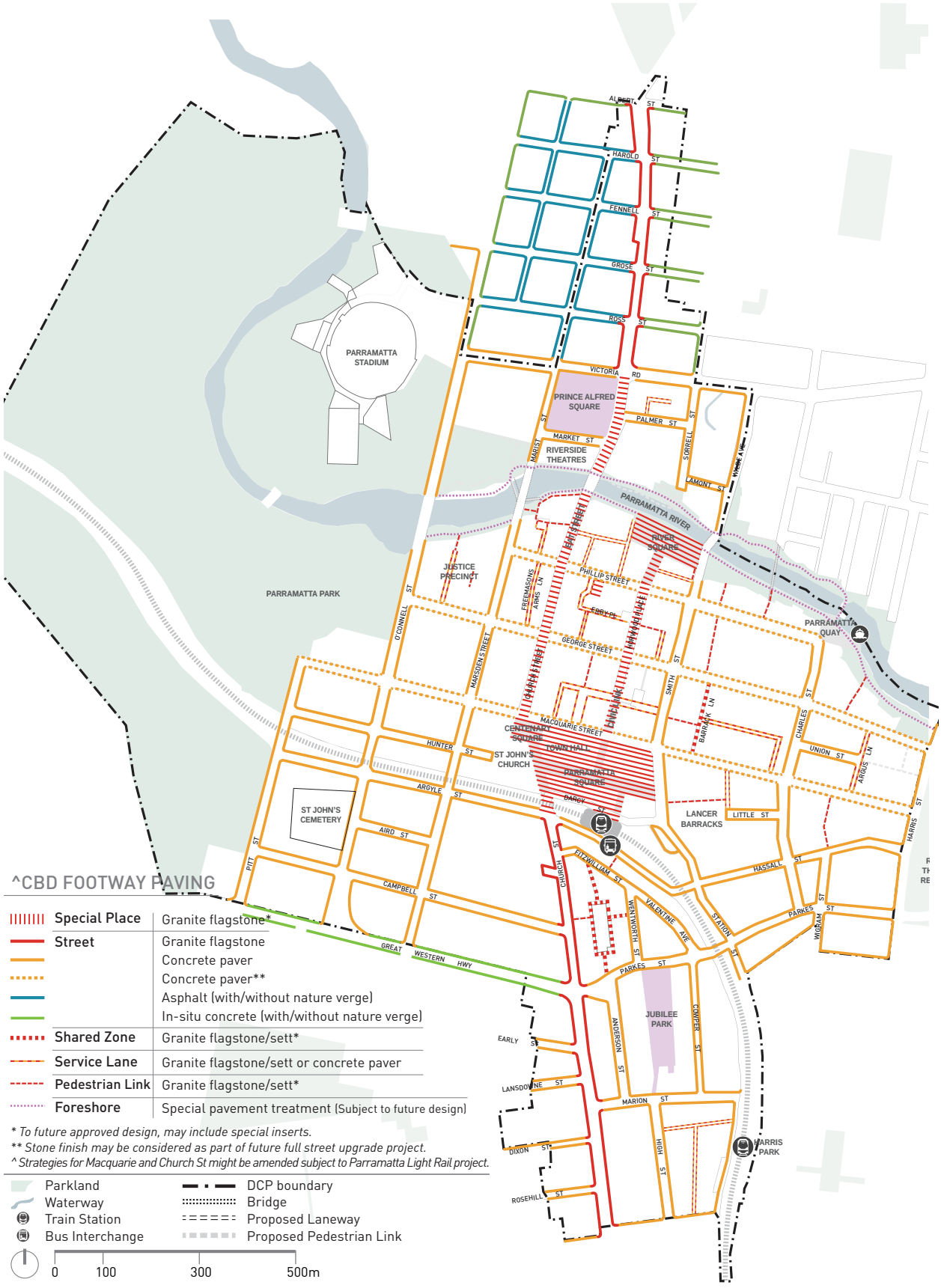


Figure 4.3 CBD - Paving Materials Palette

	Use	Material		
Street Footway Granite	**Main body** - uniform dark grey granite flagstones in a variety of sizes and finishes. **Vehicle crossing, kerb ramp** - granite flagstones to match the footpath treatment. Use smaller stone sizes on vehicle crossings as required to suit vehiclar load.	 **Main body** *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 600x300x50, 400x300x50mm* *Finish: exfoliated*	 **Vehicle crossing** *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 400x300x50, 200x300x50mm* *Finish: exfoliated*	 **Kerb ramp** *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 400x300x50, 200x300x50, 600x300x50mm* *Finish: exfoliated*
Concrete Paver	**Main body** - continued use of concrete pavers for consistency of appearance, high quality finish and durability. **Vehicle crossing, kerb ramp** - concrete pavers to match the footpath treatment. Use smaller unit sizes on vehicle crossing.	 **Main body** *Supplier: Pebblecrete* *Product: PPX:544:35D* *Size: 300x300x60mm* *Finish: honed*	 **Vehicle crossing** *Supplier: Pebblecrete* *Product: PPX:544:35D* *Size: 150x150x60mm* *Finish: honed*	 **Kerb ramp** *Supplier: Pebblecrete* *Product: PPX:544:35D* *Size: 300x300x60mm* *Finish: shotblast*
Asphalt	**Main body** - asphalt footpath in key heritage conservation areas. Subject to location and site conditions, full width pavement may be required. **Vehicle Crossing, Kerb Ramp** - in-situ concrete to suit grades and vehicle load.	 **Main body** *Material: asphalt concrete of AC10 and AC5 (wearing course)* *Colour: natural*	 **Vehicle crossing** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*	 **Kerb ramp** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*
In-situ Concrete	**Main body** - in-situ concrete for high durability and easy maintenance. Subject to location and site conditions, full width pavement may be required. **Vehicle crossing, kerb ramp** - in-situ concrete to suit grades and vehicle load.	 **Main body** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*	 **Vehicle crossing** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*	 **Kerb ramp** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*

Figure 4.3 CBD - Paving Materials Palette

	Use	Material		
Shared Zone	**Standard** - granite setts to the full width of the shared zone subject to RMS & Council approval. **Special applications** - designs can consider different paving materials subject to special design and RMS & Council approval.	 **Standard** *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 90x90x50mm* *Finish: natural split/ exfoliated*	 **Special application** *Mixed paving materials subject to individual design and RMS&Council approval*	
Pedestrian Lane	**Standard** - small granite flagstones or setts. **Special Applications -** designs can consider different paving materials subject to special design and Council approval.	 **Standard** *Material: granite* *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 200x100x50mm* *Finish: exfoliated*	 **Standard** *Material: granite* *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 90x90x50mm* *Finish: varied*	 **Special application** *Special inlays subject to site-specific design and Council approval*
Service Lane	**Carriageway** - asphalt. **Footpath** - small concrete pavers, grey granite flagstones or setts, or asphalt to approved design.	 **Footpath** *Material: granite* *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 90x90x50mm* *Finish: varied*	 **Footpath** *Material: granite* *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 200x100x50mm* *Finish: exfoliated*	 **Footpath** *Material: concrete paver* *Supplier: Pebblecrete* *Product: PPX:628:120.D* *Size: 150x150x60mm* *Finish: honed*
Kerb & Gutter	**Standard** - standard concrete barrier kerb and gutter. **Heritage Kerbs** - subject to heritage advice. **Special applications -** granite kerbs to the streets surrounding Parramatta Square to City's approval.	 **Kerb** *Material: concrete*	 **Kerb & gutter** *Material: concrete*	

Figure 4.3 CBD - Paving Materials Palette

	Use	Material
TGSI's	Type 316 Standard Stainless Steel Discrete Tactile Ground Surface Indicators (TGSI) and Directional Indicators to be manufactured and installed to AS1428: Design for Access and Mobility. Minimum slip resistence of R12.	 **Warning tactile**  **Directional tactile**
Service Pit Lids	Continuous use of paving units to match adjoining area treatment.	 **Granite infill** *Match granite flagstone used in surrounds*  **Concrete paver infill** *Match concrete paver used in surrounds*
Traffic Devices	Ensure sufficient visual contrast between the road and edge of the traffic devices, and use comparable materials for the infills to the surrounding footway finishes.	 **Porphyry setts infill**  **Granite setts infill** *Product: "Adelaide Black"*

Figure 4.4 CBD - Street Tree Strategy

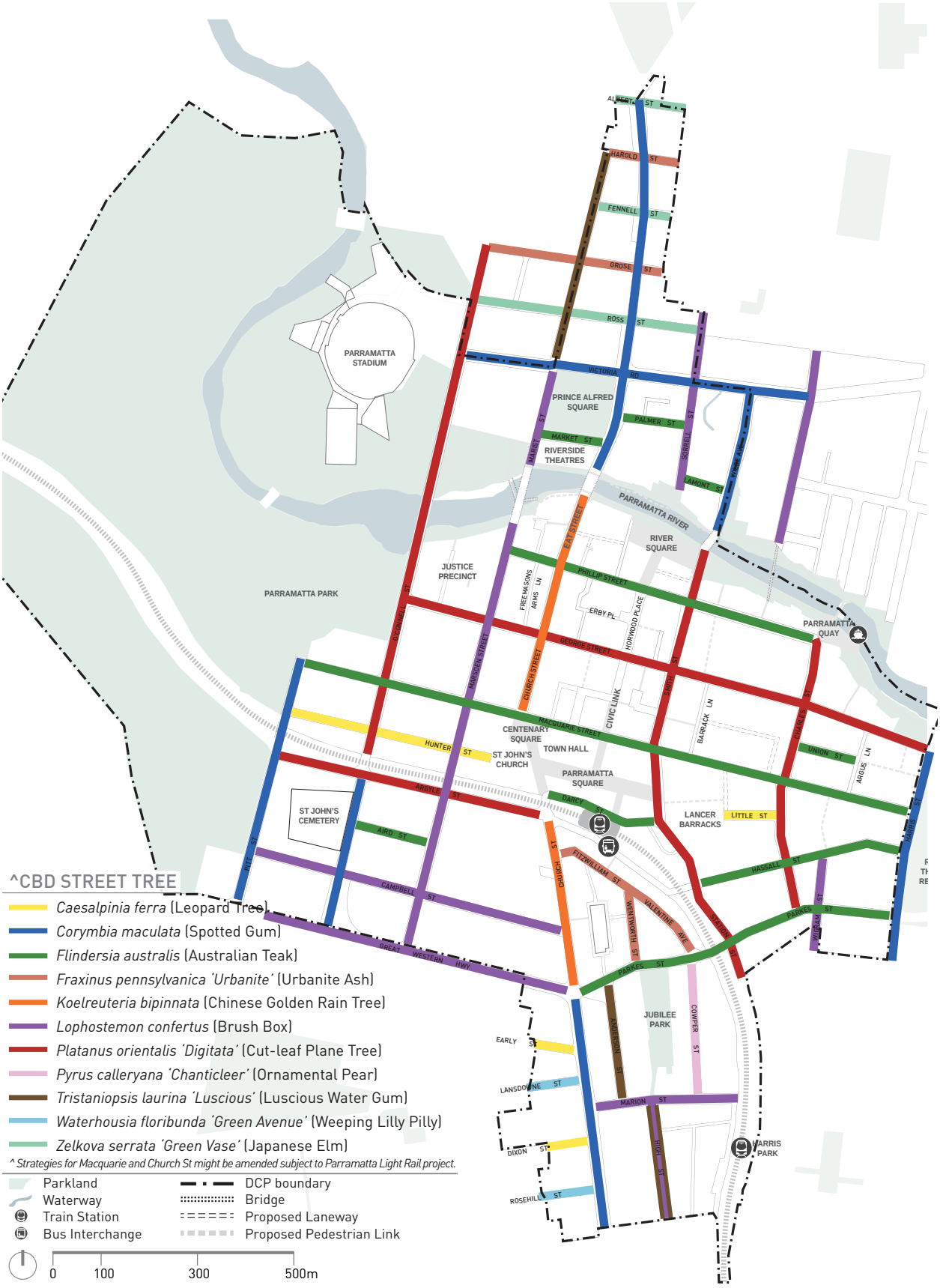
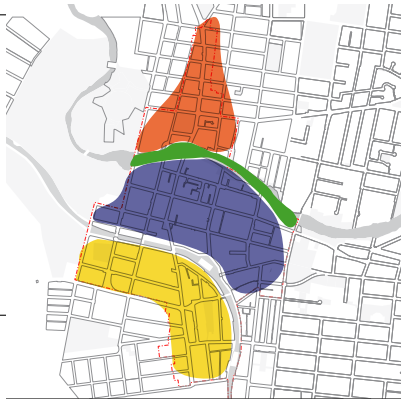


Figure 4.5 CBD - Street Tree Material Palette



Church Street

Koelreuteria bipinnata

Corymbia maculata

Heritage Cultural Precinct

Fraxinus pennsylvanica 'Urbanite'

Zelkova serra 'Green Vase'

Fraxinus griffithii

River Foreshore

Refer to future Foreshore Master Plan

Commercial/ Retail Core

Platanus orientalis 'Digitata'

Flindersia australis

Lophostemon confertus

Caesalpinia ferra

Auto Alley

Lophostemon confertus

Caesalpinia ferra

Tristaniopsis laurina 'Luscious'

Waterhousia floribunda 'Green Avenue'

Figure 4.6 CBD - Tree Surround Finishes Strategy

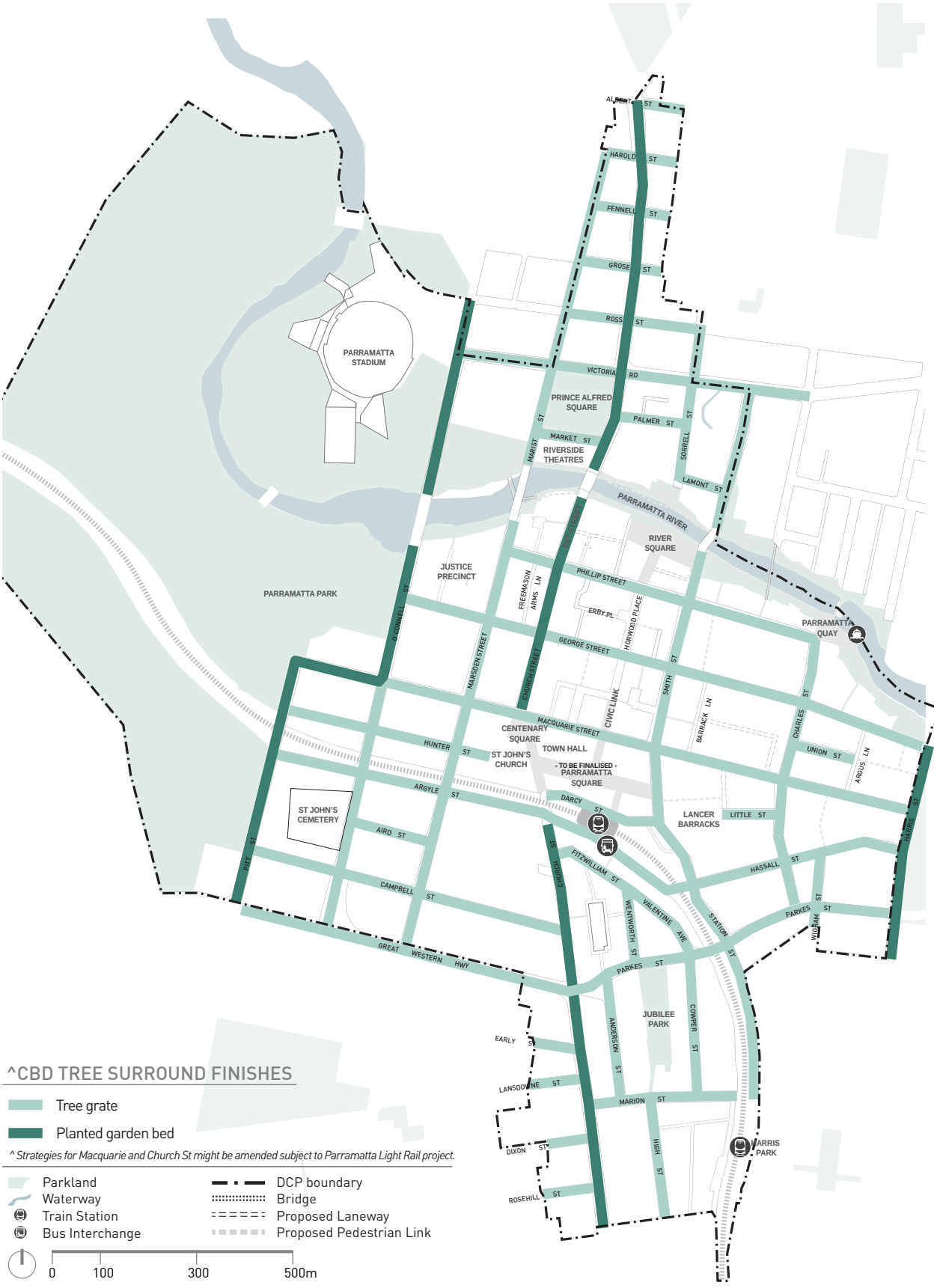


Figure 4.7 CBD - Undergrounding Overhead Wire Strategy

Figure 4.8 CBD - Furniture Strategy

Figure 4.9 CBD - Furniture Materials Palette

	High Profile	Utility
Seat	 *Material: mild steel frame and hardwood slats* *Finish: powdercoated and oiled* *PCC Currently Used Model: HUB S3 Modified**	 *Material: cast aluminium frame and panel and seat* *Finish: powdercoated* *Colour: Dulux Precious® Silver Pearl* *PCC Currently Used Model: SFA Concourse 3 Seater**
Bin & Cigarette Butt Bin (stand alone)	 *Material: mild steel frame, Rimex metal panels and stainless steel chute* *Capacity: 120L* *Lock assembly: PCC key-alike system* *PCC Currently Used Model: HUB S2 Modified**	 *Bin -* *Material: mild steel frame, gal panels and stainless steel chute* *Finish: powdercoated* *Colour: black* *Capacity: 120L* *Lock assembly: PCC key-alike system* *Cigarette Butt Bin -* *Material: mild steel and stainless steel cover*
Drinking Fountain	 *Material: stainless steel* *Extras: water filter unit, bottle filler, sub-surface drain* *PCC Currently Used Model: Aqualfil Refill Station & Drink Fountain**	N/A
Bike Rack	 *Material: stainless steel* *Finish: polished* *PCC Currently Used Model: SFA Semi Hoop**	 *Material: stainless steel* *Finish: polished* *PCC Currently Used Model: SFA Semi Hoop**

	High Profile	Utility
Bollard	 *Material: stainless steel or aluminium body* *Finish: brushed or powdercoated* *Size varies to suit traffic requirements*	 *Material: stainless steel or aluminium body* *Finish: brushed or powdercoated* *Size varies to suit traffic requirements*
Pedestrian Fence	N/A	 *RMS Pedestrian Barrier Type 1 (refer to www.RMS.nsw.gov.au)*
Bus Shelter	 *Supplier: Adshel*	 *Supplier: Adshel*
Tree Grate	 *Material: cast aluminium* *Finish: shot blast* *Size: 1.5 x 1.5m* *Supplier: Furphy*	 *Material: cast aluminium* *Finish: shot blast* *Size: 1.5 x 1.5m* *Supplier: Furphy*

** Where models/brand names are nominated, they are indicated only. CoP wishes to maintain consistency in the public domain but does not wish to restrict or endorse any one brand.*

Figure 4.10 CBD - Pedestrian Lighting Level Strategy

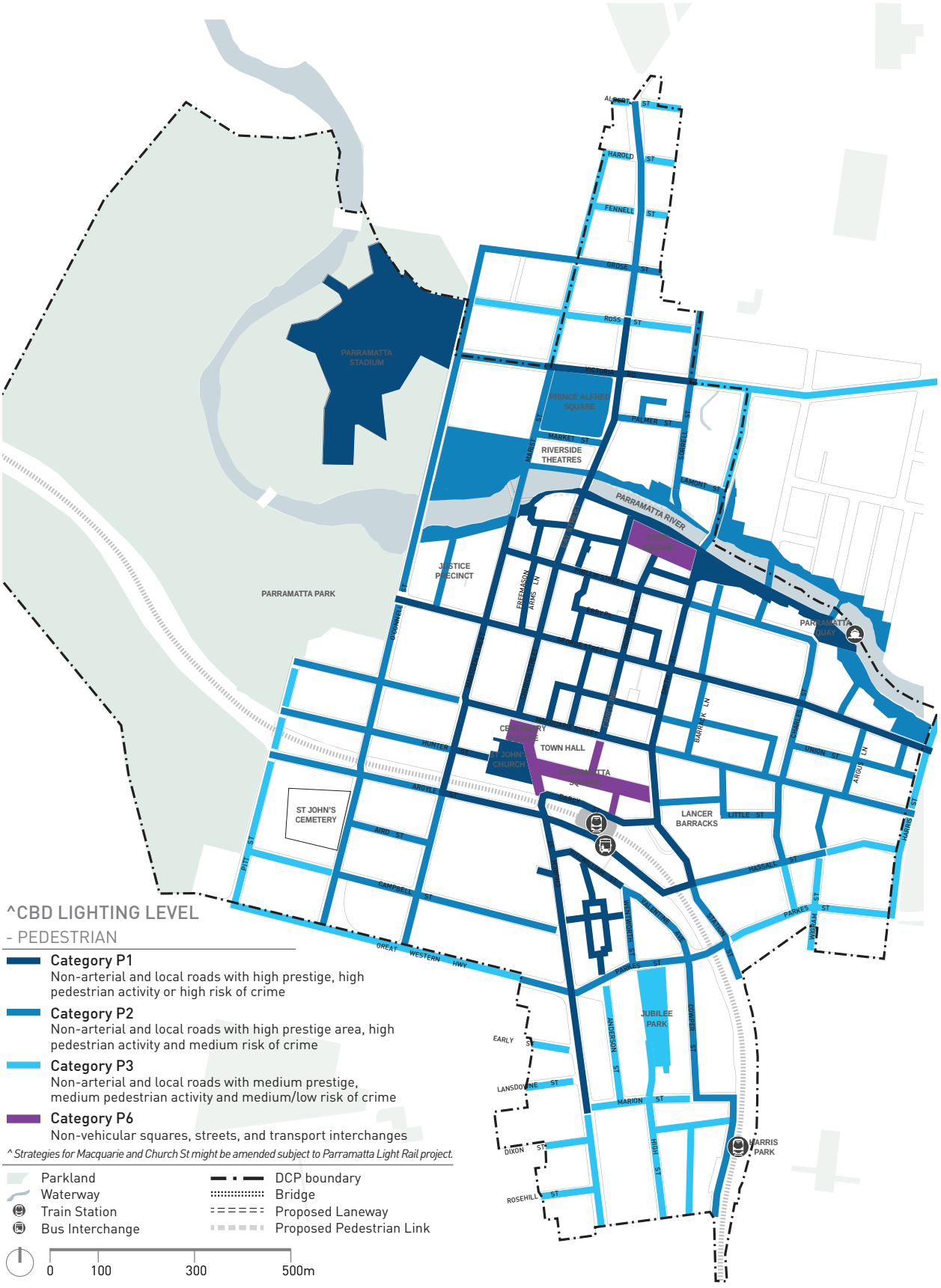


Figure 4.11 CBD - Vehicular Lighting Level Strategy

Figure 4.12 CBD - Street Light Pole Strategy

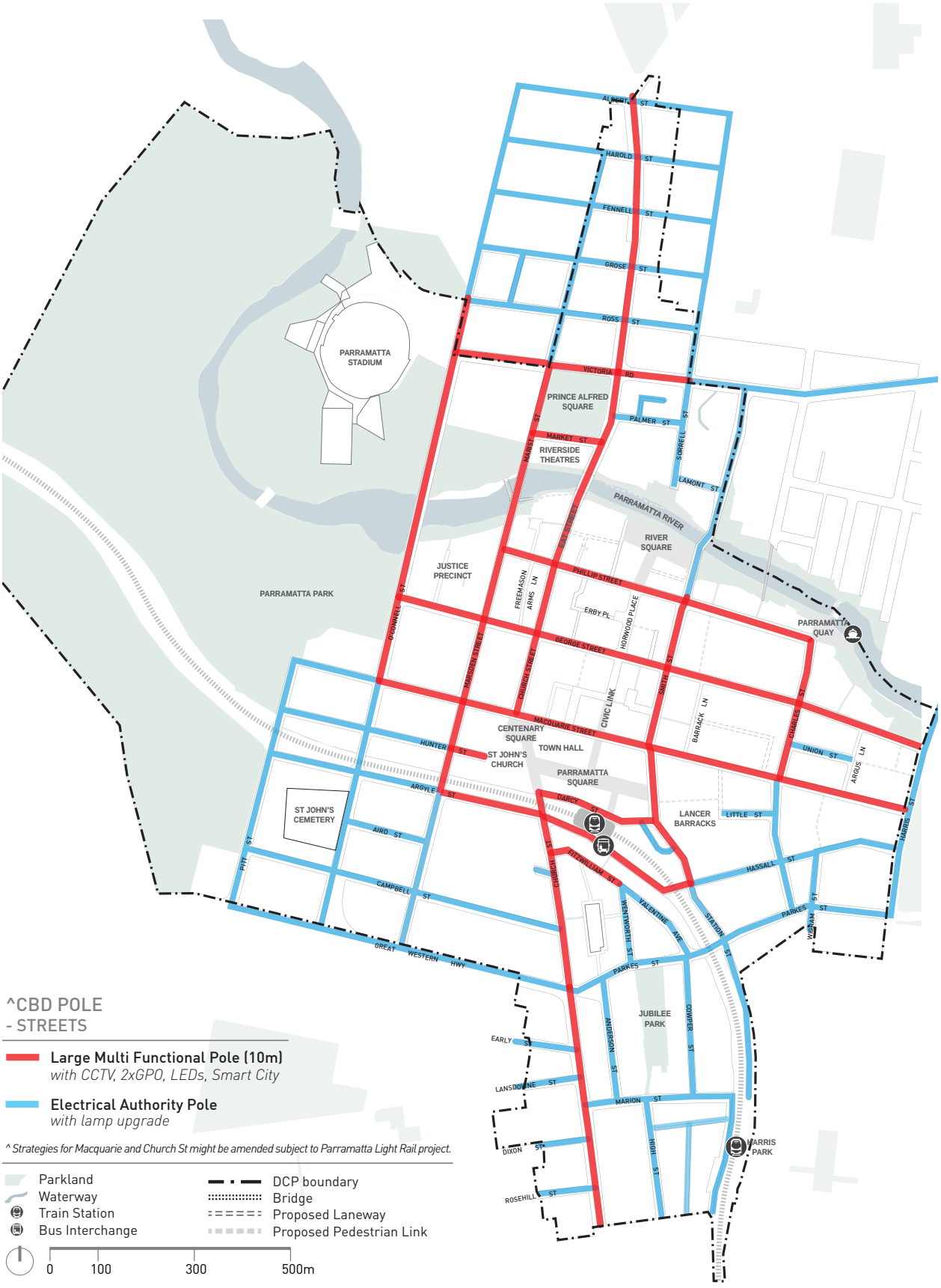
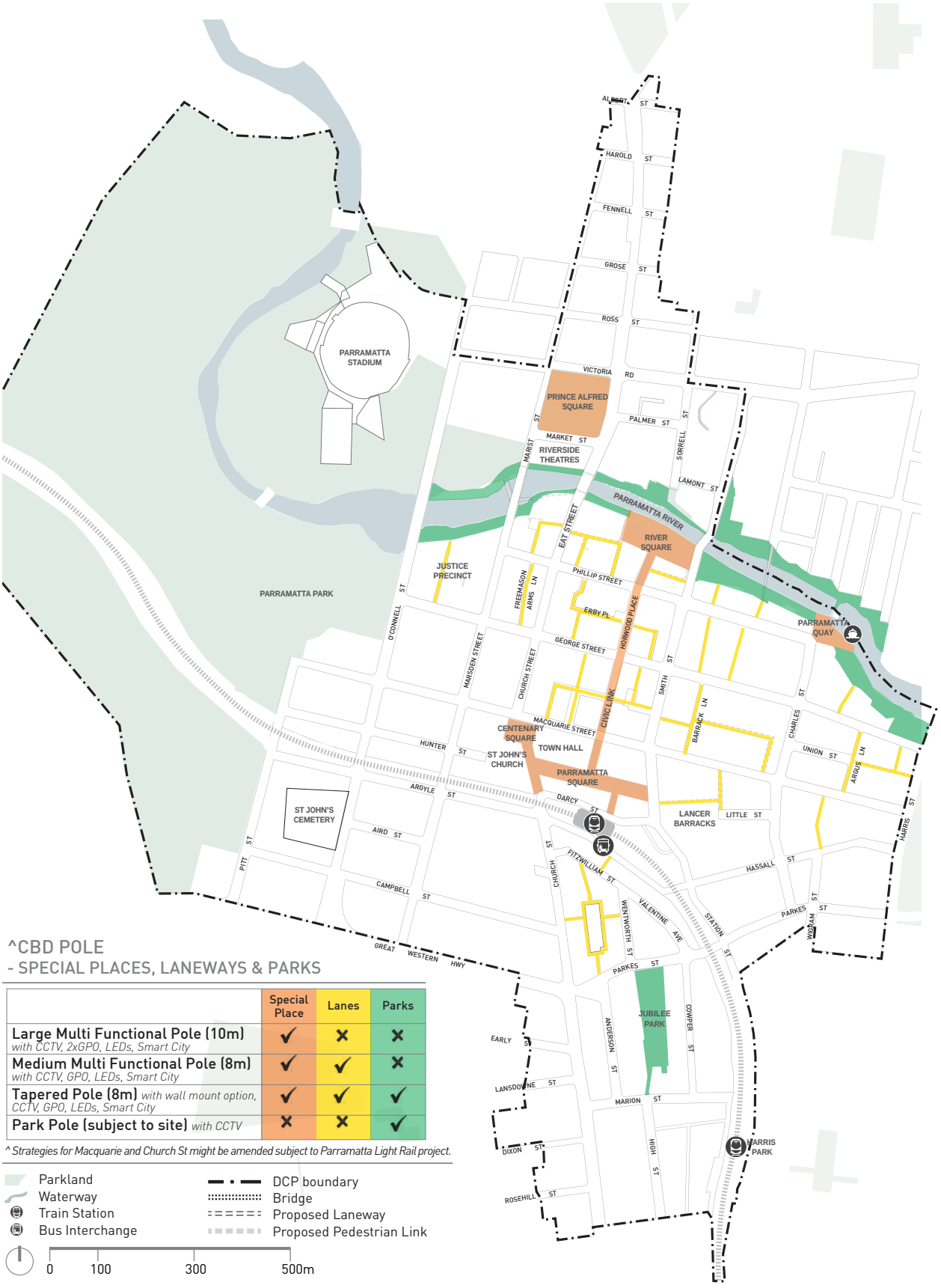


Figure 4.13 CBD - Park, Plaza & Lane Light Pole Strategy



^CBD POLE
- SPECIAL PLACES, LANEWAYS & PARKS

	Special Place	Lanes	Parks
Large Multi Functional Pole (10m) *with CCTV, 2xGPO, LEDs, Smart City*	✓	✗	✗
Medium Multi Functional Pole (8m) *with CCTV, GPO, LEDs, Smart City*	✓	✓	✗
Tapered Pole (8m) *with wall mount option, CCTV, GPO, LEDs, Smart City*	✓	✓	✓
Park Pole (subject to site) *with CCTV*	✗	✗	✓

^ Strategies for Macquarie and Church St might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange

DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.14 CBD - Banner Strategy

Figure 4.15 CBD - Pole & Banner Materials Palette

Light Pole

Multi Functional Pole

Large Multi Functional Pole (10m)

Medium Multi Functional Pole (8m)

Electrical Authority Pole

Steel Street Pole by Endeavour Energy

Banner

4500x1500mm Banner (double sided)

STRATEGIC CENTRE

SPECIALISED CENTRE

4.2 STRATEGIC CENTRE

Sydney Olympic Park (SOP) is the only Strategic Centre located in City of Parramatta LGA. It is defined in the Metropolitan Strategy for Sydney to 2031 - 'A Plan for Growing Sydney' (the Plan) published in December 2014.

4.2.1 SYDNEY OLYMPIC PARK

In accordance with the Plan, SOP will be transformed into a healthy lifestyle education and innovation centre based on its sports heritage and creating a vital education, commercial and residential hub. The Sydney Olympic Park Authority is responsible for managing and developing the 640 hectares that comprise Sydney Olympic Park and maintaining it as a lasting legacy for the people of New South Wales.

A series of planning controls and guidelines are published in SOPA website:

http://www.sopa.nsw.gov.au/resource_centre/publications

and, a series of urban design and public domain controls and guidelines - *the Sydney Olympic Park Urban Elements Design Manual* in Cumberland Council website:

http://www.auburn.nsw.gov.au/Develop/PlanPolicies/Pages/DevelopmentControlPlans.aspx

4.3 SPECIALISED CENTRE

Westmead Health Precinct and Rydalmere Education Precinct are two Specialised Centres defined in the Plan.

4.3.1 WESTMEAD HEALTH PRECINCT

The Westmead Health Precinct is one of the largest health, education, research and training precincts in Australia and a key provider of jobs for the greater Parramatta and western Sydney region.

According to the Plan, the State Government will:

- expand and build on the existing strengths of the Westmead Health Precinct by improving public spaces and renewing the precinct.
- facilitate improved public transport, cycling and walking connections between Westmead and Rydalmere through the Parramatta CBD, investigate improved connections to Macquarie Park, and investigate options to enhance a Parramatta City Ring Road.

The Precinct is currently undergoing a major transformation, with more than $3 billion committed by government, universities and the private sector to upgrade and expand the Precinct's health services, education and medical research facilities and undertake urban transformation over the coming years. A precinct-wide master planning has been initiated by the Western Sydney Local Health District. More information can be found in below link:

http://www.westmeadproject.health.nsw.gov.au/

4.3.2 RYDALMERE EDUCATION PRECINCT

The Rydalmere Education Precinct is located east of the Parramatta CBD and will be built upon the strong and growing sector based in Western Sydney University (WSU).

Apart from the public transport, cycling and walking connections, the Plan states that the State Government will:

- encourage higher education facilities to develop Rydalmere as Western Sydney's premier university precinct.
- grow knowledge jobs in Western Sydney and encourage innovation by investigation the potential for a new business park.

TOWN CENTRES

4.4 TOWN CENTRES

Three town centres are located at Epping, Granville and Westmead. These are the major commercial centres outside the CBD . They are characterised by a similar mix of commercial, retail and business developments centred around major railway stations and transport interchanges. They have a high level of pedestrian use and are a focus for local shopping, business and social interactions. They contain place making, community and landmark buildings, historic architecture, statues and public spaces.

As for the CBD the City has nominated materials and finishes requirements for all public domain components for the town centres including:

- paving
- street trees
- overhead wire
- street furniture
- lighting levels
- light poles
- banners

4.4.1 EPPING

Epping Town Centre is a compact and vibrant town centre area focussed around Epping Railway Station. The area is experiencing significant development uplift following adoption of the DCP 2011. Significantly improved public domain facilities are envisaged for Epping to address new development.

Proposed strategies and materials palettes for Epping are as follows:

4.4.2 GRANVILLE

Granville Town Centre will continue to be a vibrant centre focussed around Granville Railway Station. This area is also experiencing significant uplift following adoption of DCP 2011. New pedestrian connections and laneways and a significantly improved public domain setting is envisaged to address the expanded retail and mixed use development zones.

Proposed strategies and materials palettes for Granville Town Centre are as follows:

4.4.3 WESTMEAD

Westmead Town Centre is located to the west of the CBD, adjacent to the Specialised Centre - Westmead Health Districts, with access to Westmead Rail Station.The introduction of light rail along Hawkesbury Road, Hainsworth and Bridge Streets will have a significant impact on the function and vitality of this town centre. The implications of light rail in Westmead are subject to future light rail projet outcomes.

Significantly improved public domainoutcomes are envisaged to support these important changes and address the needs of existing residents in the area.

Proposed strategies and materials palettes for Westmead Town Centre are as follows:

Figure 4.16 Epping Town Centre - Paving Strategy

EPPING TOWN CENTRE FOOTWAY PAVING

IIIIIIIIII	**Special Place**	Granite flagstone*
———	**Street**	Granite flagstone
———		Existing paving finish to be reinstated
———		In-situ concrete (full width)
- - - -		In-situ concrete (1.5/1.8m wide)
▪▪▪▪▪▪	**Shared Zone**	Granite flagstone/sett*
-------	**Service Lane**	Granite flagstone/sett
———	**Pedestrian Link**	Granite flagstone/sett*

* *To future approved design, may include special inserts.*

Parkland	DCP boundary
Waterway	Bridge
Train Station	Proposed Laneway^
Bus Interchange	Proposed Pedestrian Link^

^ *All the proposed links and lanes are subject to the final Epping Town Centre Master Plan and future DCP.*

0 100 300 500m

Figure 4.17 Epping Town Centre - Paving Material Palette

	Use	Material
Street Footway Granite	**Main body** - range of grey granite flagstones in a variety of sizes, colours and finishes. **Vehicle crossing, kerb ramp** - granite flagstones to match the footpath treatment. Use smaller stone sizes on vehicle crossings as required to suit vehicle load.	 **Main body** *Product: "Sesame Grey" & "Adelaide Black (Veined)" or "Austral Black"* *Size: 600x300x50, 400x300x50mm* *Finish: exfoliated/bush hammered*  **Vehicle crossing** *Product: "Sesame Grey" & "Adelaide Black (Veined)" or "Austral Black"* *Size: 400x300x50, 200x300x50mm* *Finish: exfoliated*  **Kerb ramp** *Product: "Sesame Grey" & "Adelaide Black (Veined)" or "Austral Black"* *Size: 400x300x50, 200x300x50, 600x300x50mm* *Finish: exfoliated*
In-situ Concrete *(full width)* *(with nature verge)*	**Main body** - in-situ concrete in local streets and Beecroft Road for high duribility and easy maintenance. Full width pavement or footpath with nature (planting/ turf) verge may be required subject to location and site conditions. **Vehicle crossing, kerb ramp** - in-situ concrete to suit grades and vehiclar load.	 **Beecroft Rd** *(full width)* *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*  **Local streets** *(with nature verge)* *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*  **Vehicle crossing** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*  **Kerb ramp** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*
Shared Zone	**Standard** - granite setts to the full width of the shared zone subject to RMS & Council approval. **Special applications** - designs can consider a mix of paving materials subject to special design and RMS & Council approval.	 **Standard** *Product: "Sesame Grey"* *Size: 90x90x50mm* *Finish: natural split/ exfoliated*  **Special application** *Mixed paving materials subject to site-specific design and RMS&Council approval*
Pedestrian Link	**Standard** - small granite flagstones, or setts. **Special Applications** - designs can consider a mix of paving materials subject to site-specific design and Council approval.	 **Standard** *Product: "Sesame Grey"* *Size: 200x100x50mm* *Finish: exfoliated*  **Standard** *Product: "Sesame Grey"* *Size: 90x90x50mm* *Finish: exfoliated*  **Special Application** *Special inlays subject to individual design and Council approval*

	Use	Material
Service Lane	**Carriageway** - asphalt **Footpath** - small grey granite setts to match with surrounding streets.	 **Footpath** *Product: "Sesame Grey"* *Size: 90x90x50mm* *Finish: exfoliated*
Kerb & Gutter	**Standard** -standard concrete barrier kerb and gutter.	 **Kerb & Gutter** *Material: concrete*
TGSI's	Type 316 Standard Stainless Steel Discrete Tactile Ground Surface Indicators (TGSI) and Directional Indicators to be manufactured and installed to AS1428: Design for Access and Mobility. Minimum slip resistence of R12.	 **Warning Tactile**  **Directional Tactile**
Service Pit Lids	Continuous use of paving units to match the adjoining area treatment.	 **Granite Infill** *Match granite flagstone used in surrounds*
Traffic Devices	Ensure sufficient visual contrast between the road and edge of the traffic devices, and use comparable materials for the infills to the surrounding footway finishes.	 **Porphyry setts infill**  **Granite setts infill** *Product: "Adelaide Black"*

Figure 4.18 Epping Town Centre - Street Tree Strategy

EPPING TOWN CENTRE STREET TREE

- *Bunckinghamia celsissima* (Ivory Curl Flower)
- *Fraxinus pennsylvanica 'Urbanite'* (Urbanite Green Ash)
- *Lophostemon confertus* (Brush Box)
- *Lagerstroemia indica 'Natchez'* (Crepe Myrtle)
- *Syncarpia glomulifera* (Turpentine Tree)
- *Tristaniopsis laurina 'Lucious'* (Lucious Water Gum)
- *Waterhousia floribunda 'Green Avenue'* (Weeping Lilly Pilly)
- *Zelkova serrata 'Green Vase'* (Japanese Elm)
- Planting within Setbacks
  - *Brachychiton acerifolius; Jacaranda mimosifolia*

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway^
- Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.19 Epping Town Centre - Street Tree Materials Palette

Retail Streets


Waterhousia floribunda 'Green Av'


Lagerstroemia indica 'Natchez'


Fraxinus pennsylvanica 'Urbanite'


Zelkova Serrata 'Green Vase'

Residential Streets

(non wire)


Angophora floribunda


Lophostemon confertus


Syncarpia glomulifera

Residential Streets

(under wire)


Prunus cerasifera 'Nigra'


Bunckinghamia celsissima

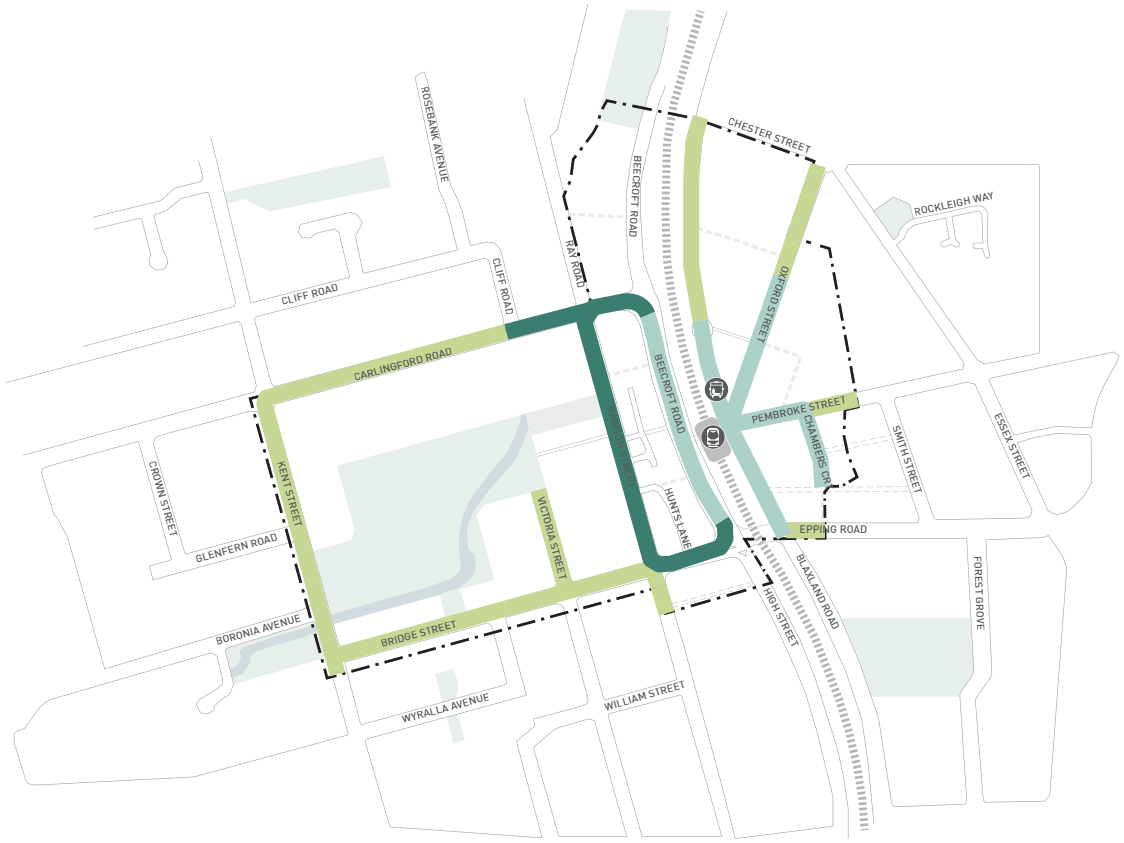
Building Setbacks

(Carlingford Rd)


Jacaranda mimosifolia


Brachychiton acerfolius

Figure 4.20 Epping Town Centre - Street Tree Surround Finishes Strategy



EPPING TOWN CENTRE TREE SURROUND FINISHES

- Tree grate / permeable paving material
- Planted garden bed
- Turf verge

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway^
- Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.21 Epping Town Centre - Overhead Power Strategy

EPPING TOWN CENTRE OVERHEAD WIRE

- Existing overhead power lines
- Proposed underground power lines
- Proposed Aerial Bundled Cable (ABC)
- Potential development lots to contribute undergrounding power lines

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway^
- Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.22 Epping Town Centre - Furniture Strategy

EPPING TOWN CENTRE FURNITURE

Category		Location	Type
	High Profile Suite	- Special places	Semi-bespoke or off shelf products with high quality and aesthetic value to highlight the identities and characters of the high pedestrian amenity places.
	Bespoke Items	All High Profile locations. Subject to design approval.	Flexibility is allowed for custom-de-signed items to suit special designs in high profile locations.
	Utility Suite	- City streets; - Transport facilities, e.g. bus stop, taxi rank.	Off shelf products with durable and functional design and quality to accommodate public needs.
	Recreation Suite	- Parks & reserves	Requirements refer to Council's Open Space team.

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway^
Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.23 Epping Town Centre - Furniture Palette

Seat

High Profile

Material: mild steel frame and hardwood slats
Finish: powdercoated and oiled
*PCC Currently Used Model: HUB S3 Modified**

Utility

Material: cast aluminium frame and panel and seat
Finish: powdercoated
Colour: Dulux Precious® Silver Pearl
*PCC Currently Used Model: SFA Concourse 3 Seater**

Bin & Cigarette Butt Bin (stand alone)

Material: mild steel frame, Rimex metal panels and stainless steel chute
Capacity: 120L
Lock assembly: PCC key-alike system
*PCC Currently Used Model: HUB S2 Modified**

Bin -
Material: mild steel frame, gal panels and stainless steel chute
Finish: powdercoated
Colour: black
Capacity: 120L
Lock assembly: PCC key-alike system
Cigarette Butt Bin -
Material: mild steel and stainless steel cover

Drinking Fountain

Material: stainless steel
Extras: water filter unit, bottle filler, sub-surface drain
*PCC Currently Used Model: Aqualfil Refill Station & Drink Fountain**

Material: stainless steel and aluminium grate
Extras: bottle filler, dog bowl, sub-surface drain
*PCC Currently Used Model: Botton + gardiner Prospect Drink Fountain**

Bike Rack

Material: stainless steel
Finish: polished
*PCC Currently Used Model: SFA Semi Hoop**

Material: stainless steel
Finish: polished
*PCC Currently Used Model: SFA Semi Hoop**

Bollard

High Profile

Material: stainless steel or aluminium body
Finish: brushed or powdercoated
Size varies to suit traffic requirements

Utility

Material: stainless steel or aluminium body
Finish: brushed or powdercoated
Size varies to suit traffic requirements

Pedestrian Fence

N/A

RMS Pedestrian Barrier Type 1 (refer to www.RMS.nsw.gov.au)

Bus Shelter

Supplier: Adshel

Supplier: Adshel

Supplier: Adshel

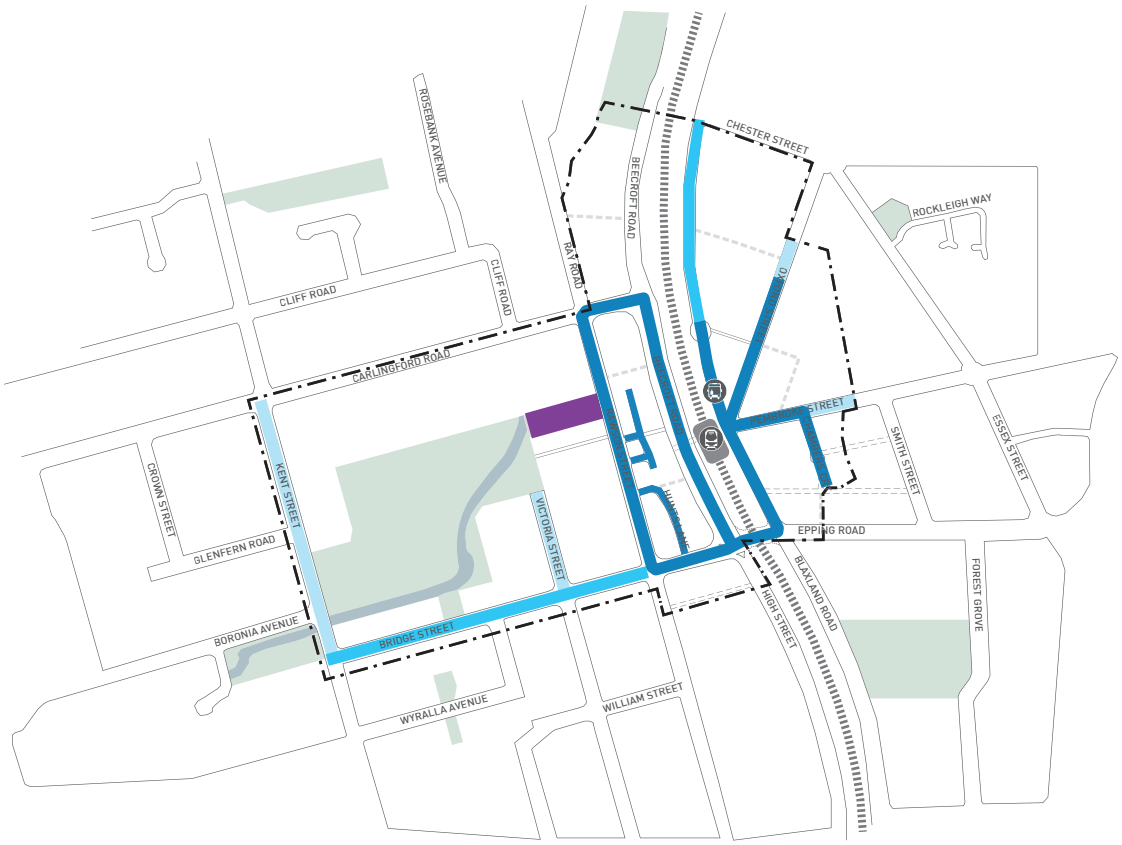
Tree Grate

Material: cast aluminium
Finish: shot blast
Size: 1.5 x 1.5m
Supplier: Furphy

Material: cast aluminium
Finish: shot blast
Size: 1.5 x 1.5m
Supplier: Furphy

**Where models/brand names are nominated, they are indicated only. CoP wishes to maintain consistency in the public domain but does not wish to restrict or endorse any one brand.*

Figure 4.24 Epping Town Centre - Pedestrian Lighting Level Strategy



EPPING TOWN CENTRE LIGHTING LEVEL - PEDESTRIAN

Category P2
Non-arterial and local roads with high prestige area, high pedestrian activity and medium risk of crime

Category P3
Non-arterial and local roads with medium prestige, medium pedestrian activity and medium/low risk of crime

Category P4
Local or collector roads with low pedestrian/cycle activity and low risk of crime

Category P6
Non-vehicular squares, streets, and transport interchanges

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway^
Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.25 Epping Town Centre - Vehicular Lighting Level Strategy

EPPING TOWN CENTRE LIGHTING LEVEL
- VEHICLE

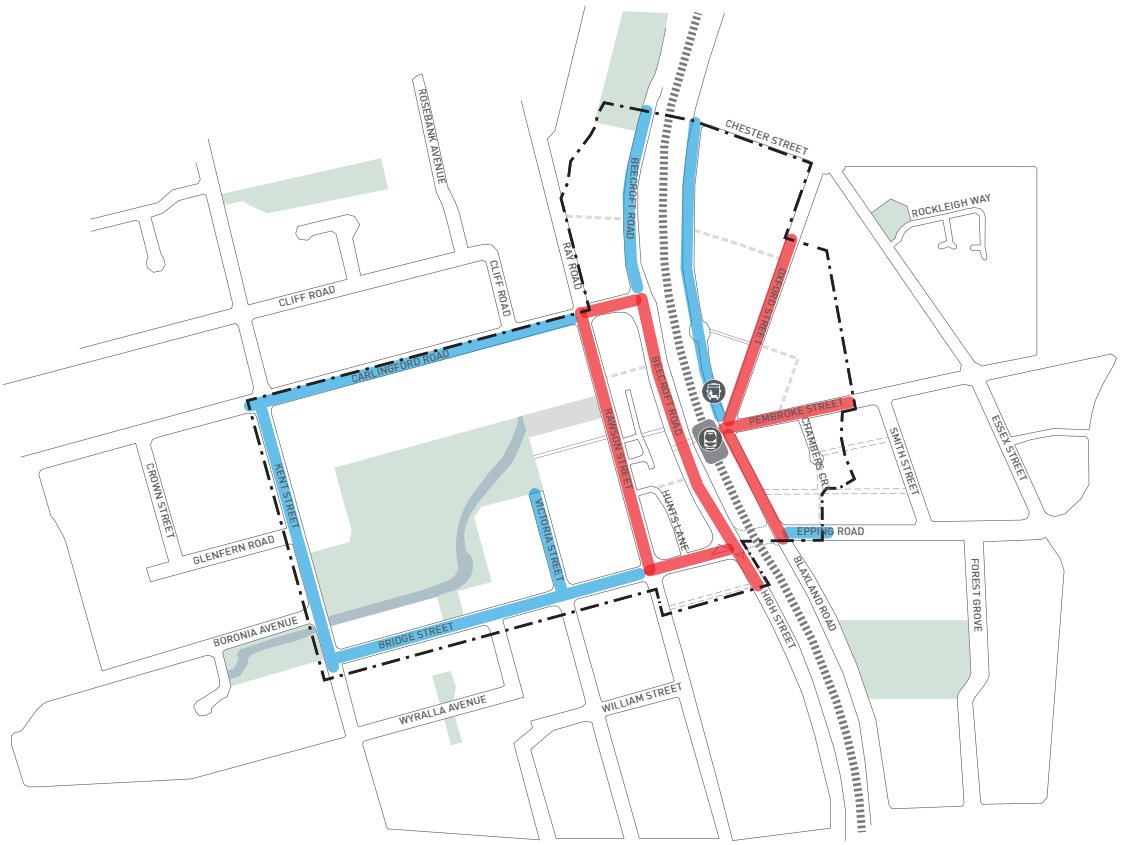
Category V3
Arterial roads with mixed vehicle/pedestrian traffic, moderate/high vehicle volume; high pedestrian volume; and moderate/low vehicle speeds

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway^
- Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.26 Epping Town Centre - Street Pole Strategy



EPPING TOWN CENTRE POLE - STREETS

Large Multi Functional Pole (10m)
with CCTV, 2xGPO, LEDs, Smart City

Electrical Authority Pole
with lamp upgrade

Parkland
Waterway
Train Station
Bus Interchange

DCP boundary
Bridge
Proposed Laneway^
Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.27 Epping Town Centre - Park, Plaza & Lane Pole Strategy

EPPING TOWN CENTRE POLE
- SPECIAL PLACES, LANEWAYS & PARKS

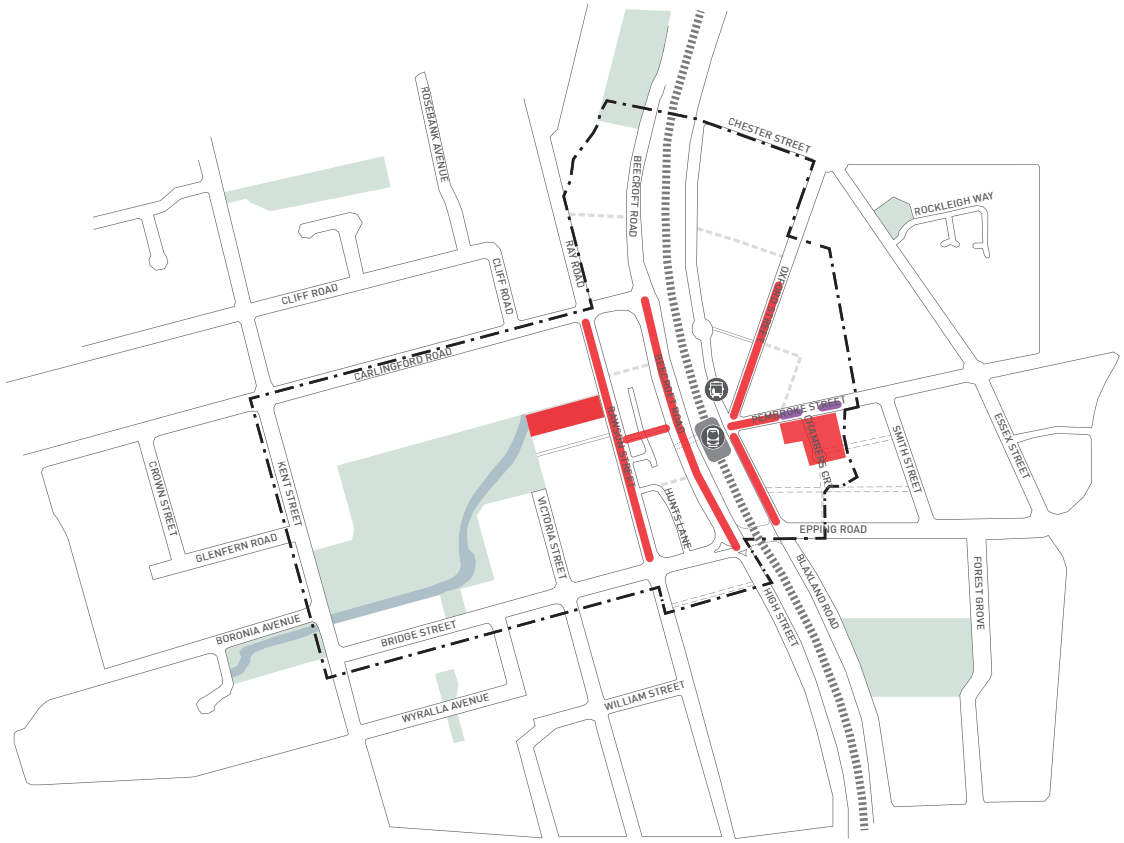
	Special Place	Lanes	Parks
Large Multi Functional Pole (10m) *with CCTV, 2xGPO, LEDs, Smart City*	✓	✗	✗
Medium Multi Functional Pole (8m) *with CCTV, GPO, LEDs, Smart City*	✓	✓	✗
Tapered Pole (8m) *with wall mount option, CCTV, GPO, LEDs, Smart City*	✓	✓	✓
Park Pole (subject to site) *with CCTV*	✗	✗	✓

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway^
Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.28 Epping Town Centre - Banner Strategy



EPPING TOWN CENTRE BANNER

Banners

No Banners

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway^
Proposed Pedestrian Link^

^ All the proposed links and lanes are subject to final Epping Town Centre Master Plan and future DCP.

0 100 300 500m

Figure 4.29 Granville Town Centre - Paving Strategy

GRANVILLE TOWN CENTRE FOOTPWAY PAVING

IIIIIIII	**Special Place**	Granite flagstone*
	Street	Granite flagstone
		Secondary granite treatment
		Asphalt
		In-situ concrete (full width)
		In-situ concrete (1.5/1.8m wide)
	Service Lane	Granite flagstone/sett
		In-situ concrete
	Pedestrian Link	Granite flagstone/sett*
		In-situ concrete

** To future approved design, may include special inserts.*

Parkland	DCP boundary
Waterway	Bridge
Train Station	Proposed Laneway
Bus Interchange	Proposed Pedestrian Link

0 100 300 500m

Figure 4.30 Granville Town Centre - Paving Materials Palette

	Use	Material
Street Footpath Granite	**Main body** - unified dark grey granite flagstones in a variety of sizes. **Vehicle crossing, kerb ramp** - continued use of granite flagstones to match the footpath treatment. Use smaller stone sizes on vehicle crossings as required to suit vehicle load.	 **Main body** *Product: "Adelaide Black (Veined)" or "Austral Black" Size: 600x300x50, 400x300x50mm Finish: exfoliated/bush hammered*  **Vehicle crossing** *Product: "Adelaide Black (Veined)" or "Austral Black" Size: 400x300x50, 200x300x50mm Finish: exfoliated*  **Kerb ramp** *Product: "Adelaide Black" Size: 400x300, 200x300 Thickness: 50mm Finish: exfoliated*
Secondary Stone Treatment	**Main body** - smaller granite flagstones or setts in kerbside strip and asphalt pavement in foot traffic areas. **Vehicle crossing, kerb ramp** - continue use of small granite flagstones or setts to suit grades and vehicle load.	 **Kerbside strip** *Product: "Adelaide Black (Veined)" or "Austral Black" Size: 200x100x50mm Finish: exfoliated*  **Foot traffic zone** *Material: asphalt concrete of AC10 and AC5 (wearing course) Colour: natural*  **Vehicle crossing & kerb ramp** *Product: "Adelaide Black (Veined)" or "Austral Black" Size:600x300x50mm Finish: exfoliated*
Asphalt	**Main body** - asphalt footpath in low foot traffic areas. Subject to the location and site conditions, full width pavement may be required. **Vehicle crossing, kerb ramp** - in-situ concrete to suit grades and vehiclar load.	 **Railway corridor** *Material: asphalt concrete of AC10 and AC5 (wearing course) Colour: natural*  **Vehicle crossing** *Material: in-situ concrete Colour: natural grey (no oxide colour) Finish: broom finish*  **Kerb ramp** *Material: in-situ concrete Colour: natural grey (no oxide colour) Finish: broom finish*
In-situ Concrete *(full width)* *(with nature verge)*	**Main Body** - in-situ concrete in fringe streets and Parramatta Road for high durability and easy maintenance. Subject to the location and site condition, full width pavement may be required. **Vehicle crossing, kerb ramp** - in-situ concrete to suit grades and vehicle load.	 **Parramatta Rd** *(full width) Material: in-situ concrete Colour: natural grey (no oxide colour) Finish: broom finish*  **Local streets** *(with nature verge) Material: in-situ concrete Colour: natural grey (no oxide colour) Finish: broom finish*  **Vehicle crossing** *Material: in-situ concrete Colour: natural grey (no oxide colour) Finish: broom finish*  **Kerb ramp** *Material: in-situ concrete Colour: natural grey (no oxide colour) Finish: broom finish*

	Use	Material
Pedestrian Link Granite	**Standard** - small granite flagstones or setts. **Special Applications -** designs can consider different paving materials and sizes, subject to special design and Council approval.	 **Standard** *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size/Finish: varied*  **Standard** *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size:90x90x50mm* *Finish: varied*  **Special Application** *Mixed paving materials subject to site-specific design and Council approval*
Asphalt	**Standard** - asphalt in pedestrian links outside core area.	 **Railway corridor** *Material: asphalt concrete of AC10 and AC5 (wearing course)* *Colour: natural*
Service Lane	**Carriageway** - asphalt. **Footpath** - use of in-situ concrete for high durability and easy maintenance. Granite or different materials can be used subject to Council's advice and approval.	 **Footpath** *Material: granite* *Product: "Adelaide Black (Veined)" or "Austral Black"* *Size: 200x100x50mm* *Finish: exfoliated*  **Footpath** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*
Kerb & Gutter	**Standard** - standard concrete barrier kerb and gutter.	 **Kerb & gutter** *Material: concrete*
TGSI's	Type 316 Standard Stainless Steel Discrete Tactile Ground Surface Indicators (TGSI) and Directional Indicators to be manufactured and installed to AS1428: Design for Access and Mobility. Minimum slip resistence of R12.	 **Warning tactile**  **Directional tactile**
Service Pit Lids	Continuous use of paving units to infill service pits on footpath areas to match adjoining area treatment.	 **Granite infill** *Match the stone material used on footpath*

Figure 4.31 GranvilleTown Centre- Street Tree Strategy

GRANVILLE TOWN CENTRE STREET TREE

- *Angophora floribunda* (Rough Barked Apple)
- *Bunckinghamia celsissima* (Ivory Curl Flower)
- *Koelreuteria bipinnata* (Chinese Rain Tree)
- *Lophosternon confertus* (Brush Box)
- *Melaleuca linarifolia* (Snow in Summer)
- *Tristaniopsis laurina 'Lucious'* (Lucious Water Gum)
- *Pistacia chinesis* (Chinese Pistache)
- *Ulums parvifolia* (Chinese Elm)
- *Waterhousia floribunda 'Green Avenue'* (Weeping Lilly Pilly)
- Planting within Setback

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway
- Proposed Pedestrian Link

0 100 300 500m

Figure 4.32 Granville Town Centre - Street Tree Materials Palette

Retail Streets


Koelreuteria bipinnata


Lophostemon confertus


Waterhousia floribunda 'Green Avenue'

Residential Streets

(non wire)


Angophora floribunda


Lophostemon confertus


Melaleuca linarifolia


Glochidian ferdinandii


Fraxinus pennsylvanica

Residential Streets

(under wire)


Tristaniopsis laurina


Bunckinghamia celsissima


Pistacia chinensis

Figure 4.33 Granville Town Centre - Street Tree Surround Finishes Strategy

GRANVILLE TOWN CENTRE TREE SURROUND FINISHES

- Tree grate / permeable paving material
- Planted garden bed
- Planted garden bed in setbacks
- Turf verge

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway
- Proposed Pedestrian Link

0 100 300 500m

Figure 4.34 Granville Town Centre - Overhead Power Strategy

GRANVILLE TOWN CENTRE OVERHEAD WIRE

- Existing overhead power lines
- Proposed underground power lines
- Proposed Aerial Bundled Cable (ABC)
- Potential development lots to contribute undergrounding power lines

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway
- Proposed Pedestrian Link

0 100 300 500m

Figure 4.35 Granville Town Centre - Furniture Strategy

GRANVILLE TOWN CENTRE FURNITURE

Category		Location	Type
	High Profile Suite	- Special places	Semi-bespoke or off shelf products with high quality and aesthetic value to highlight the identities and characters of the high pedestrian amenity places.
	Bespoke Items	All High Profile locations. Subject to design approval.	Flexibility is allowed for custom-de-signed items to suit special designs in high profile locations.
	Utility Suite	- City streets; - Transport facilities, e.g. bus stop, taxi rank.	Off shelf products with durable and functional design and quality to accommodate public needs.
	Recreation Suite	- Parks & reserves	Requirements refer to Council's Open Space team.

Parkland
Waterway
Train Station
Bus Interchange

DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.36 Granville Town Centre - Furniture Palette

	High Profile	Utility
Seat	 *Material: mild steel frame and hardwood slats* *Finish: powdercoated and oiled* *PCC Currently Used Model: HUB S3 Modified**	 *Material: cast aluminium frame and panel and seat* *Finish: powdercoated* *Colour: Dulux Precious® Silver Pearl* *PCC Currently Used Model: SFA Concourse 3 Seater**
Bin & Cigarette Butt Bin (stand alone)	 *Material: mild steel frame, Rimex metal panels and stainless steel chute* *Capacity: 120L* *Lock assembly: PCC key-alike system* *PCC Currently Used Model: HUB S2 Modified**	 *Bin -* *Material: mild steel frame, gal panels and stainless steel chute* *Finish: powdercoated* *Colour: black* *Capacity: 120L* *Lock assembly: PCC key-alike system* *Cigarette Butt Bin -* *Material: mild steel and stainless steel cover*
Drinking Fountain	 *Material: stainless steel* *Extras: water filter unit, bottle filler, sub-surface drain* *PCC Currently Used Model: Aqualfil Refill Station & Drink Fountain**	 *Material: stainless steel and aluminium grate* *Extras: bottle filler, dog bowl, sub-surface drain* *PCC Currently Used Model: Botton + gardiner Prospect Drink Fountain**
Bike Rack	 *Material: stainless steel* *Finish: polished* *PCC Currently Used Model: SFA Semi Hoop**	 *Material: stainless steel* *Finish: polished* *PCC Currently Used Model: SFA Semi Hoop**

	High Profile	Utility
Bollard	 *Material: stainless steel or aluminium body* *Finish: brushed or powdercoated* *Size varies to suit traffic requirements*	 *Material: stainless steel or aluminium body* *Finish: brushed or powdercoated* *Size varies to suit traffic requirements*
Pedestrian Fence	N/A	 *RMS Pedestrian Barrier Type 1 (refer to www.RMS.nsw.gov.au)*
Bus Shelter	 *Supplier: Adshel*	 *Supplier: Adshel*  *Supplier: Adshel*
Tree Grate	 *Material: cast aluminium* *Finish: shot blast* *Size: 1.5 x 1.5m* *Supplier: Furphy*	 *Material: cast aluminium* *Finish: shot blast* *Size: 1.5 x 1.5m* *Supplier: Furphy*

**Where models/brand names are nominated, they are indicated only. CoP wishes to maintain consistency in the public domain but does not wish to restrict or endorse any one brand.*

Figure 4.37 Granville Town Centre - Pedestrian Lighting Level Strategy

GRANVILLE TOWN CENTRE LIGHTING LEVEL
- PEDESTRIAN

Category P2
Non-arterial and local roads with high prestige area, high pedestrian activity and medium risk of crime

Category P3
Non-arterial and local roads with medium prestige, medium pedestrian activity and medium/low risk of crime

Category P4
Local or collector roads with low pedestrian/cycle activity and low risk of crime

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.38 Granville Town Centre - Vehcilular Lighting Level Strategy

GRANVILLE TOWN CENTRE LIGHTING LEVEL
- VEHICLE

Category V1
Arterial roads with high/very high vehicle volume; high/very high pedestrian volume; and moderate/low vehicle speeds

Category V3
Arterial roads with mixed vehicle/pedestrian traffic, moderate/high vehicle volume; high pedestrian volume; and moderate/low vehicle speeds

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.39 GranvilleTown Centre- Street Pole Strategy

GRANVILLE TOWN CENTRE POLE - STREETS

Large Multi Functional Pole (10m)
with CCTV, 2xGPO, LEDs, Smart City

Electrical Authority Pole
with lamp upgrade

Parkland
Waterway
Train Station
Bus Interchange

DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.40 Granville Town Centre - Park, Plaza & Lane Pole Strategy

GRANVILLE TOWN CENTRE POLE - SPECIAL PLACES, LANEWAYS & PARKS

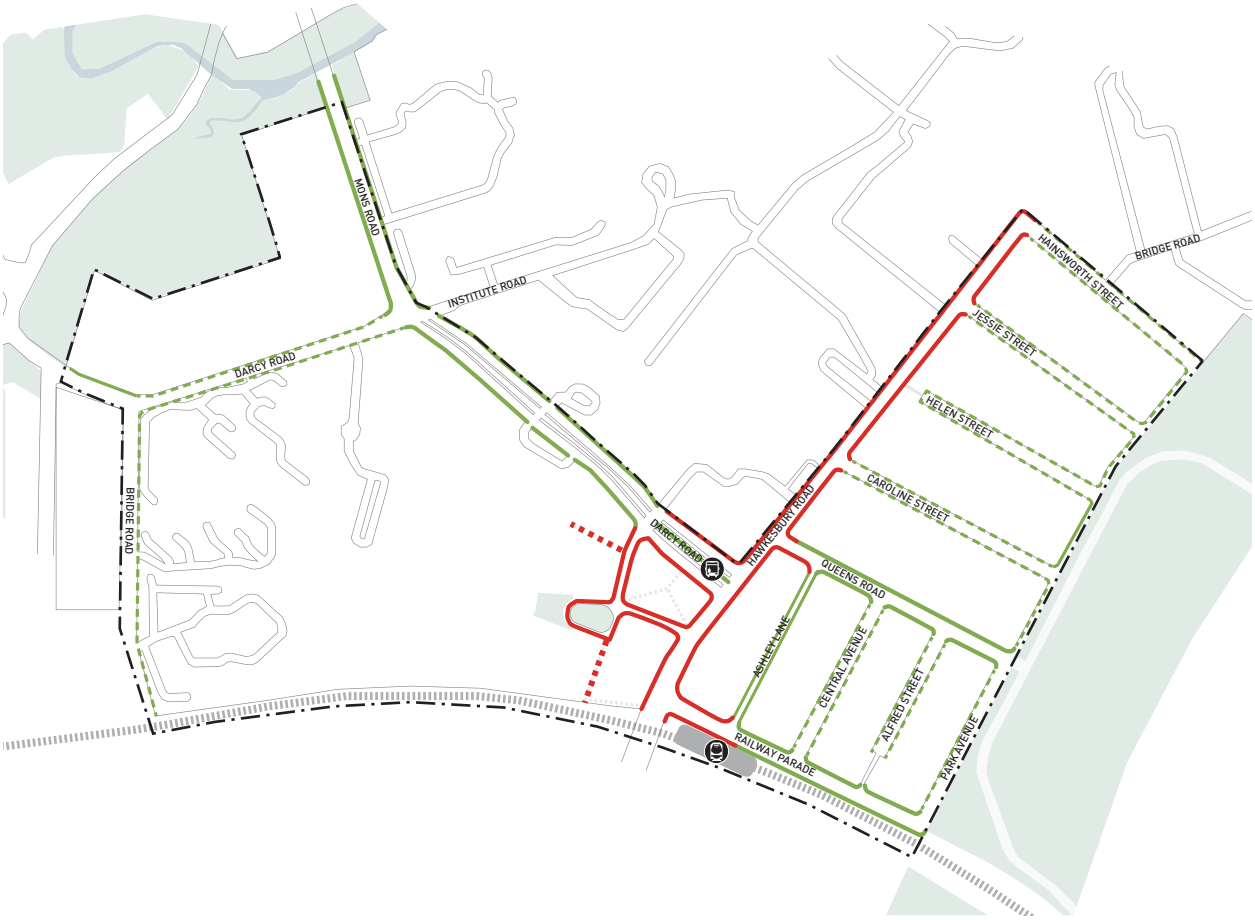
	Special Place	Lanes	Parks
Large Multi Functional Pole (10m) *with CCTV, 2xGPO, LEDs, Smart City*	✓	✗	✗
Medium Multi Functional Pole (8m) *with CCTV, GPO, LEDs, Smart City*	✓	✓	✗
Tapered Pole (8m) *with wall mount option, CCTV, GPO, LEDs, Smart City*	✓	✓	✓
Park Pole (subject to site) *with CCTV*	✗	✗	✓

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.41 Granville Town Centre - Banner Strategy

Figure 4.42 Westmead Town Centre - Paving Strategy



^WESTMEAD TOWN CENTRE FOOTWAY PAVING

Street	Granite flagstone
	In-situ concrete (full width)
	In-situ concrete (1.5/1.8m wide)
Shared Zone	Granite flagstone/sett*
Service Lane	In-situ concrete

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.
** To future approved design, may include special inserts.*

Parkland	DCP boundary
Waterway	Bridge
Train Station	Proposed Laneway
Bus Interchange	Proposed Pedestrian Link

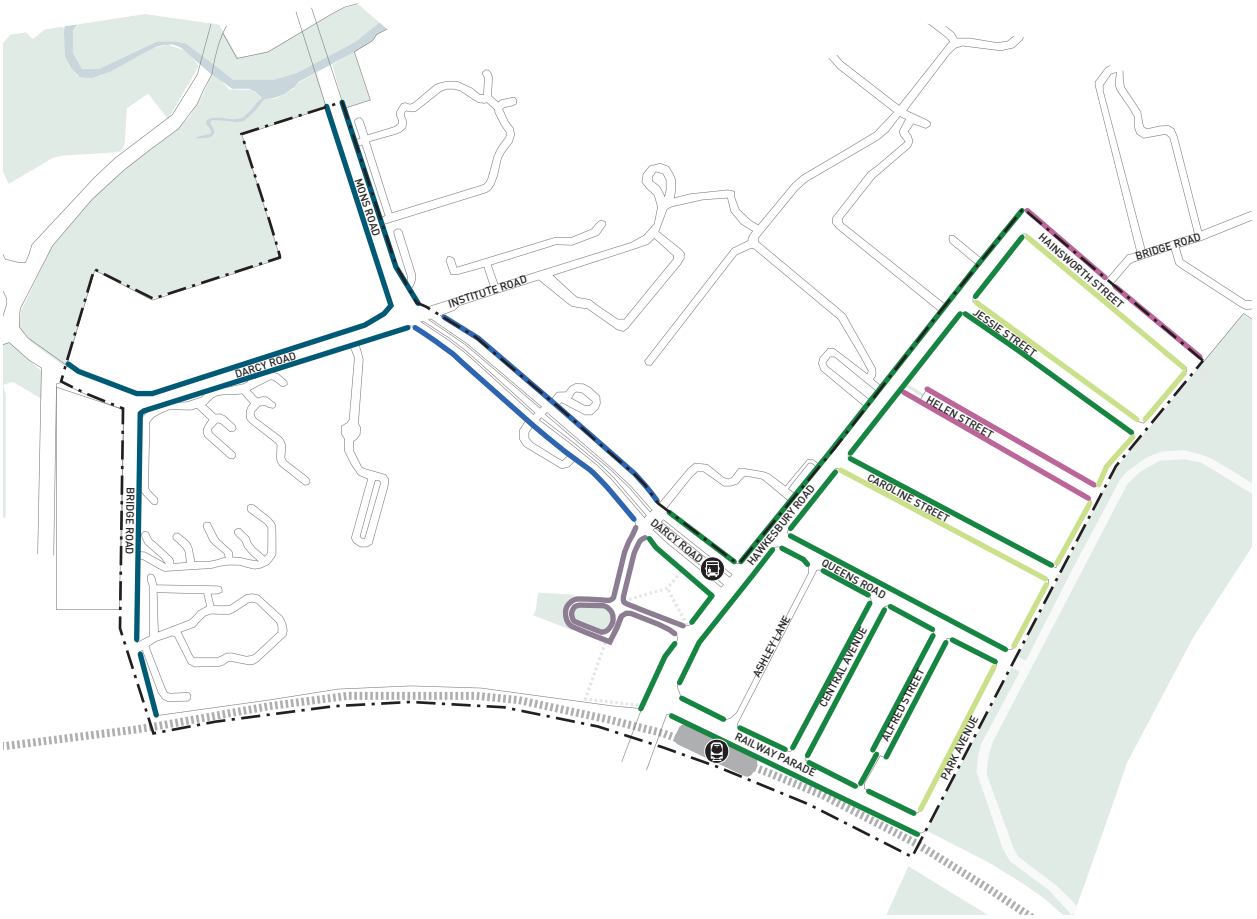
0 100 300 500m

Figure 4.43 Westmead Town Centre - Paving Materials Palette

	Use	Material
Street Footpath Granite	**Main body** - range of grey granite flagstones in a variety of sizes, colours and finishes. **Vehicle crossing, kerb ramp** - granite flagstones to match the footpath treatment. Use smaller stone sizes on vehicle crossings as required to suit vehiclar load. ** Granite depth subject to engnieer's design*	 **Main body** *Product: "Silver Black" & "Sesame Grey"* *Size: 600x300x50, 400x300x50mm* *Finish: exfoliated/bush hammered*  **Vehicle crossing** *Product: "Silver Black" & "Sesame Grey"* *Size: 400x300x50, 200x300x50mm* *Finish: exfoliated*  **Kerb ramp** *Product: "Silver Black" & "Sesame Grey"* *Size: 400x300x50, 200x300x50. 600x300x50mm* *Finish: exfoliated*
In-situ Concrete *(full width)* *(footpath with nature verge)*	**Main body** - in-situ concrete in fringe streets and regional road for high durability and easy maintenance. Subject to location and site conditions full width pavement may be required. **Vehicle crossing, kerb ramp** - in-situ concrete to suit grades and vehicle load.	 **Main Body** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*  **Vehicle Crossing** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*  **Kerb Ramp** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*
Shared Zone	**Standard** - granite setts to the full width of the shared zone subject to RMS & Council approval. **Special applications** - designs can consider different paving materials subject to site-specific design and RMS & Council approval.	 **Standard** *Material: "Sesame Grey"* *Size: 90x90x50mm* *Finish: natural split/ exfoliated*  **Special Application** *Mixed paving materials subject to site-specific design and RMS&Council approval*
Service Lane	**Carriageway** - asphalt **Footpath** - use of in-situ concrete for high duribility and easy maintenance	 **Footpath** *Material: in-situ concrete* *Colour: natural grey (no oxide colour)* *Finish: broom finish*
Kerb & Gutter	**Standard** - standard concrete barrier kerb and gutter.	 **Kerb & Gutter** *Material: concrete*

	Use	Material
TGSI's	Type 316 Standard Stainless Steel Discrete Tactile Ground Surface Indicators (TGSI) and Directional Indicators to be manufactured and installed to AS1428: Design for Access and Mobility. Minimum slip resistence of R12.	 **Warning Tactile**  **Directional Tactile**
Service Pit Lids	Continuous use of paving units to infill service pits on footpath areas to match adjoining area treatment.	 **Granite Infill** *Match the stone material used on footpath*

Figure 4.44 Westmead Town Centre - Street Tree Strategy



^WESTMEAD TOWN CENTRE STREET TREE

- *Buckinghamia celsissima* (Ivory Curl Flower)
- *Corymbia macalata* (Spotted Gum)
- *Eucalyptus sideroxylon 'Rosea'* (Red Flowering Ironbark)
- *Jacaranda mimosifolia* (Jacaranda)
- *Lophostemon confertus* (Brush Box)
- *Magnolia grandifolia* (Bull Bay Magnolia)

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.45 Westmead Town Centre - Street Tree Materials Palette

Retail Streets


Lophostemon confertus


Magnolia grandifolia


Eucalyptus sidweroxylon 'Rosea'

Residential Streets

(non wire)


Lophostemon confertus


Melaleuca linariifolia

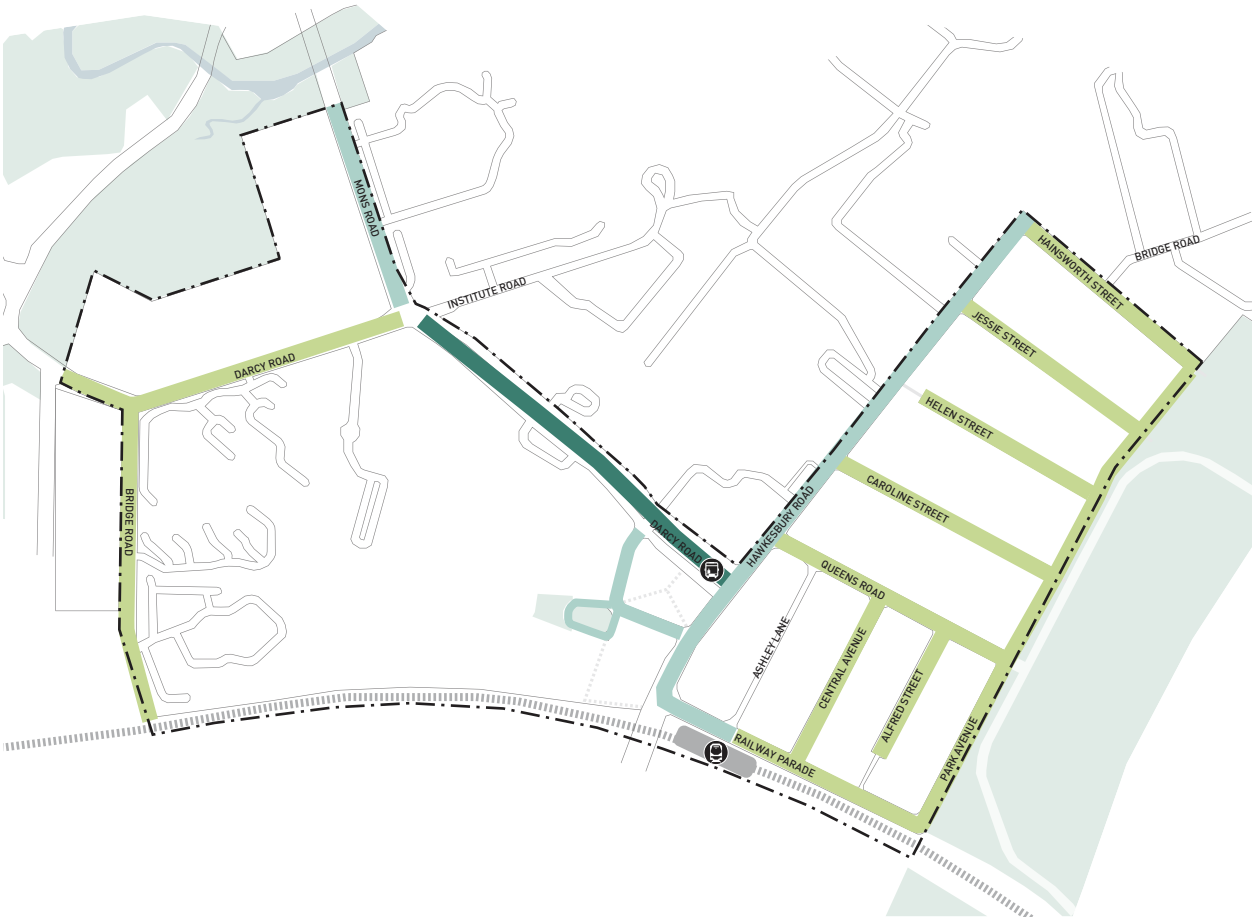

Harpullia pendula

Residential Streets

(under wire)


Bunckinghamia celsissima

Figure 4.46 Westmead Town Centre - Street Tree Surround Finishes Strategy



^WESTMEAD TOWN CENTRE TREE SURROUND FINISHES

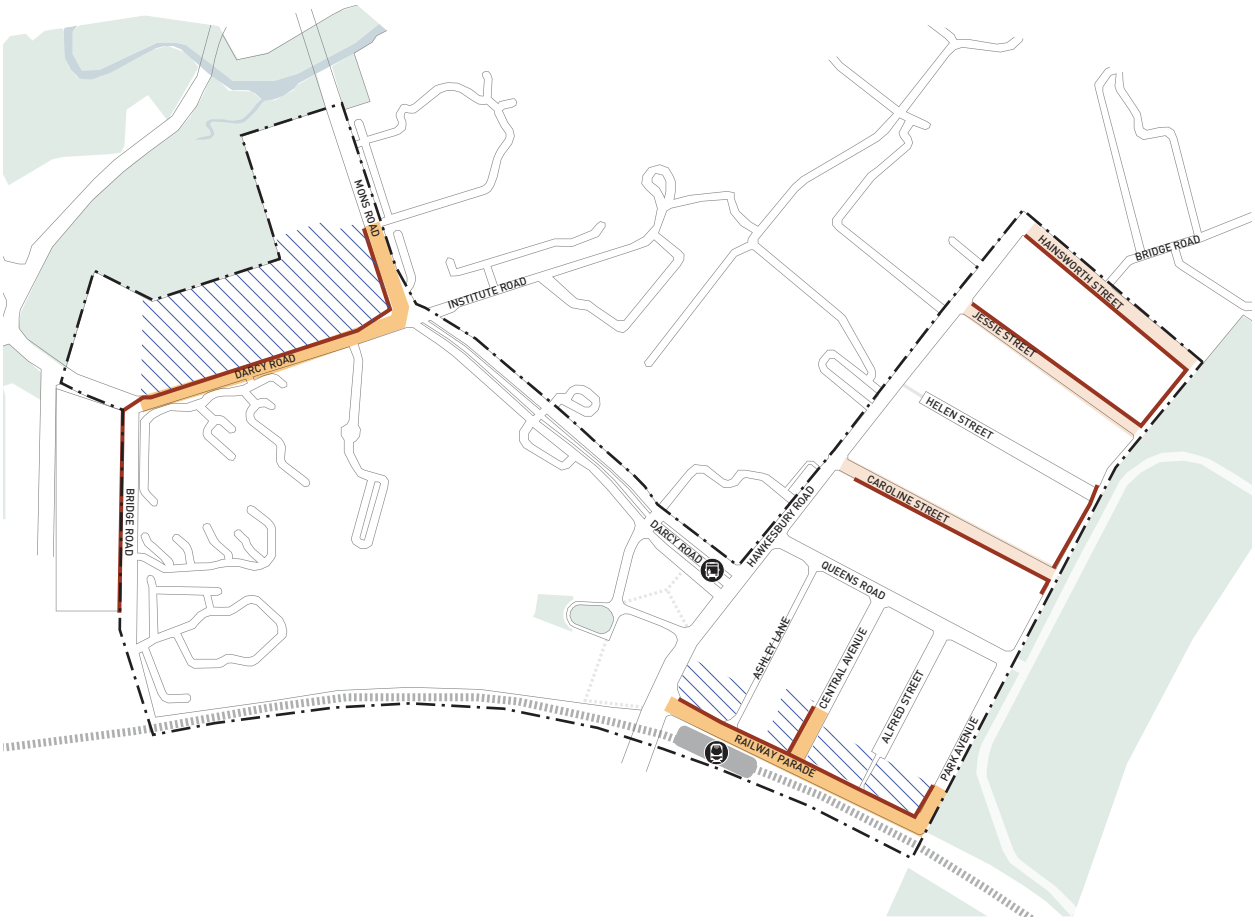
- Tree grate / permeable paving material
- Planted garden bed
- Turf verge

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway
- Proposed Pedestrian Link

0 100 300 500m

Figure 4.47 Westmead Town Centre - Overhead Power Strategy



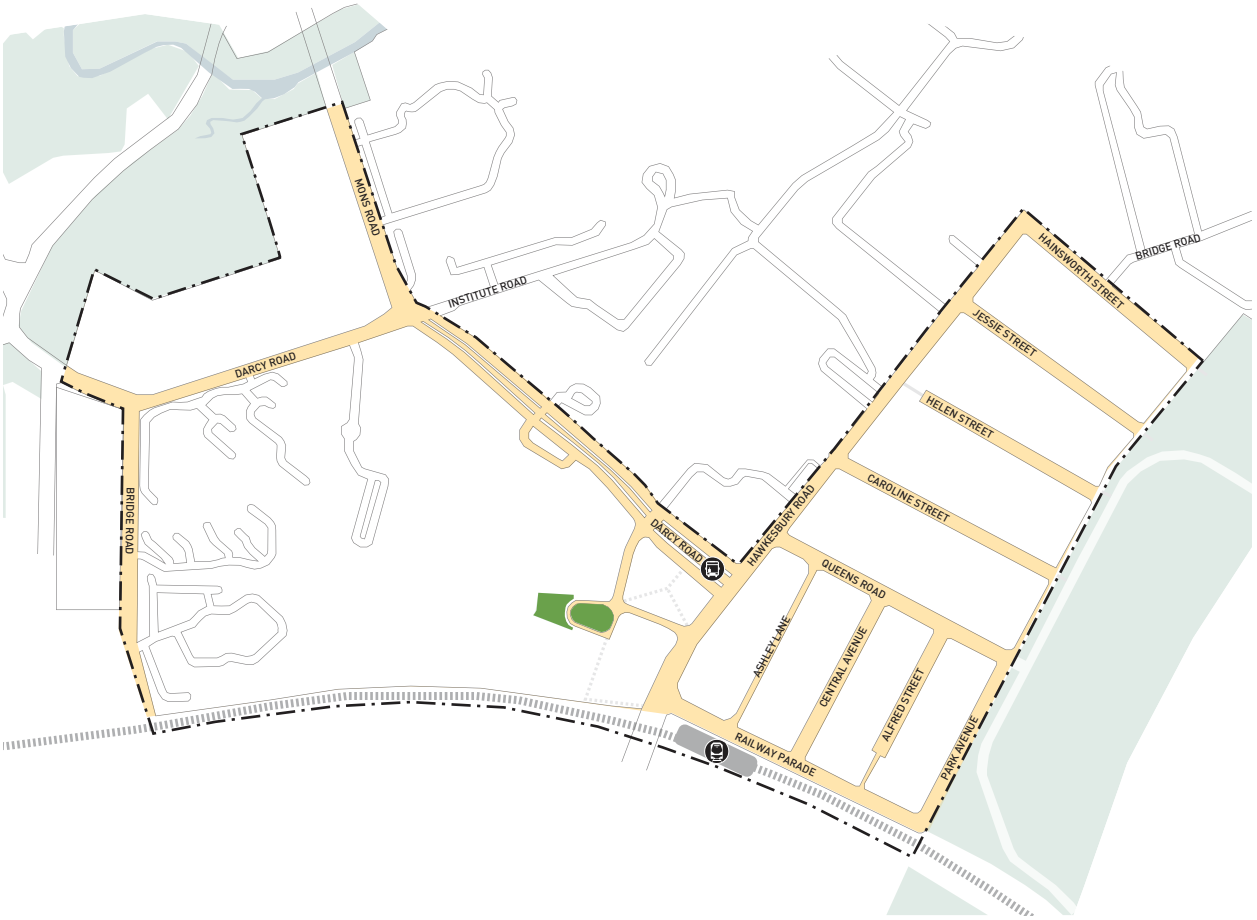
WESTMEAD TOWN CENTRE OVERHEAD WIRE

- Existing overhead power lines
- Proposed underground power lines
- Proposed Aerial Bundled Cable (ABC)
- Potential development lots to contribute undergrounding power lines

- Parkland
- Waterway
- Train Station
- Bus Interchange
- DCP boundary
- Bridge
- Proposed Laneway
- Proposed Pedestrian Link

0 100 300 500m

Figure 4.48 Westmead Town Centre - Furniture Strategy



^WESTMEAD TOWN CENTRE FURNITURE

Category		Location	Type
	High Profile Suite	- Special places	Semi-bespoke or off shelf products with high quality and aesthetic value to highlight the identities and characters of the high pedestrian amenity places.
	Bespoke Items	All High Profile locations. Subject to design approval.	Flexibility is allowed for custom-designed items to suit special designs in high profile locations.
	Utility Suite	- City streets; - Transport facilities, e.g. bus stop, taxi rank.	Off shelf products with durable and functional design and quality to accommodate public needs.
	Recreation Suite	- Parks & reserves	Requirements refer to Council's Open Space team.

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.49 Westmead Town Centre - Furniture Palette

Seat

High Profile

Material: mild steel frame and hardwood slats
Finish: powdercoated and oiled
*PCC Currently Used Model: HUB S3 Modified**

Utility

Material: cast aluminium frame and panel and seat
Finish: powdercoated
Colour: Dulux Precious® Silver Pearl
*PCC Currently Used Model: SFA Concourse 3 Seater**

Bin & Cigarette Butt Bin (stand alone)

Material: mild steel frame, Rimex metal panels and stainless steel chute
Capacity: 120L
Lock assembly: PCC key-alike system
*PCC Currently Used Model: HUB S2 Modified**

Bin -
Material: mild steel frame, gal panels and stainless steel chute
Finish: powdercoated
Colour: black
Capacity: 120L
Lock assembly: PCC key-alike system
Cigarette Butt Bin -
Material: mild steel and stainless steel cover

Drinking Fountain

Material: stainless steel
Extras: water filter unit, bottle filler, sub-surface drain
*PCC Currently Used Model: Aqualfil Refill Station & Drink Fountain**

Material: stainless steel and aluminium grate
Extras: bottle filler, dog bowl, sub-surface drain
*PCC Currently Used Model: Botton + gardiner Prospect Drink Fountain**

Bike Rack

Material: stainless steel
Finish: polished
*PCC Currently Used Model: SFA Semi Hoop**

Material: stainless steel
Finish: polished
*PCC Currently Used Model: SFA Semi Hoop**

Bollard

High Profile

Material: stainless steel or aluminium body
Finish: brushed or powdercoated
Size varies to suit traffic requirements

Utility

Material: stainless steel or aluminium body
Finish: brushed or powdercoated
Size varies to suit traffic requirements

Pedestrian Fence

N/A

RMS Pedestrian Barrier Type 1 (refer to www.RMS.nsw.gov.au)

Bus Shelter

Supplier: Adshel

Supplier: Adshel

Supplier: Adshel

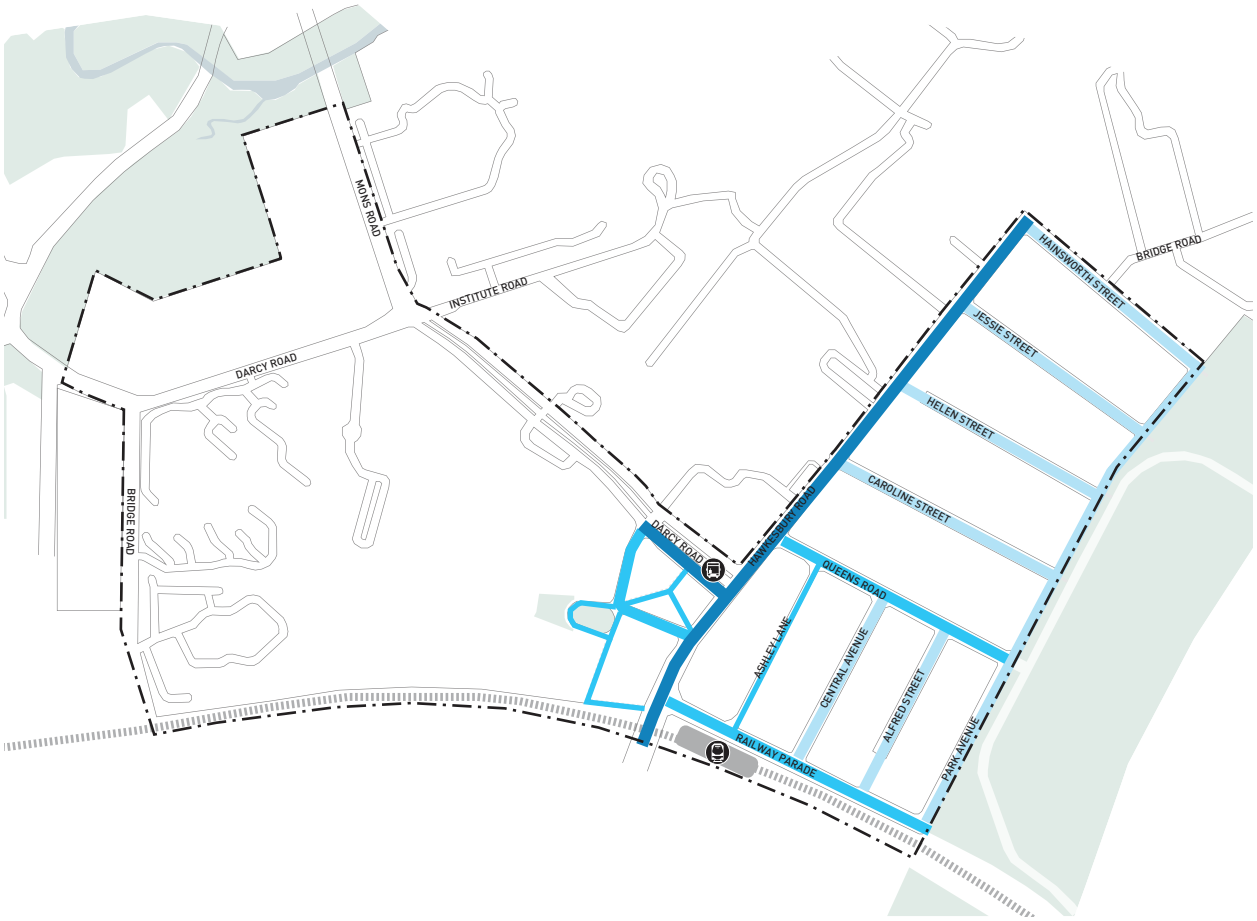
Tree Grate

Material: cast aluminium
Finish: shot blast
Size: 1.5 x 1.5m
Supplier: Furphy

Material: cast aluminium
Finish: shot blast
Size: 1.5 x 1.5m
Supplier: Furphy

**Where models/brand names are nominated, they are indicated only. CoP wishes to maintain consistency in the public domain but does not wish to restrict or endorse any one brand.*

Figure 4.50 Westmead Town Centre - Pedestrian Lighting Level Strategy



^WESTMEAD TOWN CENTRE LIGHTING LEVEL - PEDESTRIAN

Category P2
Local or collector roads with high prestige, high pedestrian/cycle activity and medium risk of crime

Category P3
Local or collector roads with medium prestige, medium pedestrian/cycle activity and low risk of crime

Category P4
Local or collector roads with low pedestrian/cycle activity and low risk of crime

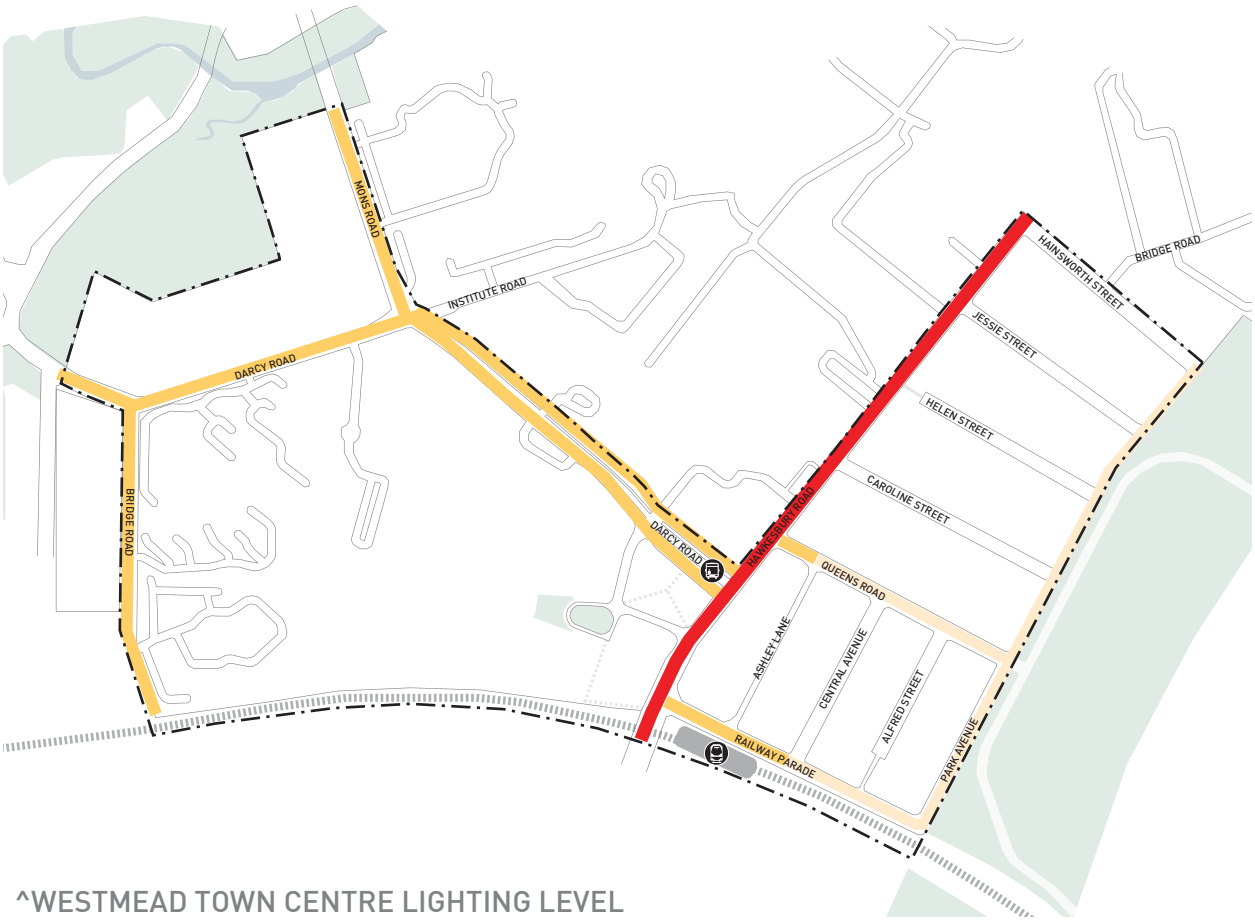
^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange

DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.51 Westmead Town Centre - Vehicular Lighting Level Strategy



^WESTMEAD TOWN CENTRE LIGHTING LEVEL - VEHICLE

Category V1
High/very high vehicle volume; high'very high pedestrian volume; and moderate/low vehicle speeds

Category V3
Arterial roads with mixed vehicle/pedestrian traffic, moderate/high vehicle volume; high pedestrian volume; and moderate/low vehicle speeds

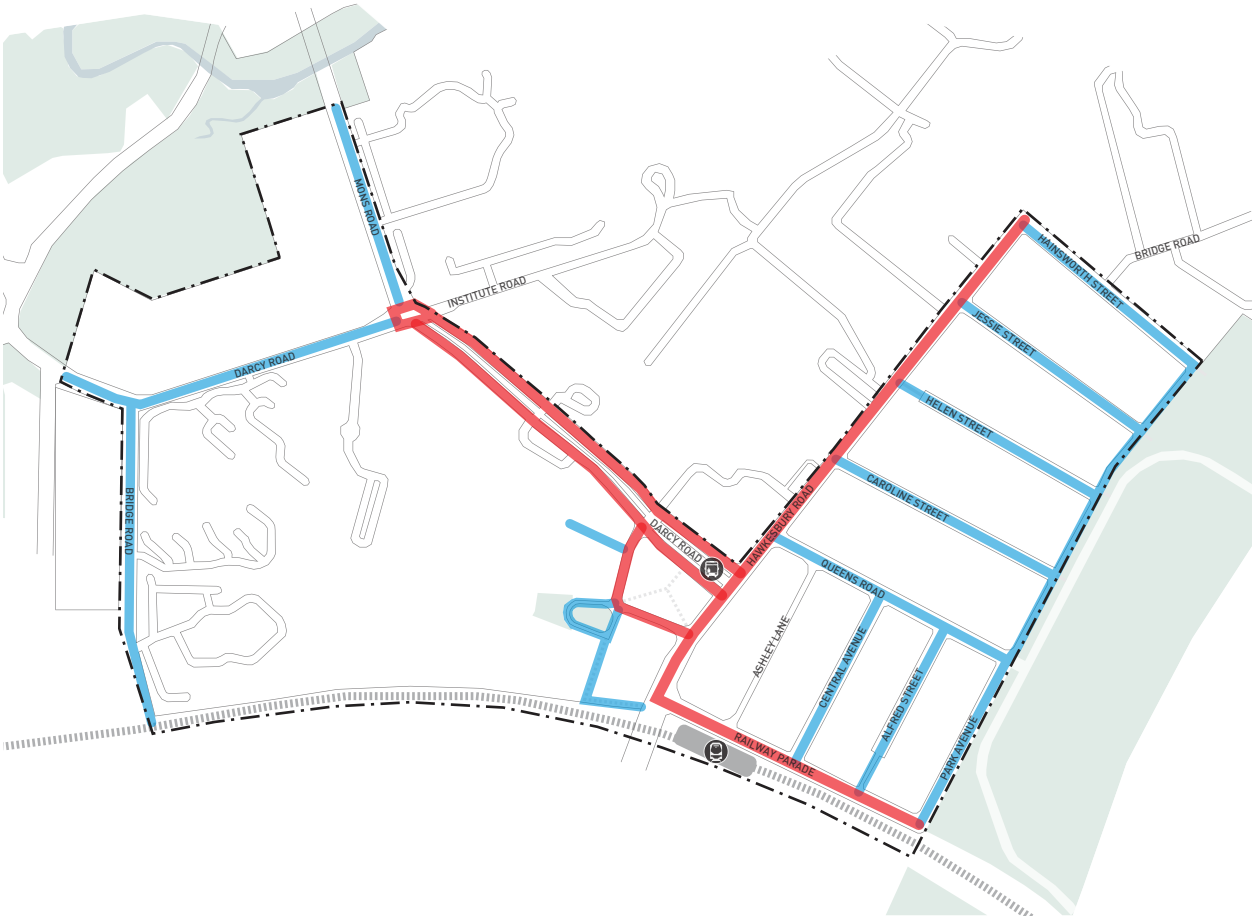
Category V4
Mixed vehicle and pedestrian traffic; moderate traffic volume; low pedestrian volume; moderate to low vehicle speeeds

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.52 Westmead Town Centre - Street Pole Strategy



^WESTMEAD TOWN CENTRE POLE - STREETS

Large Multi Functional Pole (10m)
with CCTV, 2xGPO, LEDs, Smart City

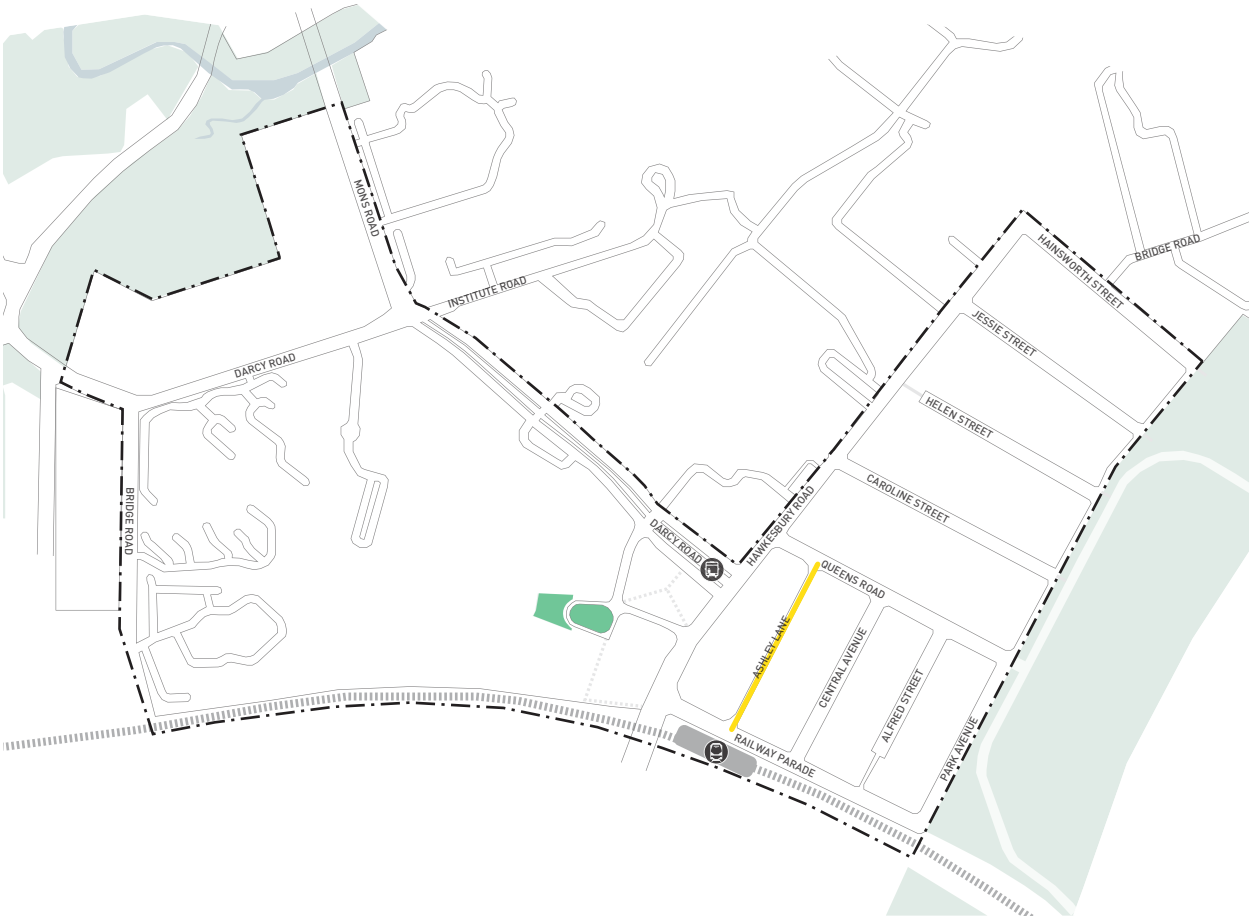
Electrical Authority Pole
with lamp upgrade

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.53 Westmead Town Centre - Park, Plaza & Lane Pole Strategy



^WESTMEAD TOWN CENTRE POLE - SPECIAL PLACES, LANEWAYS & PARKS

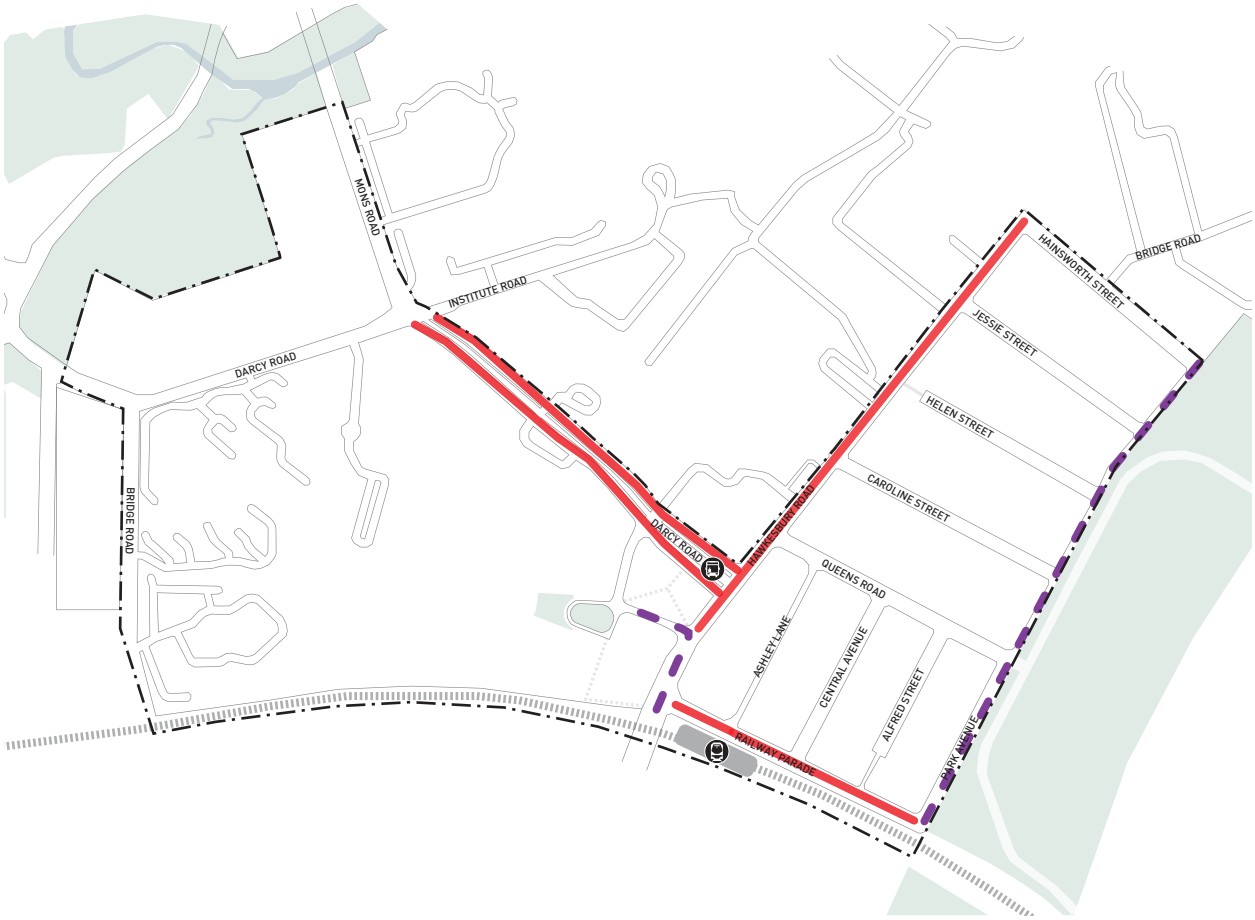
	Special Place	Lanes	Parks
Large Multi Functional Pole (10m) *with CCTV, 2xGPO, LEDs, Smart City*	✓	✗	✗
Medium Multi Functional Pole (8m) *with CCTV, GPO, LEDs, Smart City*	✓	✓	✗
Tapered Pole (8m) *with wall mount option, CCTV, GPO, LEDs, Smart City*	✓	✓	✓
Park Pole (subject to site) *with CCTV*	✗	✗	✓

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.54 Westmead Town Centre - Banner Strategy



^WESTMEAD TOWN CENTRE BANNER

Banners

No Banners

^ Strategies for Hawkesbury Rd might be amended subject to Parramatta Light Rail project.

Parkland
Waterway
Train Station
Bus Interchange
DCP boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

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FUTURE URBAN VILLAGES

4.5 FUTURE URBAN VILLAGES

A future urban village is an urban development typically characterized by medium-high density housing, mixed use zoning, good public transit and an emphasis on pedestrianisation and public space.

In the Parramatta LGA urban villages are typically brown field developments in former industrial precincts surrounded by low density residential developments. Development is often the subject of large-scale land re-zoning and holistic master planning.

A significantly improved public domain setting is required to address anticipated increases in resident and worker populations in these areas. Urban villages in the Parramatta LGA include the following:

- Camellia
- Carlingford
- Carter St Precinct
- Melrose Park
- Parramatta North Urban Transformation Precinct
- Telopea
- Wentworth Point

4.5.1 CAMELLIA

The Department of Planning and Environment has developed a Land Use and Infrastructure Strategy for the Camellia Precinct. It is located around the existing Camellia heavy rail station which is proposed for upgrade to light rail as part of the Parramatta Light Rail project by Transport for NSW. The Camellia Urban Village covers the area adjacent to the railway station and is proposed to support vibrant mixed use development and up to 10,000 new dwellings.

Details of the Strategy and latest project information can be found in below link:

http://www.planning.nsw.gov.au/camellia

4.5.2 CARLINGFORD

The Carlingford Urban Village is a business and high density residential zone. It is located around the existing Carlingford heavy rail station which is proposed for upgrade to light rail as part of the Parramatta Light Rail project by Transport for NSW. The area is undergoing rapid transformation from low to high density residential development.

Following council amalgamations in May 2016 a range of inherited public domain plans and strategies applied to the Carlingford Town Centre. The City has consolidated a coordinated set of strategies for Carlingford to guide future public domain works.

Proposed strategies and materials palettes for Carlingford are as follows:

Strategy/Map	Figure No.	Title	Page
Paving	Figure 4.55	Carlingford Urban Village - Paving Strategy	153
Street Tree	Figure 4.56	Carlingford Urban Village - Street Tree Strategy	154
Underground Wire	Figure 4.57	Carlingford Urban Village - Overhead Power Strategy	155

4.5.3 CARTER ST PRECINCT

The rezoning for the Carter St Precinct was finalised by the Department Planning & Environment in November 2015. The plan transforms the industrial area south of the Sydney Olympic Park into a new high density urban living community with retail streets, a primary school, parks and sports fields.

The DCP for Carter St Precinct can be found in below link:

http://www.auburn.nsw.gov.au/Develop/PlanPolicies/Pages/DevelopmentControlPlans.aspx

The DP&E is currently undertaking a re-masterplanning process to balance the needs of traffic, transport, social and environment and achieve a more balanced urbanism in the precinct.

4.5.4 MELROSE PARK

Melrose Park Urban Village is the most recent urban renewal precinct located in City of Parramatta. It will transform the existing industrial area into another large mixed use and residnetial precinct. The rezoning process is currently at master plan stage and is subject to the usual development approval process. The City of Parramatta website will update the latest information about the precinct in due course.

4.5.5 PARRAMATTA NORTH URBAN TRANSFORMATION PRECINCT

Parramatta North is a significant heritage listed site which covers Cumberland Hospital (East Campus) and the former Norma Parker Correctional Centre for Women. The NSW Government proposes to rezone the area for public use and to sensitively integrate residential and mixed use development into the heritage precinct.

The approved land use plans and the latest development information can be found in NSW Urban Growth website:

http://www.urbangrowth.nsw.gov.au/projects/parramatta-north/

4.5.6 TELOPEA

A draft masterplan for Telopea has been developed, including plans to upgrade existing parks, deliver new parks and plazas, and improve streets with lighting, footpaths, street furniture and trees. It is located around the existing Telopea heavy rail station which is proposed for upgrade to light rail as part of the Parramatta Light Rail project by Transport for NSW. Further master planning is still ongoing and subject to the usual development approval process.

The details of the draft master plan and latest project information can be found in below link:

http://www.communitiesplus.com.au/major-sites/telopea

4.5.7 WENTWORTH POINT

The rezoning for the Wentworth Point Precinct was finalised by the Department of Planning and Environment in June 2014.

A series of Development Control Plans (DCP) and Master Plans can be found in Cumberland Council website:

http://www.auburn.nsw.gov.au/Develop/PlanPolicies/Pages/DevelopmentControlPlans.aspx

Figure 4.55 Carlingford Urban Village - Paving Strategy

CARLINGFORD URBAN VILLAGE FOOTWAY PAVING

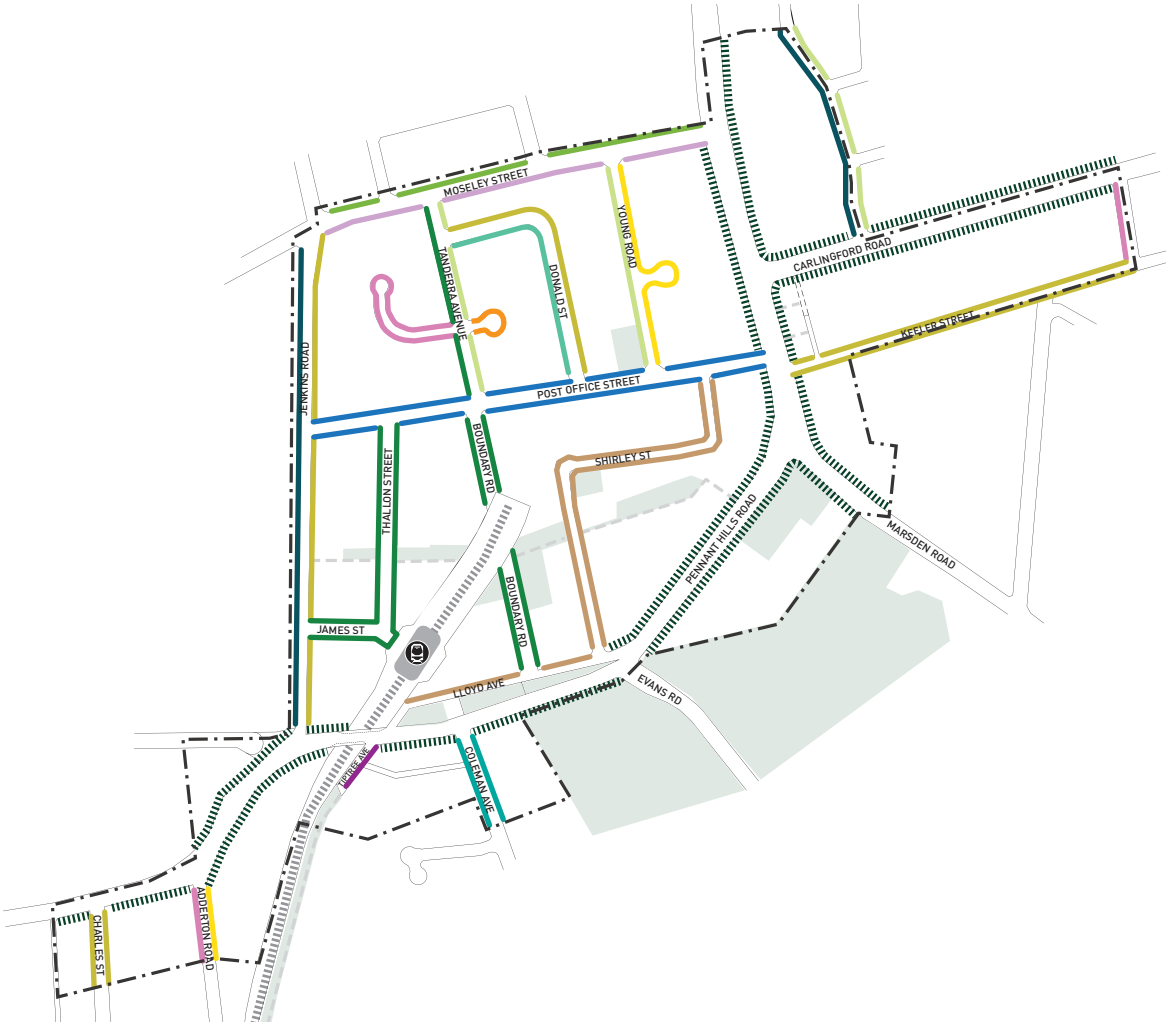
Street		In-situ concrete with porphyry insert (full width)
		In-situ concrete with porphyry insert (with nature strip)
		In-situ concrete (full width)
		In-situ concrete (1.5/1.8m wide, shared path excepted)
Service Lane		In-situ concrete
Pedestrian Link		In-situ concrete

Parkland
Waterway
Train Station
Bus Interchange

Precinct Boundary
Bridge
Proposed Laneway
Proposed Pedestrian Link

0 100 300 500m

Figure 4.56 Carlingford Urban Village - Street Tree Strategy



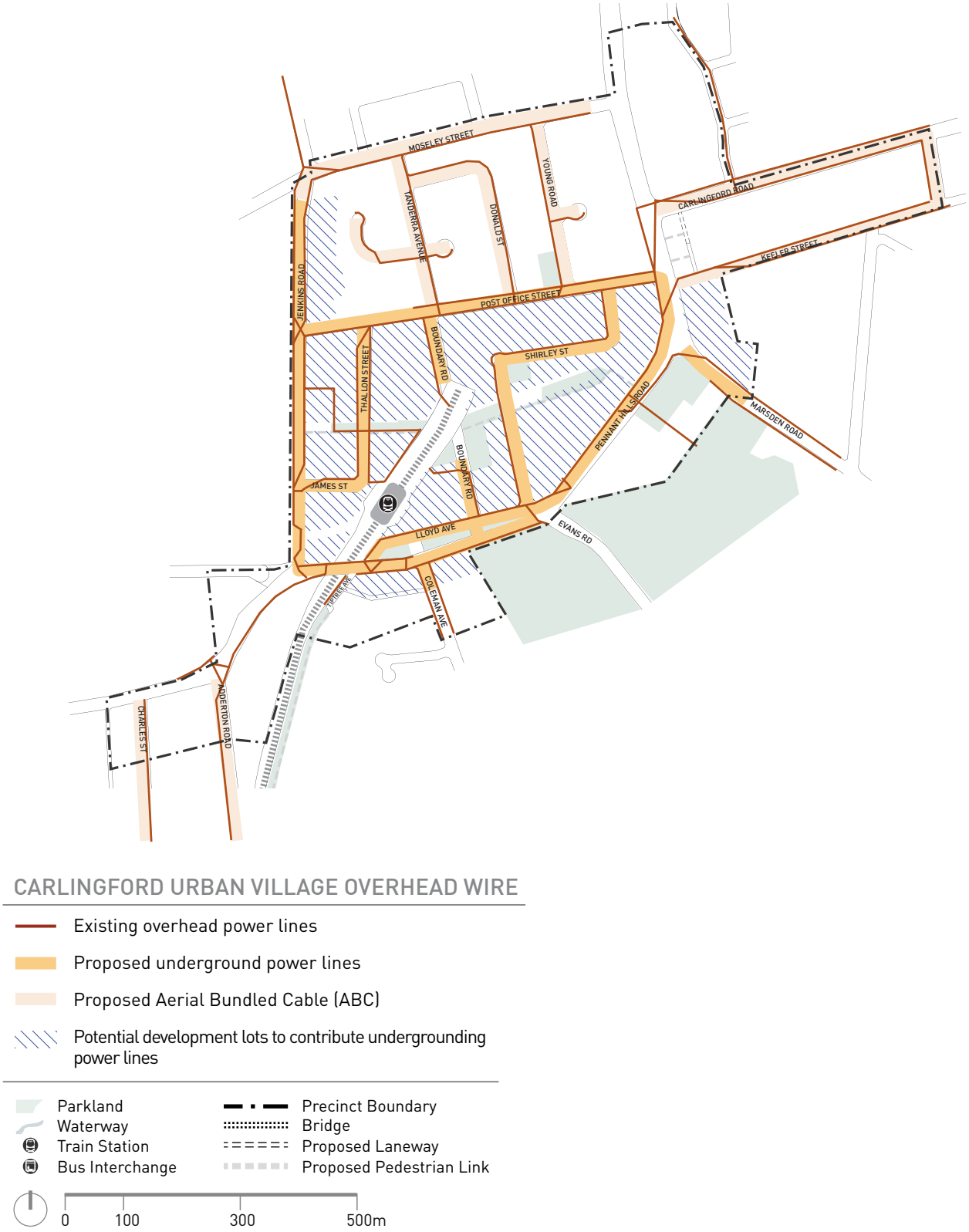
CARLINGFORD URBAN VILLAGE STREET TREE

- *Alphitonia excelsa* (Red Ash)
- *Angophora floribunda (Roughed Bark Apple)*
- *Buckinghamia celsissima* (Ivory Curl Flower)
- *Elaeocarpus reticulatus* (Blueberry Ash)
- *Eucalyptus punctata* (Grey Gum)
- *Eucalyptus microcorys* (Tallowwood)
- *Lagerstroemia indica 'Natchez'* (Crepe Myrtle)
- *Lophostemon confertus* (Brush Box)
- *Magnolia grandiflora 'Exmouth'* (Magnolia Exmouth)
- *Melaleuca linariifolia* (Snow in Summer)
- *Pistacia chinensis* (Chinese Pistachio)
- *Tristaniopsis laurina/T.laurina "Luscious"*(Water Gum)
- Planting within setbacks
  - Eucalyptus scoparia; Brachychiton acerifolius; Jacaranda minosifolia; Angophora floribunda

- Parkland
- Waterway
- Train Station
- Bus Interchange
- Precinct Boundary
- Bridge
- Proposed Laneway
- Proposed Pedestrian Link

0 100 300 500m

Figure 4.57 Carlingford Urban Village - Overhead Power Strategy



ACTIVE NEIGHBOURHOOD & LOCAL STRIPS

LOCAL STREETS

4.6 ACTIVE NEIGHBOURHOOD AND LOCAL STRIPS

Forty-six (46) active neighbourhood and local strips of local retail and commercial activities are located throughout the City outside the CBD and main Town Centres and Urban Villages. These strips typically service a high volume of local pedestrian activities and are included on local public transport routes. They have varied local characters and may contain cultural and/or natural value assets.

Active Neighbourhood and Local Strips are typically defined by busy ground floor retail and commercial development with access to local public transport routes. They support a high level of pedestrian use and are a focus for local community connectivity.

A high quality palette of materials is historically used to respond to high pedestrian use and amenity in local activity strips. Paving treatment is typically delivered by City's Capital Works team as part of major streetscape upgrades guided by local consultation with retailers and users. A range of selected materials have been used to suit local character and aspirations. Paving layouts have typically comprised a secondary style of treatment mixing unit pavers in a banding pattern with in-situ concrete or asphalt infill. This consultative process and practice of mixing of materials in response to a well-considered, comprehensive and Council led design process continues to be Council's preferred approach.

Major new streetscape upgrades in the activity centres will continue to be led by Council's design team. Development proposals that affect the public domain should allow to reinstate the original pavement finish unless instructed otherwise by Council.

4.7 LOCAL STREETS

Local streets include a variety of street types servicing industrial and low-medium density residential development. Local streets need to address areas of high and low pedestrian activity. Some local streets form part of the pedestrian green grid and the cycleway networks. A leafy green character is sought for all local areas to promote shade, comfort and amenity for people.

Local streets comprise a simple verge treatment of concrete footpath and grass or planted verge. Footpath widths vary according to development type and are prescribed as follows:

R2 Residential, Industrial Zones

Verge Width	Footpath Width
less than 2m	full width concrete footpath
all other widths	1.5 concrete footpath

R3 & R4 Residential Zones

Verge Width	Footpath Width
less than 2m	full width concrete footpath
2.0-3.0m	1.5m concrete footpath
all other widths	1.8m concrete footpath

In all cases:

- Footpath widths are to be consistent along any given street as much as practicable. This may result in minor variations to the above prescriptions and should be negotiated with Council.
- New footpaths should be located abutting the property boundary line for new R3 and R4 development unless unachievable because of topographical or other constraints. Where this is results in odd footpath alignments, design should be negotiated with Council.
- The *Parramatta Ways Walking Strategy*, promoting the creation of a strong network of walkable green connections through local neighbourhoods, affects many local streets. Refer to the Strategy for the scope and special requirements for these streets.

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CHAPTER 5
ELEMENT STRATEGIES

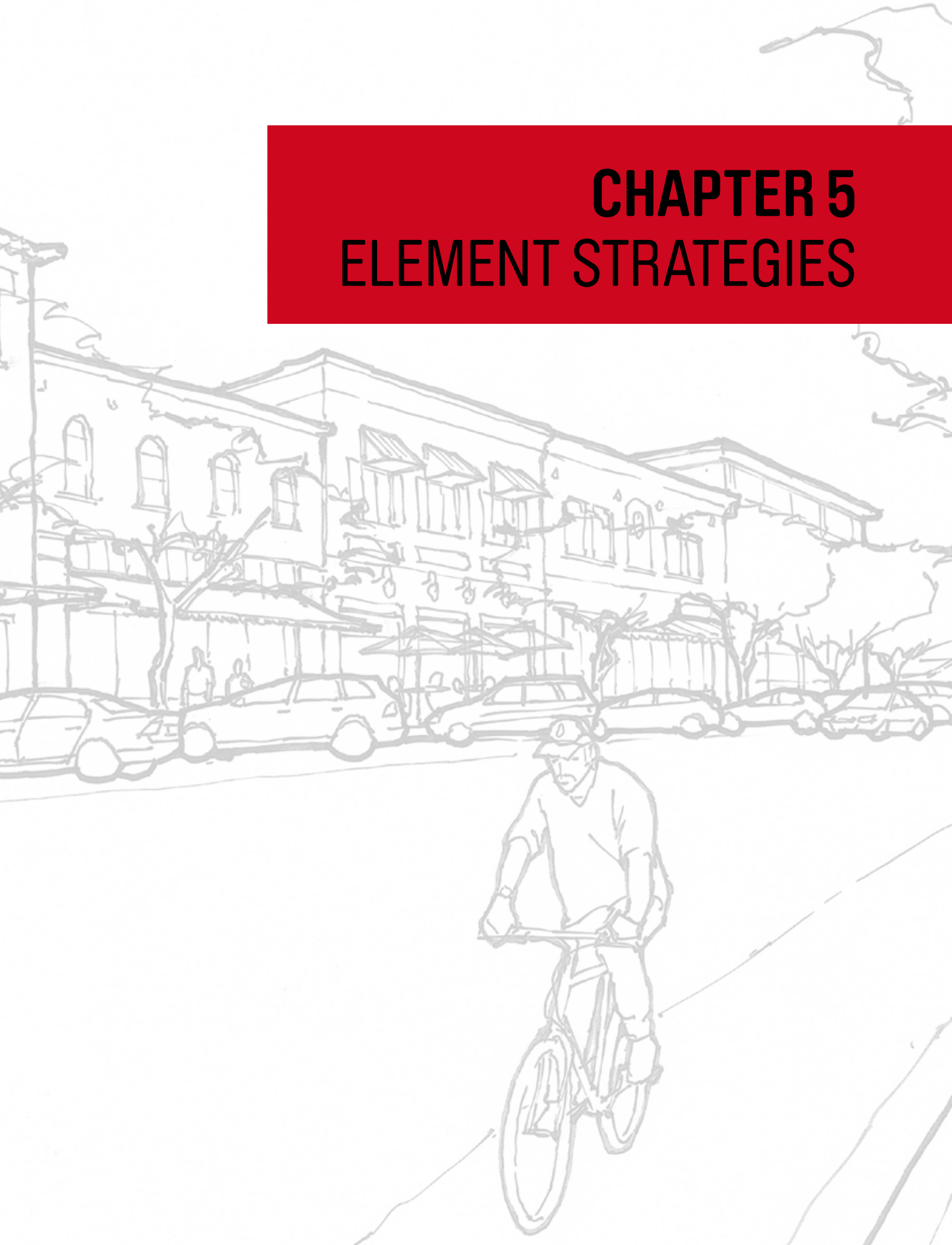

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TABLE OF CONTENTS

5 ELEMENT STRATEGIES

KEY POINTS OF THIS CHAPTER

- Objectives and design controls for street elements
- General guidelines on layout, selection, placement, and installation

Street elements are the essential, functional and aesthetic items the furnish our footways (between gutter and property boundary). They contribute to the street character, functionality and vitality, provide amenity and comfort to users, and respond to servicing and operational requirements.

The elements discussed in this chapter include:

- Street Trees
- Furniture
- Outdoor Dining
- Lighting
- Light Pole
- Banners

Figure 5.1 Granite Paving in Centenary Square

5.1 STREET TREES

Street trees are important to the appearance and amenity of streets. They visually unify and co-ordinate streets and precincts, and provide health and wellbeing benefits by encouraging walking and cleaning the air. Street trees are an effective way to increase shade and mitigate the urban heat island effect. When properly selected, located, planted and maintained street trees can completely transform an urban environment.

Recent research indicates that people respond most psoritively to streets that have single species dominance, larger canopies arching over the road, and regular spacing (not too close or too far apart). Streets with significant street tree planting can positivley impact property values and are often the preferred destinations for shopping and social pursuits.

OBJECTIVES

- Plant medium to large trees in the CBD,and all major urban centres.
- Create green corridors with increased tree planting in suburbs and in accordance with the Parramatta Ways Strategy.
- Increase the tree canopy in the public domain in accordance with council's tree planting policy.

Figure 5.2 A tree lined local street in Epping

Sustainable street tree planting in urban areas, such as CBD and town centre areas, is dependant on the successful implementation of a number of key factors. These need to be considered and prioritised in the design and development of vibrant city or town centre streets. They include:

- Soil volume
- Structural soil support system
- Placement and spacing
- Species selection
- Stock sizes and quality
- Planting and establishment practices

5.1.1 SOIL VOLUME

Sufficient soil volume needs to be provided for all new street trees to ensure they are able to grow at a reasonable rate and maintain vitality for the duration of their useful life. The environmental and economic benefits of street trees increase substantially if they remain viable for greater than 50 years. Street tree growth is often compromised by poor soil quality and lack of available soil volume, particularly where trees are planted over basement car parking or on podium.

Minimum soil volume requirements for small, medium and large sized street trees in Parramatta are as follows:

Table 5.1 Soil Volume Requirements for Street Trees

Tree Size	Average Crown Spread	Crown Protection	Min. Soil Volume Required (per tree)
Small (5-10m high)	5m	19.5m²	9.3m³
Medium (10-15m high)	8m	50.0m²	23.8m³
Large (15-20m high)	16m	200m²	95.3m³

Where possible root zone areas for trees in the public domain should be coordinated to develop large contiguous root zone areas as opposed to small separated planter boxes or tree pits.

Design controls include the following:

- The creation of continuous tree planting trenches in CBD and town centre streets where soil volumes are compromised,
- The creation of large contiguous soil zones for trees planted over basement car parking or on podium to maximise soil nutrient and moisture availability to trees.

5.1.2 STRUCTURAL SOIL SUPPORT SYSTEM

Street tree growth is traditionally compromised by soil compaction where full width pavements are required in the footway in urban areas. Soil compaction problems in urban environments can be addressed by the use of structural systems under pavements. These allow soils to retain sufficient aeration and porosity beneath pavement structures. Suitable systems include suspended concrete slabs or structural cells such as 'Strata-Vault' by CityGreen.

5.1.3 PLACEMENT AND SPACING

SIGHT LINES AND CLEARANCES

Street trees should be positioned so that they do not unduly interrupt the sight lines to oncoming traffic and impact on public safety. The following clearances can be used as a guide unless advised otherwise by Council Officers.

Table 5.2 Indicative Street Tree Clearances

Streetscape Element	Indicative Minimum Clearance
Street Intersection - approach side	10m from intersection kerb line
Street Intersection - non-approach side	7m from intersection kerb line
Traffic Signals	>10m from signal pole on approach side
Bus Stops	3m
Pedestrian Crossings - approach side	10
Pedestrian Crossings - non-approach side	7
Shared Lanes	1m
Driveways - approach side	3m
Driveways - non-approach side	2m
Stormwater Inlet/Outlet	2m
Street Light Pole	3m
Underground Service Pit	1m
Cycleways	0.5m

UNDERGROUND SERVICES

The presence of underground services may impact on the suitability of street trees. Information should be obtained from 'Dial-before-you-dig' and utility providers on the location and depth of any underground services along the street frontage. In addition advice about appropriate proximity to services may be sought from council officers.

SPACING

Street tree spacing is dependent upon the size of the tree at maturity. Generally, street trees are spaced at the following distances, centre to centre.

Table 5.3 Street Tree Size and Spacing

Tree Size	Height	Crown Spread	Spacing
Small	5-10m	3-5m	6-8m centres
Medium	10-15m	6-10m	8-10m centres
Large	16-20m	10-16m	10-15m centres

5.1.4 SPECIES SELECTION

Appropriate tree species selection ensures the healthy growth and longevity of trees, and enhances the desired streetscape character. There are often mixed species trees growing in a particular street. If the existing trees are in good condition and contribute positively

to the street, they should be retained and protected during any development process.

When planting new trees, species selection should consider the following:

- Response to any urban design objectives for the street or area (refer to **Section 3.3 - Typical Designs for General Streets Types**)
- Form, mature height, colour, and texture
- Appropriate scale for their location
- Low maintenance and resilience
- Anticipated growth rate and longevity in the local climate, soil and drainage context
- Tolerance to pests and diseases
- Potential impacts of root systems on pavement, building structure and underground utilities
- Environmental benefits

OVERHEAD POWER LINES

In most local streets overhead power lines have became a key constraint for growing healthy and well formed trees. For this reason, in areas of intense urbanisation activity, the City requires to underground overhead power lines during the development process (refer **Chapter 4 - Centre Strategies**).

The developments that will be required to underground existing overhead wires on adjacent streets are generally located in:

- B1, B2, B3, & B4 Zones; and
- R4 zone (FSR>=2:1)

Undergrounding the power line might also be required in the areas requiring significant vegetation buffer on the streets to mitigate adverse visual impacts from adjacent developments, such as Parramatta South Heritage Conservation Area.

For streets where overhead power lines remain the following species are recommended to be planted under the overhead wire subject to final approval by Council:

Table 5.4 Species for Street Verges with Overhead Wires:

Botanic Name	Common name	Mature Height	Growth Rate	Form (Mature)
Angophora costata 'Little Gumball'	Dwarf Angophora	5m	Moderate	Open
Buckinghamia celsissima	Ivory Curl Flower	6m	Fast	Open
Backhousia citriodora	Lemon-scented Myrtle	7m	Fast	Oval
Backhousia myrtifolia	Grey Myrtle	6m	Fast	Oval

Callistemon 'Kingspark Special' and other cultivas	Bottle Brush	6m	Moderate	Round
Gordonia axillaris	Fried Egg Tree	5m	Moderate	Broad
Harpullia pendula	Tulipwood	7m	Moderate	Broad
Koelreuteria paniculata	Golden Rain Tree	6m	Slow	Broad
Lagerstroemia indica 'Natchez'	Crepe Myrtle 'Natchez'	6m	Slow	Broad
Melaleuca decora	White Feather Honey Myrtle	6m	Fast	Round
Melaleuca nodosa	Prickly-leaved Paperbark	5m	Fast	Broad
Pistacia chinesis	Chinese Pistache	6m	Slow	Broad
Prunus cerasifera 'Nigra'	Purple-leaved Cherry Plum	4m	Moderate	Open
Tristaniopsis laurina 'Luscious'	Luscious Water Gum	6m	Moderate	Round
Zelkova serrata'Wireless'	Japanese Elm	7m	Slow	Broad

5.1.5 STOCK SIZES AND QUALITY

The required stock size for street trees varies depending on the location of planting. More advanced stock is required in major centres.

Minimum stock size requirements are provided in the table below:

Table 5.5 Minimum Tree Stock Size Requirements

	CBD	Town Centre & Urban Village	Neighbourhood & Village Active Strip	Other Areas	Open Space & Natural Reserve
Stock Size	400L	200L	200L	100L	Varied

Tree stock must comply with the reuqirments identified in Specifying Trees: a guide to assessment of tree quality by Ross Clark (NATSPEC, 2003). As a guide the requirements for height, calliper and branch clearance for advanced trees are as follows:

Table 5.6 Tree Stock Size Requirements

Stock Size	Height (above container)	Caliper (at 300mm)	Clear Trunk Height
100L	2.4m	50mm	1.0m
200L	3.6m	60mm	1.5m
400L	4.2m	95mm	1.8m

5.1.6 PLANTING PRACTICES AND MAINTENANCE PERIOD

SOIL MIX

Refer to City's Standard Design (DS) series and specifications.

DRAINAGE

The base of all tree pits should incorporate a drainage trench and pipe that connects to the street stormwater system.

MAINTENANCE PERIOD

A one year (52 week) maintenance and defects period is required for general public domain works including street tree maintenance and replacement to be carried out by the developer following final OC approval of the public domain works by Council Officers.

A two year (104 week) maintenance and defects period is required for any public domain works that include WSUD devices, including bio-retention tree pit, rain garden, swale etc., to be carried out by the developer following final OC approval of the public domain works by Council Officers.

5.2 FURNITURE

Street furniture contributes to pedestrian amenity and the functionality and viability of streets and public places in major centres and other active strips. This strategy outlines the principles underpinning street furniture selection and distribution in the public domain. Standard furniture palettes for each centre are identified to suit certain conditions and locations (refer Chapter 4 - Centre Strategies).

Due to resource and funding constraints, the maintenance requirements of furniture types should be a consideration for all projects. City of Parramatta seeks to streamline the range of standard off-the-shelf furniture elements for distribution throughout the LGA to contain required repair and maintenance activities. Bespoke furniture elements should be limited to special places, selected laneways and pedestrian links subject to design approval.

Selected street furniture elements include seats, bins, drinking fountains, bike racks, planter boxes, bollards, pedestrian fences and bus shelters. Refer to separate sections for guidance on street and pedestrian lighting, banners and CCTV. Advice on outdoor dining, kiosks, parking metre, telephone booths and other elements are to be addressed on an individual project basis.

OBJECTIVES

- Contribute to the overall aesthetic quality and character of streets and public places in the LGA.
- Provide functionality and comfort to all community groups.
- Provide a coordinated look and feel within precincts, streets, blocks and the entire LGA.
- Use robust, enduring products that can withstand the demands of heavy public use.
- Respond to different characters and identities in particular locations through specially designed elements.
- Select from the standard furniture palettes in the relevant locations to facilitate City of Parramatta's operation and maintenance regime.

Figure 5.3 Seating furniture in Centenary Square

5.2.1 GENERAL LAYOUT

In a typical CBD or town centre street, the footpath is divided into zones to accommodate the most logical and functional arrangement of streetscape elements. Street furniture elements need to be located in a designated kerb side furniture zone, or along building frontage, (refer Figure 3.3).

Street furniture shall be located:

- Outside the clear path of travel for universal access
- In a designated furnishing zone
- In clusters where space allows to minimise clutter
- To suit street tree and street lighting layouts and building entries
- In accordance with the required Egress Zone from face of kerb to allow for car overhang and door swing, as well as access to the parked cars.
- In accordance with required setbacks from kerb ramps and driveway crossings
- In areas where pedestrians are likely to stop and linger min. 15m from the intersection unless in kerb extensions
- In kerb extensions to co-locate facilities where footpath width is constrained
- In publicly accessible privately owned areas adjacent to the street footpath, such as forecourts, setbacks and pedestrian through-site links, where footpath widths are constrained
- Near public transport and civic facilities such as libraries and community centres.
- Where particular building uses indicate a sizable need, e.g. senior living, aged care, hospitals, schools, university, etc.

When placing furniture in the Furniture zone, the following clearances are recommended:

- 600mm of Parking Egress zone from the face of kerb to allow car overhang and door swing
- Min. 1m from driveway crossings
- Min. 2m from the landing of kerb ramps
- Min. 15m from the intersection unless in kerb extensions.

5.2.2 ACCESSIBILITY

All furniture in the public domain shall be accessible according to Disability Discrimination Act 1992 (DDA) provisions, and include the following:

- Design and height to allow access for children and wheelchair users
- Adequate seats with arm and back rests that comply with DDA requirements in desired pedestrian routes and places
- Distribution of seats to provide frequent resting places for elderly people on some streets
- Maximum 65mm gap under any element (e.g. barrier, planter box or bus shelter) to pavement surface level
- Adequate hardstand around street furniture elements to allow wheelchair access where required.

5.2.3 ENVIRONMENTAL RESPONSIBILITY

The selection of furniture should priorities the use of environmentally responsible and sustainable materials as follows:

- Compliance with product stewardship policies (e.g. Forest Stewardship Council/FSC), eco-preferred content
- Ability to be recycled or reused at the end of life cycle
- Locally or regionally sourced to minimise shipping needs.

5.2.4 SEATS

Provide seats that are accessible and comfortable to all users. They should be robust and vandal proof with strong frames and battens. Seats should be selectively located throughout major centre streets, activity strips and civic spaces.

PLACEMENT CRITERIA

- Place seats in a range of shady and sunny positions
- Avoid placing seats in grass
- Do not place seats in footpath less than **3.5m** wide
- Place seats perpendicular to the kerb in the Furniture Zone when space permits
- Orient seats towards the building facade when located in the Furniture Zone (refer to Figure 5.6), and towards the street when located near building line
- Seek to buffer seats from fast and high volume traffic lanes, and place adjacent to parking lanes or with some physical separation, e.g. planter boxes.

Seating furniture in Centenary Square

COVERAGE

- High volume civic places and links – 30-50m maximum spacing of seats with arm and backrest options.
- CBD, town centre, village and neighbourhood strips – at bus stops, taxi ranks, kerb extensions and outside public buildings subject to detail design approval.
- High pedestrian volume CBD streets - 50-60m centres subject to detail design. When calculating the level of provision include seating already provided in forecourts, squares, pedestrian links and arcades outside the road reserve.
- Local streets – at bus shelters.
- Parks – subject to individual design and level of usage.

Public accessible seatings in a privately-owned area in George St

5.2.5 BINS

Bin enclosures should neatly fit City of Parramatta's standard 120L bin to suit City of Parramatta's collection service practice. Bins should be robust, flame resistant, and vandal proof with restrictive access to deter animals and birds, and to restrict dumping of large litter bags by members of the public. All the bins in the public domain requiring operation by City of Parramatta's waste team should use PCC key-alike unit lock system.

Standard utility bin on footpath

PLACEMENT CRITERIA

- Near the litter source, for example, near take away food shops and fast food outlets, and at assembly points that are near litter sources, for example, a bus stop near a park or shops
- So that they are easily accessible to City of Parramatta's waste collection vehicles
- As single units rather than multiples in streets and urban places
- To consider aspect and context. For example, a sitting and relaxing space will require bins. They should be visible but not too intrusive or close and they should not be sited between seats and a view or an activity. Bins should be sited downwind of seats or spaces where pedestrians congregate in summer conditions.

COVERAGE

- Near retail centres, recreation spaces, bus stops and other areas with high activity levels where people congregate

- At street corners in high volume pedestrian CBD streets subject to traffic and accessibility to waste collection vehicles.

5.2.6 BIKE RACKS

Provide bicycle racks that are robust and vandal proof. Use good looking durable finishes that are not damaged by constant abrasion by bicycles. Avoid narrow racks that allow bikes to jackknife in the parking position. Comply with relevant industry guidelines.


Standard bike rack used in public land

PLACEMENT CRITERIA

- At identified destinations such as transport hubs, libraries, major shopping centres, education & sports facilities, community services and other high activity locations.
- Due to spatial limitations bicycle racks are not encouraged in laneways.
- Close to entrance of identified destination places and in full public view
- In well lit, visible public areas
- Easily accessible from the cycle path, footpath and road.

COVERAGE

- Bicycle racks are normally sited in multiples of four. If the location is a small neighbourhood shopping centre and only one siting of bicycle racks is required then the rack multiple could be increased to six.

5.2.7 BOLLARDS

Provide fixed and retractable bollards options in laneways, civic places and park entrances to detailed design. They should be robust and vandal proof. Use good looking durable finishes. All retractable bollards in the public domain requiring operation by City of Parramatta's operations team should use PCC key-alike unit lock system.

Minimise the use of bollards in streets to approved design.


Standard bollards

PLACEMENT CRITERIA

- Maximum 1.5m spacing to deter vehicles unless approved otherwise.

5.2.8 DRINKING FOUNTAINS

Provide drinking fountains that are accessible and comfortable for all users and comply to relevant industry standards. Ensure a

hardstand area of 1500mm wide is provided all around for access. Use robust and vandal proof materials. Use automatic off taps to reduce water wastage.

PLACEMENT CRITERIA

- In high use areas and on the edge of mainstream pedestrian traffic.

COVERAGE

- Ideally co-located at the edge of squares, open space areas, parks and sporting facilities
- Generally only one drinking fountain in each location.

5.2.9 PEDESTRIAN FENCE

Pedestrian fences include RMS compliant pedestrian fences and bespoke non-RMS compliant pedestrian fences.

Bespoke non-RMS compliant pedestrian fences may be only installed in high profile areas, such as retail streets in centres, subject to separate design approval.

Where pedestrian fences are required to satisfy traffic engineering recommendations for the purpose of pedestrian safety, RMS compliant pedestrian fences are required.

PLACEMENT CRITERIA

- Bespoke/decorative fencing is not recommended for the public domain. These fences should only be installed with special approval on a project by project basis
- RMS compliant fences - only where required to satisfy traffic engineers' specific requirements.

COVERAGE

Subject to traffic requirements and site conditions.

5.2.10 PLANTER BOXES

Provide planter boxes that are robust and mobile so they can be moved as required for special events, emergency and utility services. Planter boxes should not include tall vertical plants or elements (e.g. trellis).

PLACEMENT CRITERIA

- To delineate special seating or dining area, and contribute to street amenity subject to City of Parramatta approval.

Bespoke planter boxes in Church St

5.3 OUTDOOR DINING

City of Parramatta encourages outdoor dining in suitable locations as a key component to activate the footpaths and building frontages, as well as stimulate local economic development.

Outdoor Dining Permits must be obtained before furniture can be planned or placed in public domain. The permit is assessed on a case-by-case basis subject to the individual traffic and site conditions.

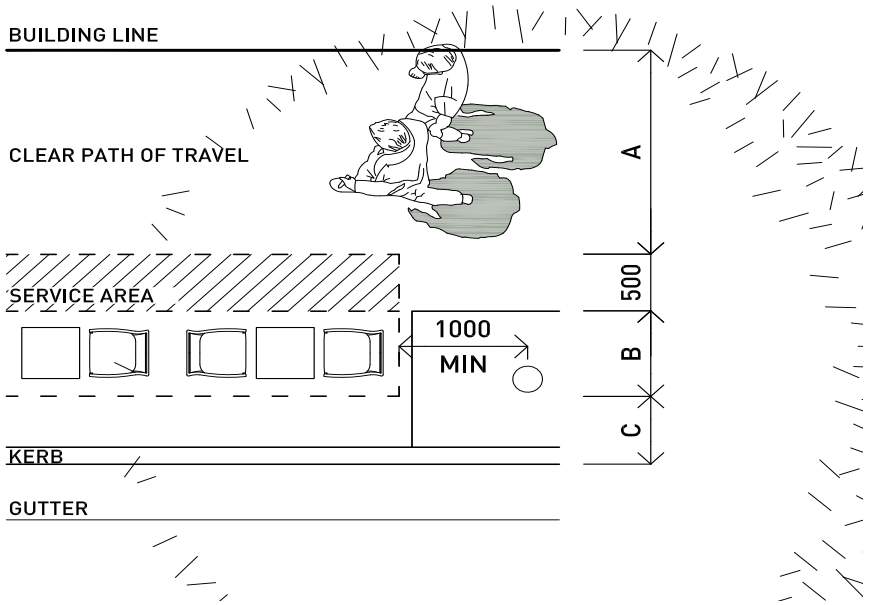
Outdoor dining furniture should comply with the following Design Controls:

- Outdoor dining furniture shall make positive contribution to the streetscape and character of the area.
- The placement of outdoor dining furniture shall not cause any clutter on public land.
- Placement of any outdoor dining furniture on the footpath shall not in any way interfere with kerb ramps, access to buildings, or access to fire escapes and service units.

5.3.1 GENERAL LAYOUT

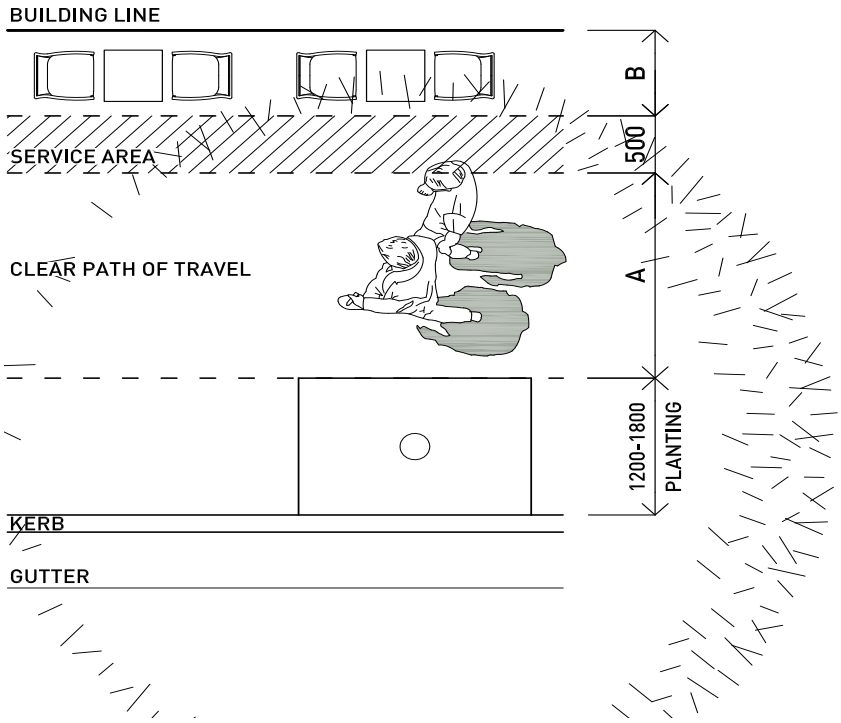
The seating area for outdoor dining may be located on either building side, or kerbside (in Furniture Zone), subject to site conditions. City of Parramatta will assess the site and advise preferred option once the permit application is received. The following diagrams indicate the basic layouts for preferred building side and kerbside seating layouts in CBD and other retail areas.

- The minimum clear path of travel must be retained as per Section 3.2.1 - Footway. This clearance must be free of any obstacles.
- A 0.5m of service area shall be provided between outdoor dining and clear path of travel.
- If the ourdoor dining is located next to a parking lane, minimum 0.6m clearance is to be provide from kerb face; while a physical separation (e.g. planter boxes) should be considered if outdoor dining is adjacent to traffic lanes.



A	B	C
Refer to ***Section 3.2.3***	2 seater: 750mm 3-4 seater: 1350mm	With parking lane: 600mm Without parking lane: subject to Council's approval

Figure 5.4 Outdoor Dining on Footpath Layout - Kerbside (in Furniture Zone)



A	B
Refer to ***Section 3.2.3***	2 seater: 750mm 3-4 seater: 1350mm

Figure 5.5 Outdoor Dining Layout Diagram - Buildingside

Outdoor dining furniture shall not cause any obstacle to safe pedestrian and traffic movements, and not in any way interfere with kerb ramps, access to buildings, or access to fire escapes and service units.

The following minimum clearances shall be provided:

STREET ELEMENTS	MINIMUM CLEARANCE
Intersection	12m
Pedestrian Crossing (including kerb ramp)	5m
Vehicle Crossing	2m
Light Pole	1.5m
Street Tree	1m

5.3.2 TABLES & CHAIRS

The outdoor dining seating elements (tables and chairs) should:

- be high quality and uniform in appearance.
- have simple designs and neatly placed in the public domain without extraordinary decorations.
- meet the seating requirements for eldlies and people with disabilities.
- be sturdy, stable and have sufficient weight so that they cannot move or be blown away in severe weather.
- be removed at the end of business hours.

5.3.3 SHADE STRUCTURES

Shade structure used in the outdoor dining area should:

- be high quality and uniform in appearance and read as part of the public domain.
- be consistent in colour and shape in any one street or town centre area.
- not include any commercial logo or advertisement.
- not be bespoke designed elements which can contribute to the perception of a privatised public domain.
- be temporary, light-weight, and modular umbrella-shaped units approved by City of Parramatta.
- be able to be removed or closed at the end of business hours or in windy conditions.
- be able to support outdoor heaters and be connected by inserts between shades to reduce run-off.

5.3.4 BARRIERS

Barriers (diverters) should be provided at the edges of the outdoor dining area if a liquor licence is granted for the area, especially in the alcohol-free zones, such as the CBD areas. The barriers should:

- not have gaps on the bottom greater than 65mm from the footpath surface.
- be sturdy, stable and have sufficient weight so that they cannot tip over or be blown away in severe weather.
- be removed at the end of business hours.
- have a consistent height between 75 and 90cm.

5.3.5 BLINDS

In general City of Parramatta does not encourage any type of blinds to be installed on the sides of shade structures in the outdoor dining areas located on the footways. The permission for the blinds will be assessed by City's outdoor dining team on a case-by-case basis.

5.4 LIGHTING

OBJECTIVES

- Provide adequate lighting for safe movement at night in all areas of the LGA.w
- Provide a well-lit pedestrian environment in which people feel secure and which enhances the appeal of the CBD and town centres.
- Upgrade pedestrian lighting to energy efficient LED light source in selected high usage pedestrian areas.
- Use a consistent and co-ordinated range of street pole types throughout the LGA to streamline maintenance and procurement processes.
- Use multi-function poles to combine streetlights, pedestrian lights, banners and CCTV cameras in selected CBD and town centre streets.

5.4.1 10M MULTI-FUNCTION POLES

- CBD and Town Centres Selected Streets;
- Selected main roads and civic spaces in CBD and town centres with highest pedestrian usage in commercial areas or roads linked to commercial areas, commuter parking or transport hubs (refer Chapter 4 - Centre Strategies).

Upgrade to multi-function poles to achieve combined energy efficient LED lighting, banner compatibility, effective CCTV coverage and future Smart City capability.

Achieve carriageway lighting and a high level of pedestrian lighting on the footpath as follows.

- Achieve a high colour rendering and a high level of vertical luminance to maximise personal safety (to detailed lighting design).
- Use a light source that emits no light above the horizontal plane.
- Use new City of Parramatta owned multi-function poles and light fittings giving character and quality in keeping with the urban environment.
- Achieve vehicular and pedestrian lighting in accordance with identified strategies (refer Chapter 4 - Centre Strategies) and AS/NZS1158.1 (subject to detailed lighting design).
- Under awning lighting to comply with minimum category P1-P3 to AS/NZS1158.3 Part 3 (subject to detailed lighting design). Floodlights or bare lamps are not to be used.
- Supplementary lighting at pedestrian crossing as required to AS/NZS 1158.4 Part 4.

5.4.2 STANDARD ENDEAVOUR ENERGY POLES

New minor roads with low traffic usage and that are lit primarily for pedestrians. These streets should be lit as a single unit to comply with the relevant categories of AS/NZS1158.3.1. Lighting should achieve a quality lit environment that is comfortable and feels safe without excessive illumination:

- Achieve a high colour rendering (to detailed lighting design)
- Use a light source the emits no light above the horizontal plane

- Use existing EE street poles. Upgrade as necessary to meet best practice standards).
- Carriageway lighting to comply with AS/NZS1158.1 Part 1 (to detailed lighting design)
- Pedestrian lighting to comply with minimum category P3 including vertical illuminance to AS/NZS1158.3 Part 3 (to detailed lighting design)

5.4.3 LANEWAYS

Laneways in the CBD and town centres shall be lit to provide adequate security.

- Undertake a security risk to determine the level of risk based on natural surveillance, visibility and distance to a point of escape from the lane.
- Achieve a high colour rendering (to detailed lighting design)
- Use a light source the emits no light above the horizontal plane and minimises glare
- Using City of Parramatta owned multi-function or selected tapered poles and light fittings that have a character and quality in keeping with the urban environment. Use wall mounted fittings to maximise available width of the lane where possible.
- Pedestrian lighting to comply with minimum category P3 including vertical luminance to AS/NZS1158.1.1. Higher lighting levels may be required depending on the risk analysis (to detailed lighting design).

5.4.4 CAR PARKS (CBD AND TOWN CENTRES)

Car parks shall be lit to provide adequate lighting for people to safely access and to provide a level of personal security without dominating or overpowering the character of the town centre.

- Assess the lighting requirements based on levels of usage and risk for category P11 lighting in AS/NZS1158.3.1.
- Achieve a high colour rendering (to detailed lighting design)
- Use selected tapered poles and light fittings that have a character and quality in keeping with the urban environment.
- Use wall mounted fittings where possible.
- Use a light source that emits no light above the horizontal plane and minimises light spill onto adjacent residential properties.

- Consider AS4282 'Control of the obtrusive effects of outdoor lighting'.

5.4.5 PARKS AND OPEN SPACES

Parks and open spaces in the LGA should be unlit to discourage them as gathering places which may prompt anti-social behaviour. Where there are paths that are used as a thoroughfare, the paths should be lit to comply with the relevant category in AS/NZS1158.3.1. It is important that lighting is comfortable and has minimal glare to maximise the field of vision. This can be achieved by:

- achieving a high colour rendering (to detailed lighting design)
- using a light source that emits no light above the horizontal plane
- using City of Parramatta owned park pole or selected tapered poles and light fittings that have a character and quality in keeping with the urban environment.
- designing path lighting to category P3, including giving vertical luminance. Where there is a high density of night traffic or a higher risk of crime the category should be increased to category P2.

5.4.6 CIVIC SPACES

Civic spaces in CBD and town centres with highest pedestrian usage in commercial areas or roads linked to commercial areas, commuter parking or transport hubs.

Achieve combined energy efficient LED lighting, banner compatibility (to design) and effective CCTV coverage. Achieve a high level of pedestrian lighting on the footpath as follows.

- Achieve high colour rendering and a high level of vertical luminance to maximise personal safety (to detailed lighting design).
- Use a light source that emits no light above the horizontal plane.
- Use new multi-function poles or selected tapered pole and light fittings giving character and quality in keeping with the urban environment.
- Pedestrian lighting to comply with category P1-P3 to AS/NZS1158.3 Part 3 (subject to detailed lighting design).
- Under awning lighting to comply with minimum category P1-P3 to AS/NZS1158.3 Part 3 (subject to detailed lighting design). Floodlights or bare lamps are not to be used.

5.5 LIGHT POLES

Light pole specification should consider the following features to be determined in consultation with council officers.

5.5.1 CCTV

- Storage of CCTV equipment inside the pole casing in all proposed pole types in CBD and town centres.
- Second hatch opening in poles to provide space to work.

5.5.2 ANIMATION AND EVENTS

- Double GPO in all multi-function poles (minimum 240v/10amp, preferably 240v/20amp).
- 3-phase power outlets at strategic locations to support major CBD events.
- Separate power supply for lighting, power and CCTV and ability to isolate power and lighting to individual poles.
- Fixtures and structural support for Christmas decorations and catenary lines.
- Rigging points, fixtures and structural support for catenary lines and other incidental attachments to suit special event and animation requirements according to agreed design aspirations.
- Provision of engineering certification of load bearing capacity on a street by street basis according to agreed design aspirations.
- Spare conduits for possible future power supply needs.
- Install all light poles in the public domain with footings and bolt assemblies buried below the finished pavement surface.

OBJECTIVES

- Use a consistent and co-ordinated range of street pole types throughout the LGA to streamline maintenance and procurement processes.
- Use multi-function poles to combine streetlights, pedestrian lights, banners and CCTV cameras in selected CBD and town centre streets.
- Use multi-function poles in village and neighbourhood centres to allow multi-function capability.
- Use sleek tapered poles in laneways and small spaces where banners are not required.
- Provide maximum flexibility for events in CBD and town centres by providing power and engineering flexibility to suit possible fixtures in light poles in streets.

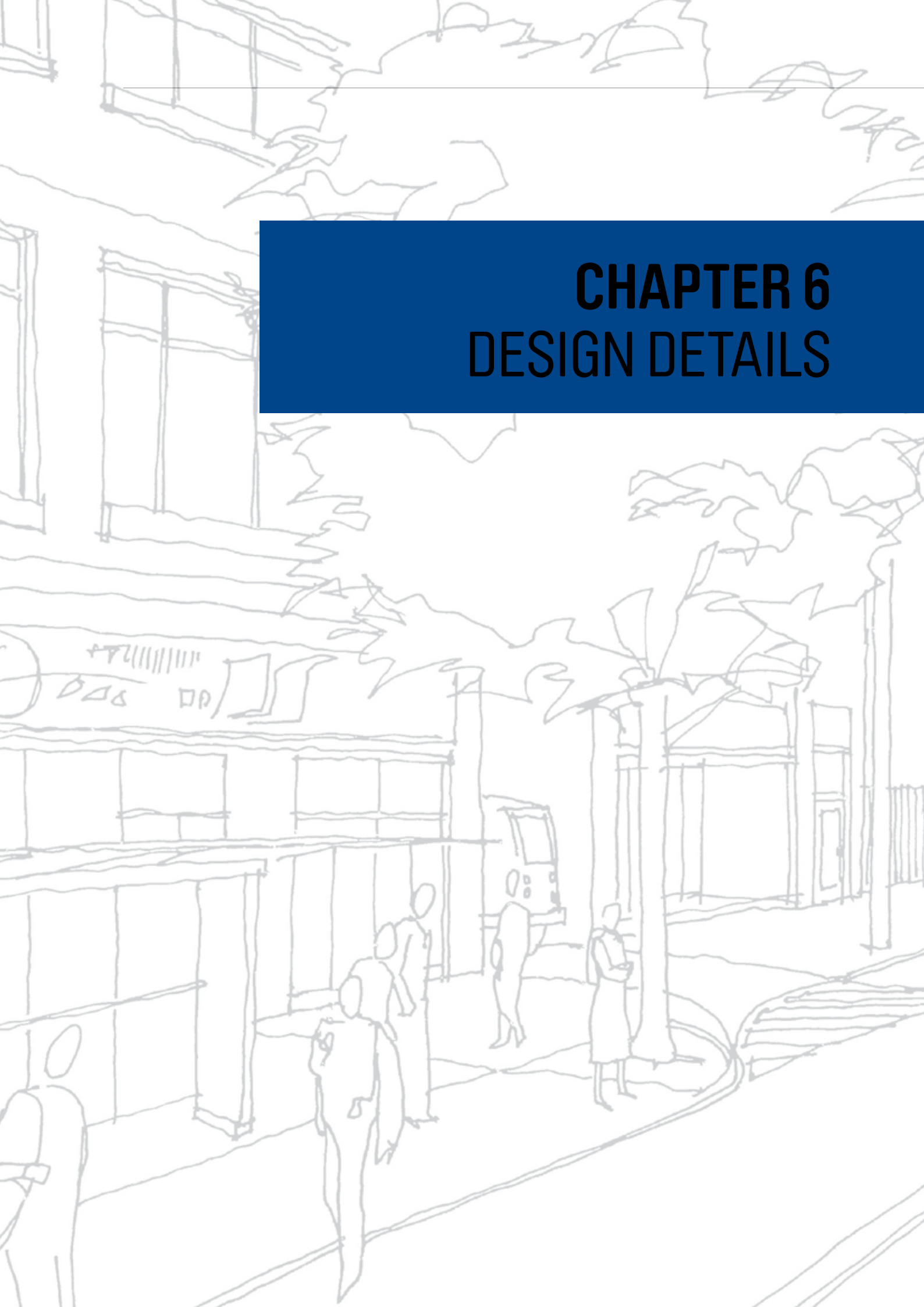
5.6 BANNERS

Use banner sizes that proportionally suit pole heights whilst still allowing flexibility for addition of extra fixtures from time to time. Agreed preferred sizes include:

- Large 4.5mx1.5m for 10m poles (assuming MFP's) on single or dual pole arms
- Medium 3.0mx1.0m for 8m poles (assuming MFP's) on single or dual pole arm.

OBJECTIVES

- Enhance the attractiveness of the CBD and town centres.
- Convey a sense of activity and creativity in the Parramatta LGA and promote the image of CBD and town centres as a great place to live, work and invest.
- Facilitate revenue generating commercial marketing and advertisement in high volume vehicular traffic streets, along local bus routes and in transport hubs/interchanges in CBD and town centres.
- Facilitate event marketing, celebration and beautification in high volume pedestrian traffic streets and squares in CBD and town centres.
- Facilitate City of Parramattalor, business and community requests for celebratory banner use.
- Minimise the number of banner sizes and shapes to facilitate graphic design, production, procurement and installation of banners.
- Discourage banner use in narrow laneways, intimate places, natural settings, and along the Parramatta River shoreline.



CHAPTER 6
DESIGN DETAILS

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6 DESIGN DETAILS

KEY POINTS OF THIS CHAPTER

- Design details of typical street elements including paving, kerb ramp, laneways, trees, and bus shelters
- Detailed design requirements for clear path of travel, and access facilities
- Footway gradients and levels

When designing a footway with all the required street elements, specific site conditions must be considered to ensure the desired character and functions can be achieved at the end of development process. This chapter provides detailed design and construction requirements for the typical street elements in typical street scenarios.

6.1 FOOTWAY ACCESSIBILITY

Footway design must adhere to Australian Standard requirements for equal access. These documents ensure that levels are consistent and structural elements such as buildings and street trees are arranged to facilitate the logical and safe flow of people. The following standards must be observed when designing public footways in the City.

Table 3.1 Access Standards applicable to Public Domain works

Name	Year	Application
AS1428.1	2009	Used as the best current information (under review June 2016)
AS1428.2	1992	Street Furniture
AS1428.4.1	2009	Tactile Ground Surface Indicators
AS1428.4.2	2016	Wayfinding
DSAPT	2009	For bus stops only
AS2890.6		Parking for People with Disabilities (PWD)
DSAPT (Disability Standards for Accessible Public Transport)	2002	Public Transport (under review June 2016)
DDA (Disability Discrimination Act)	1992	In the sense that discrimination extends beyond the issues covered by BCA

6.1.1 CLEAR PATH OF TRAVEL

In all street footpaths it is important that the path of travel is smooth and clear of encumbrances, including in-ground and overhanging elements. It should also be of a consistent width and location along the street and well-coordinated across intersections.

- Comply with Council's standards for the minimum Clear Path of Travel width, which varies according to location. Refer to Section 3.2.1 - Footways for the appropriate requirements at your location.
- Ensure that the Path of Travel is coordinated with neighbouring footpaths and that a cue/shoreline* is included to assist people with vision impairment.
- Ensure that path of travel is free of any encumbrances and is clear for a height of min 2000mm, and 2400mm on cycleways or shared pedestrian/cycle paths.

* Pedestrian with vision impairment and some senior citizens identify the path of travel by using a hard edge such as the building to guide them through the street. This practice is known as shore lining.

6.1.2 GRADIENTS & LEVELS

For access and easy walking, levels must be consistent and even within blocks and allow water to drain away from buildings. Correct cross falls must be considered at building concept design stage so that finished floor levels of a new buildings are adjusted to suit the

street and topography, not the other way round. Localised dramatic changes in levels on the footpaths are not acceptable to suit new building entrance requirements.

- Coordinate footpath levels for smooth transition to surrounding public domain context and for consistent alignment of Path of Travel along the street.
- Ensure that cross falls along the path of travel are minimum 1% for drainage and maximum 2.5% for access and easy walking.
- Ensure that cross falls from building line to top of kerb achieve between 1-5% (maximum); 1-2.5% (preferred) (see Figure 6.1).
- Set finished floor level (FFL) of building to achieve recommended footpath cross falls and smooth transition between public and private land. Localised adjustment of levels to facilitate access must occur within the building, not on the public way.
- Achieve a continuous longitudinal fall along the property boundary and top of kerb alignments. Variations to this may be permitted to suit existing conditions subject to design approval.

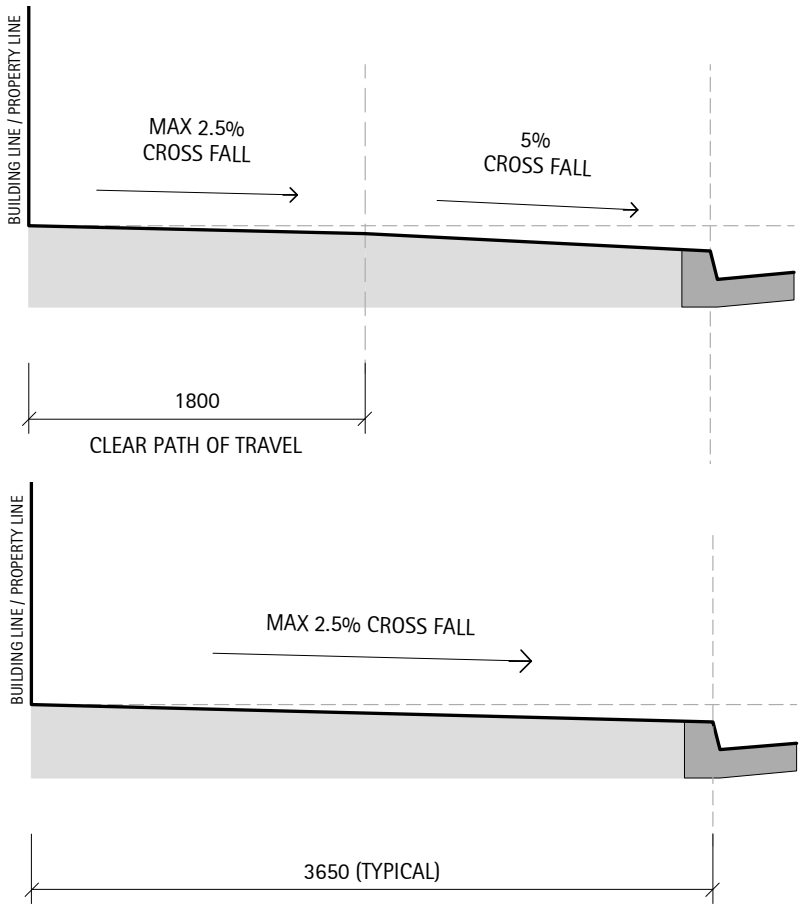

Figure 6.1 Typical Footway Cross Fall

6.1.3 BUILDING INTERFACE

Although generally privately owned, buildings impact on the quality of the public domain. The street-building interface is the zone within the private domain that visually or functionally impacts on the public street. It includes building entries, setbacks, terraces, awnings, and overhangs.

- Ensure that all stairs and ramps meet the requirements in AS1428.1.
- Ensure that any external stairs and ramps end 900mm inside the property boundary to allow for handrails and TGSIs. Protrusion of stairs, ramps, handrails, and TGSIs into the Path of Travel is not permitted (see Figure 6.2).
- Ensure that any external stairs coordinate lowest landing with footpath level and that risers are of equal height for their full width.

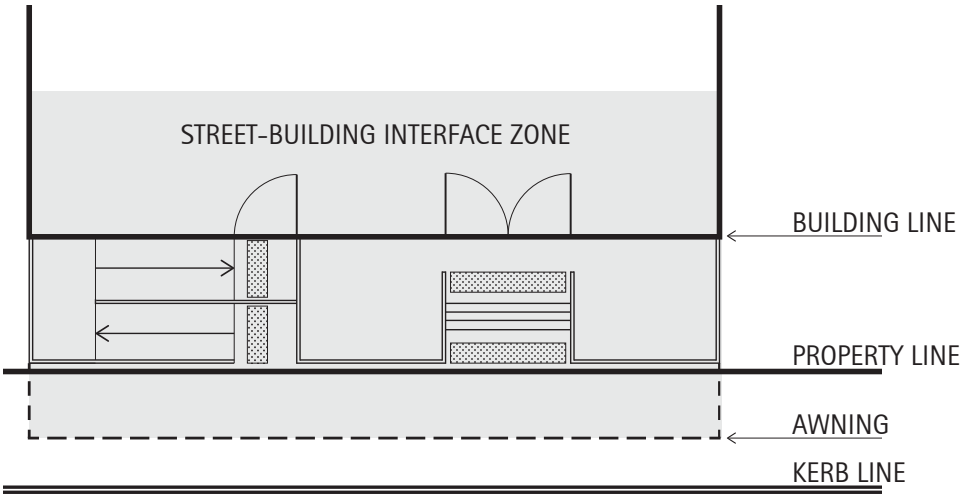

Figure 6.2 Street-building Interface

6.1.4 KERB RAMPS & TGSIS

Wider kerb ramps are preferred in CBD and town centre streets. 1800/2100mm wide kerb ramps should be used in the CBD and town centres, while 1500mm wide kerb ramps in all other streets. TGSIs should extend across the full width of 1500 ramps and across half the width of 2100 ramps, as shown in Figure 6.3 - 6.4.

Kerb ramps at signalised intersections shall also comply with the RMS design standards and seek approval from RMS prior to construction.

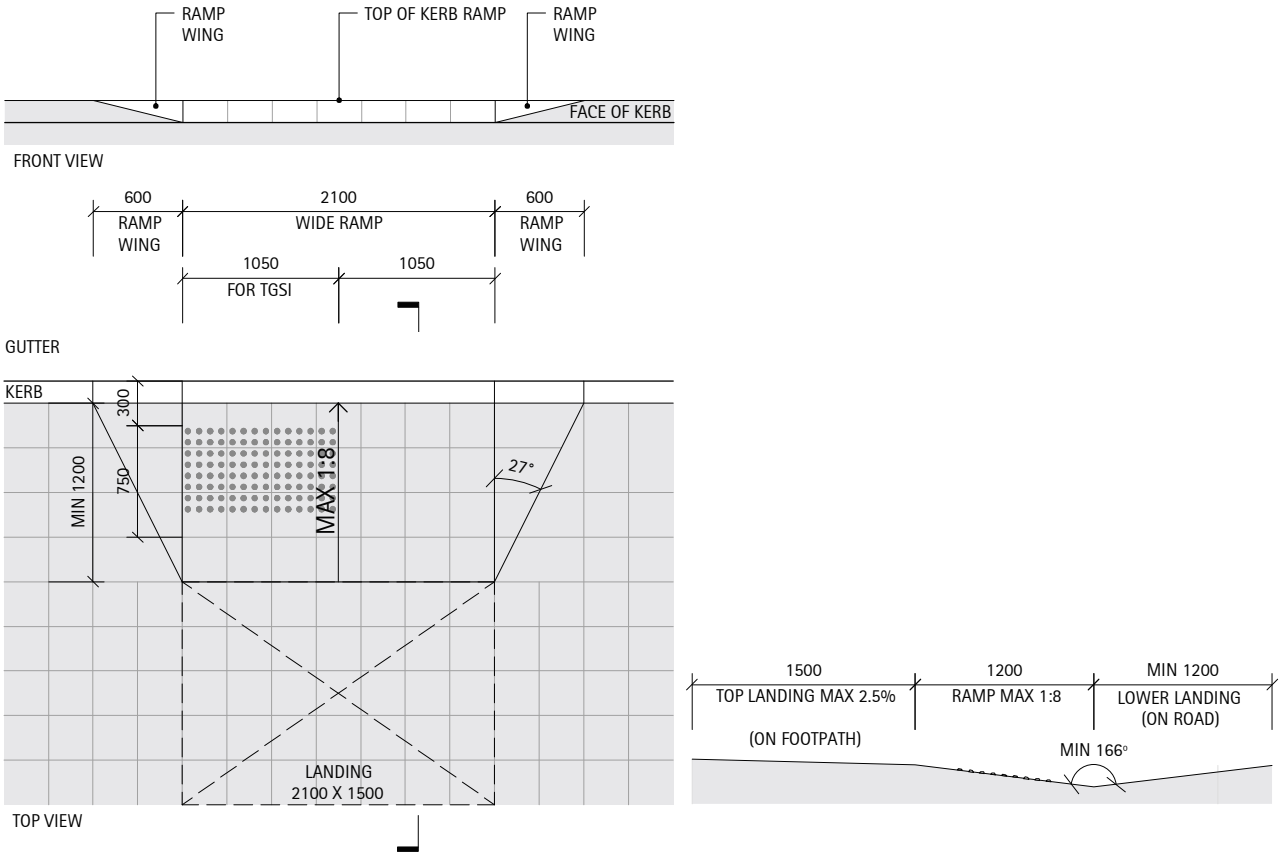

Figure 6.3 Kerb Ramp Layout: 2100 Wide

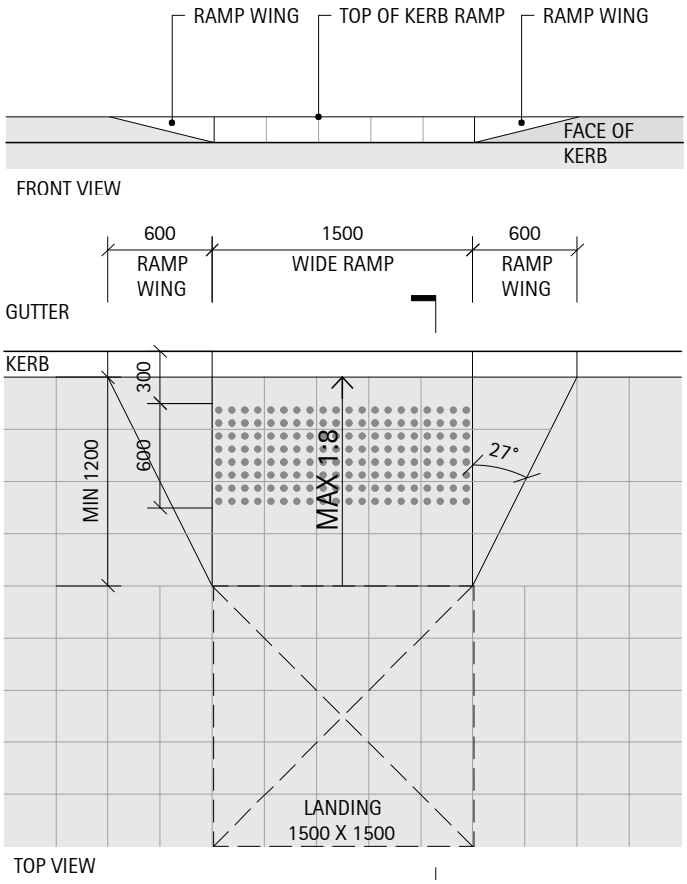

Figure 6.4 Kerb Ramp Layout: 1500 Wide

When the entire width of a kerb ramp is aligned with the face of kerb, the most preferred kerb ramps have 600mm wide ramp wings with 27° angle between wings and ramp, see Figure 6.5. This complies with the AS1428.1:2009 and matches with 300mm pavers grid.

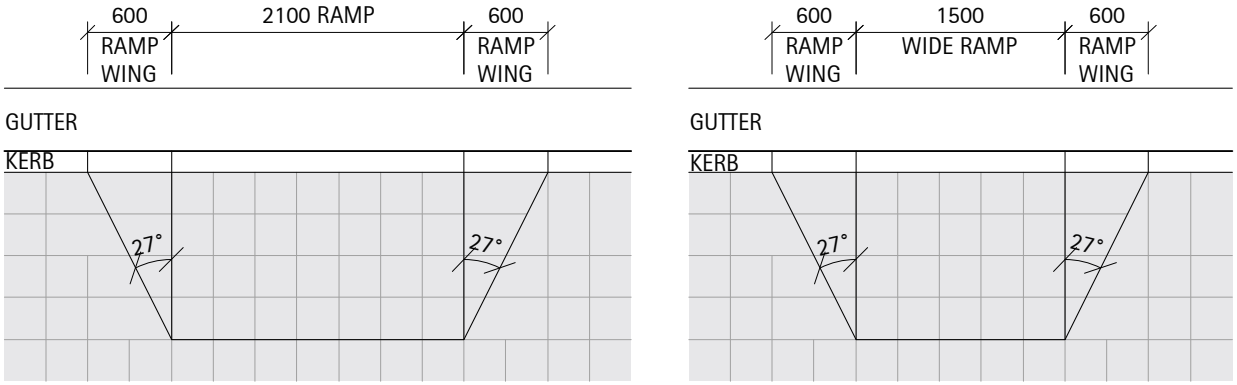

Figure 6.5 Ramp Wings when Ramp Aligned to Face of Kerb

In several cases the kerb ramps need to move away from the face of kerb. At such instances the ramp wings should match the 300mm pavers grid and simultaneously have a min 17° and a max 45° angle as shown in the Figure 6.6.

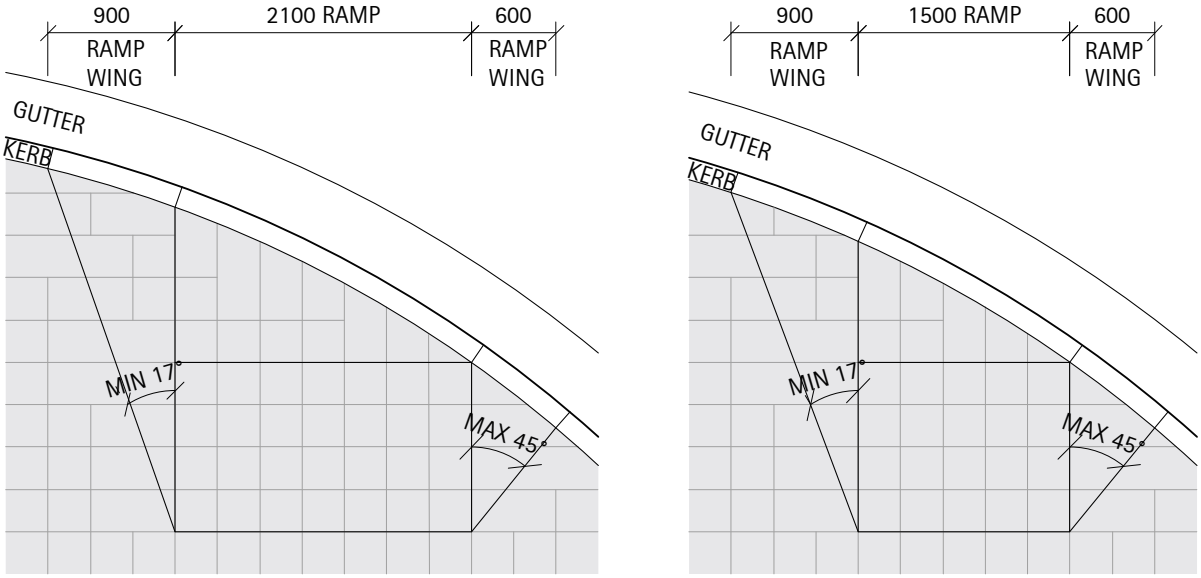

Figure 6.6 Ramp Wings when Ramp Not Aligned to Face of Kerb

For a high quality appearance and resolution of levels ensure that the minimum distance between the kerb ramps is 800 and minimum distance from face of kerb to building is 3000, as shown in Figure 6.7.

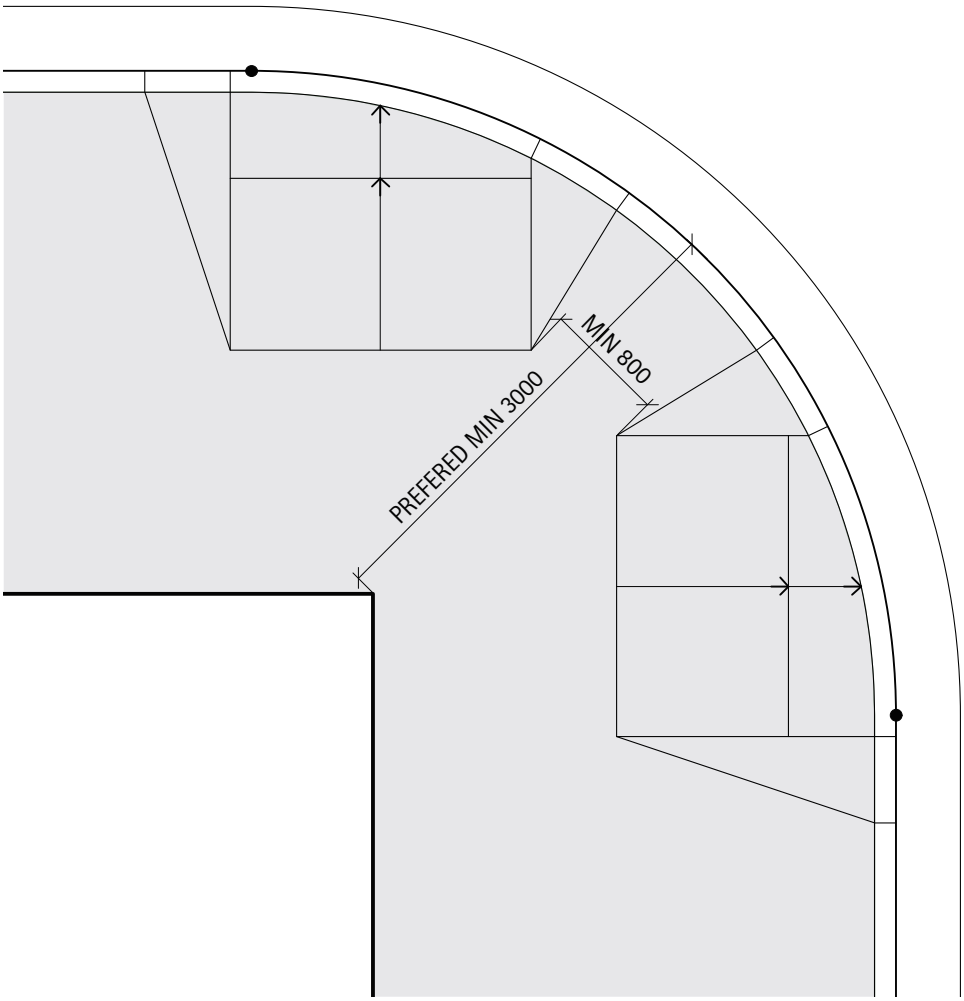

Figure 6.7 Kerb Ramp Arrangement Showing Minimum Distances

At some corners, Design may need to adjust the location of kerb ramps to suit the ramp opposite and/or conform to requirements. In some instances the kerb radii may need to be reduced for better pedestrian amenity or increased to accommodate large vehicles. This will impact on the layout of elements and pavers and applicants are advised to check with the City staff accordingly.

There are a range of kerb radii currently existing in the City between 1000 on lanes to 9000 or greater on narrow streets with large volumes of vehicles including buses. The size of the radius impacts on ramp locations, the width of path of travel and other streetscape elements. The following Figures 6.9-6.19 show typical arrangements of kerb ramps for varying kerb radii to optimise pedestrian amenity, equal access, paver layout and other streetscape elements.

Streets Corner Plan: 3000 Radius 2100 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 3000mm corner radius
Ramp Size	2100mm (W) x 1200mm
Landing	Min. 2100 x 1500mm to match ramp width Same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across min 1000mm of ramp Ramp sizes to locate TGSI 300mm from hazard

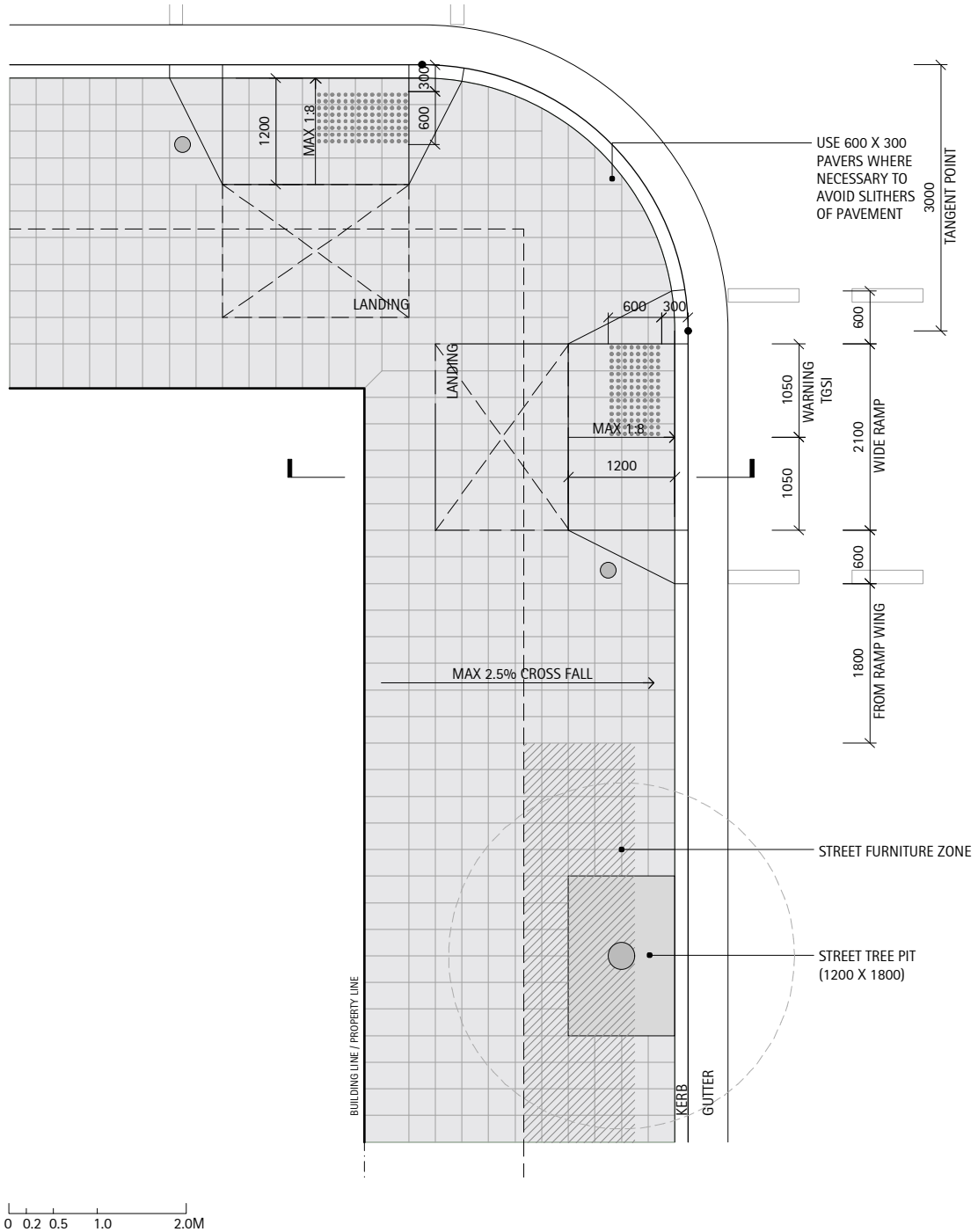

Figure 6.8 Streets Corner Plan: 3000 Radius 2100 Ramp

Streets Corner Plan: 3000 Radius 1500 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 3000mm corner radius
Ramp Size	1500mm (W) x 1200mm
Landing	Min. 1500 x 1500mm to match ramp width same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across entire width of ramp Ramp sizes to locate TGSI 300mm from hazard

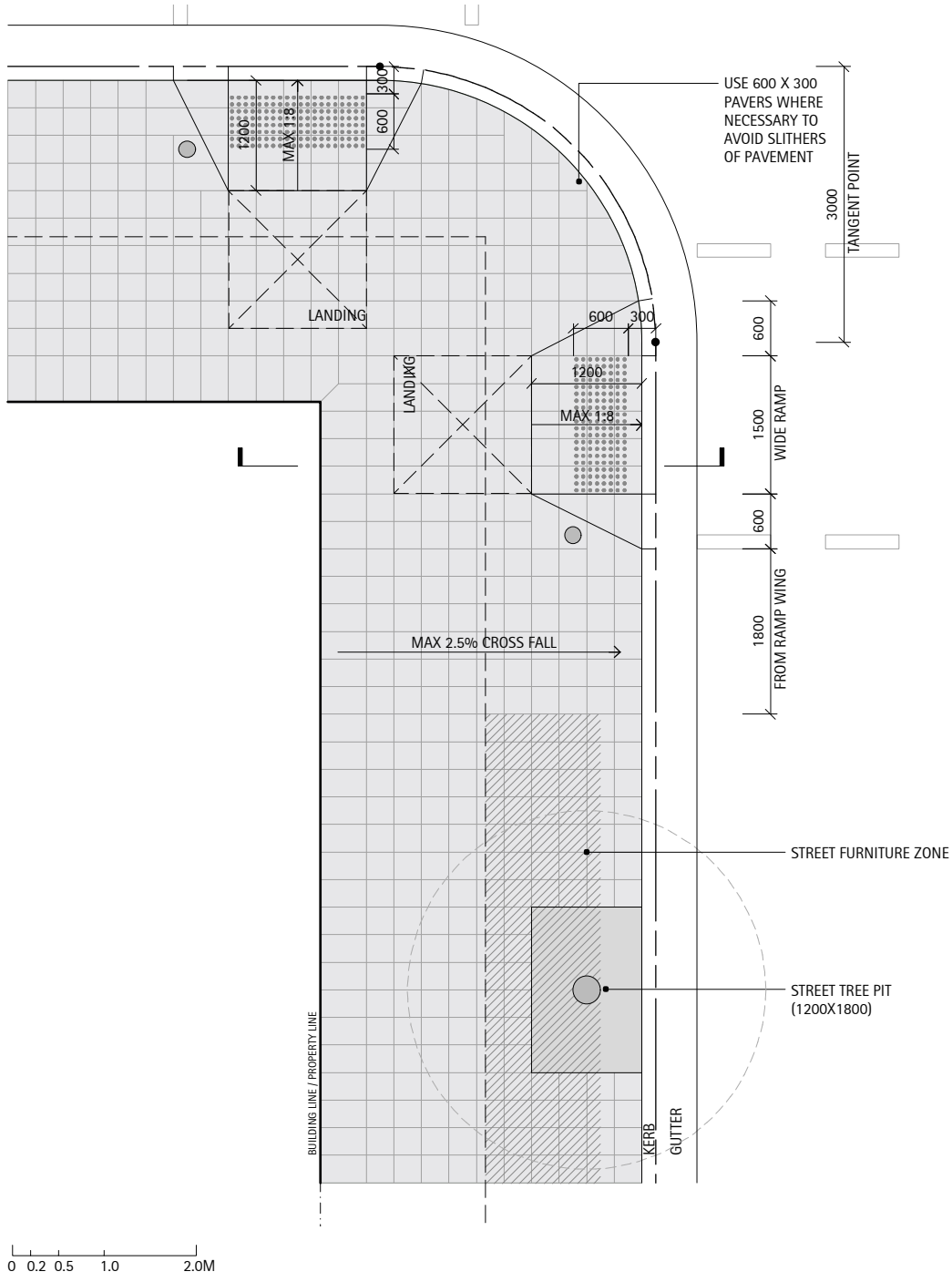

Figure 6.9 Streets Corner Plan: 3000 Radius 1500 Ramp

Streets Corner Plan: 4500 Radius 2100 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 4500mm corner radius
Ramp Size	2100mm (W) x 1200mm
Landing	Min. 2100 x 1500mm Same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across min. 1000mm width of ramp Locate TGSI to be more in line with path of travel from boundary line

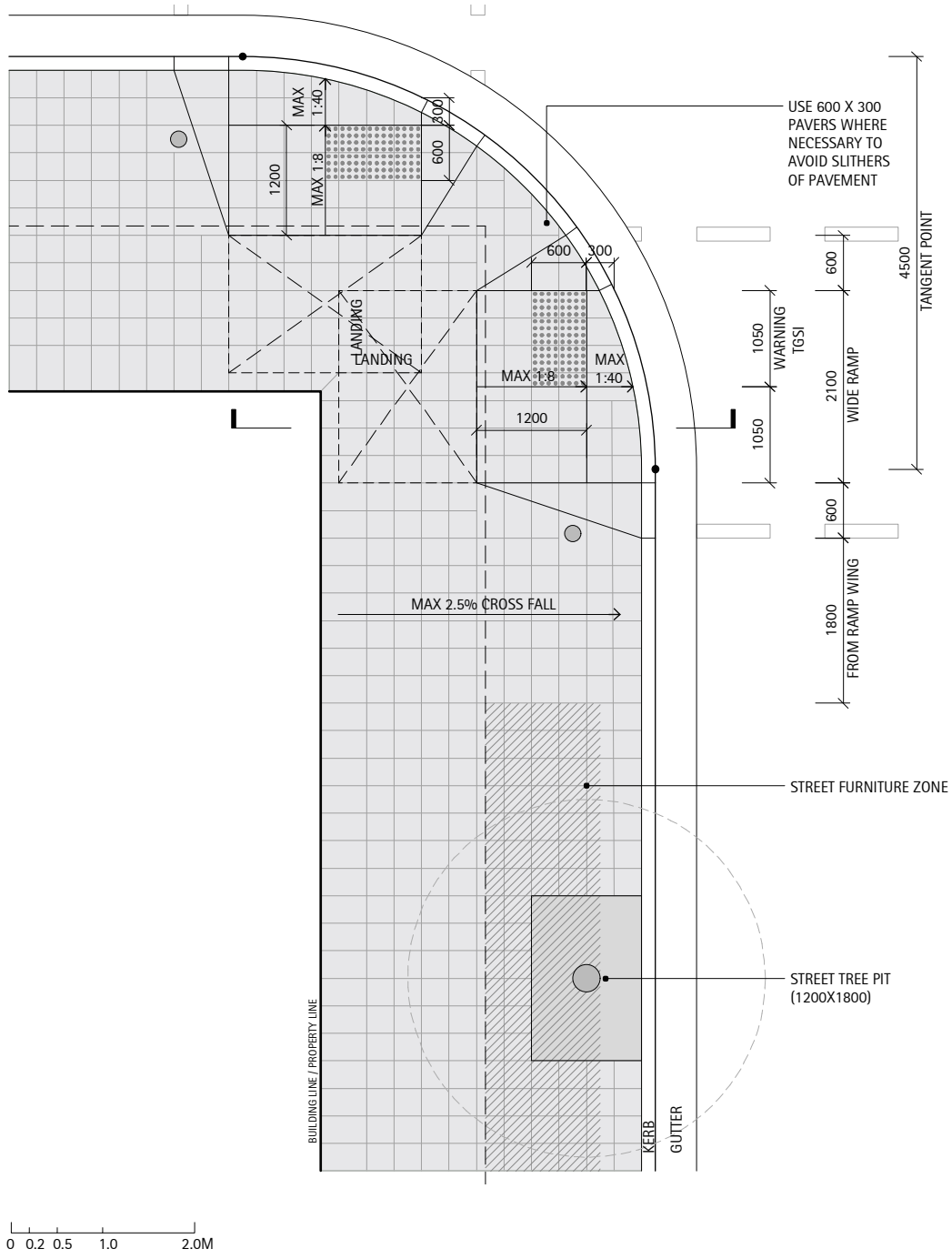

Figure 6.10 Streets Corner Plan: 4500 Radius 2100 Ramp

Streets Corner Plan: 4500 Radius 1500 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 4500mm corner radius
Ramp Size	1500/1800mm (W) x 1200mm
Landing	Min 1500 x 1500mm Same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across entire width of ramp Locate TGSI to be more in line with path of travel from boundary line

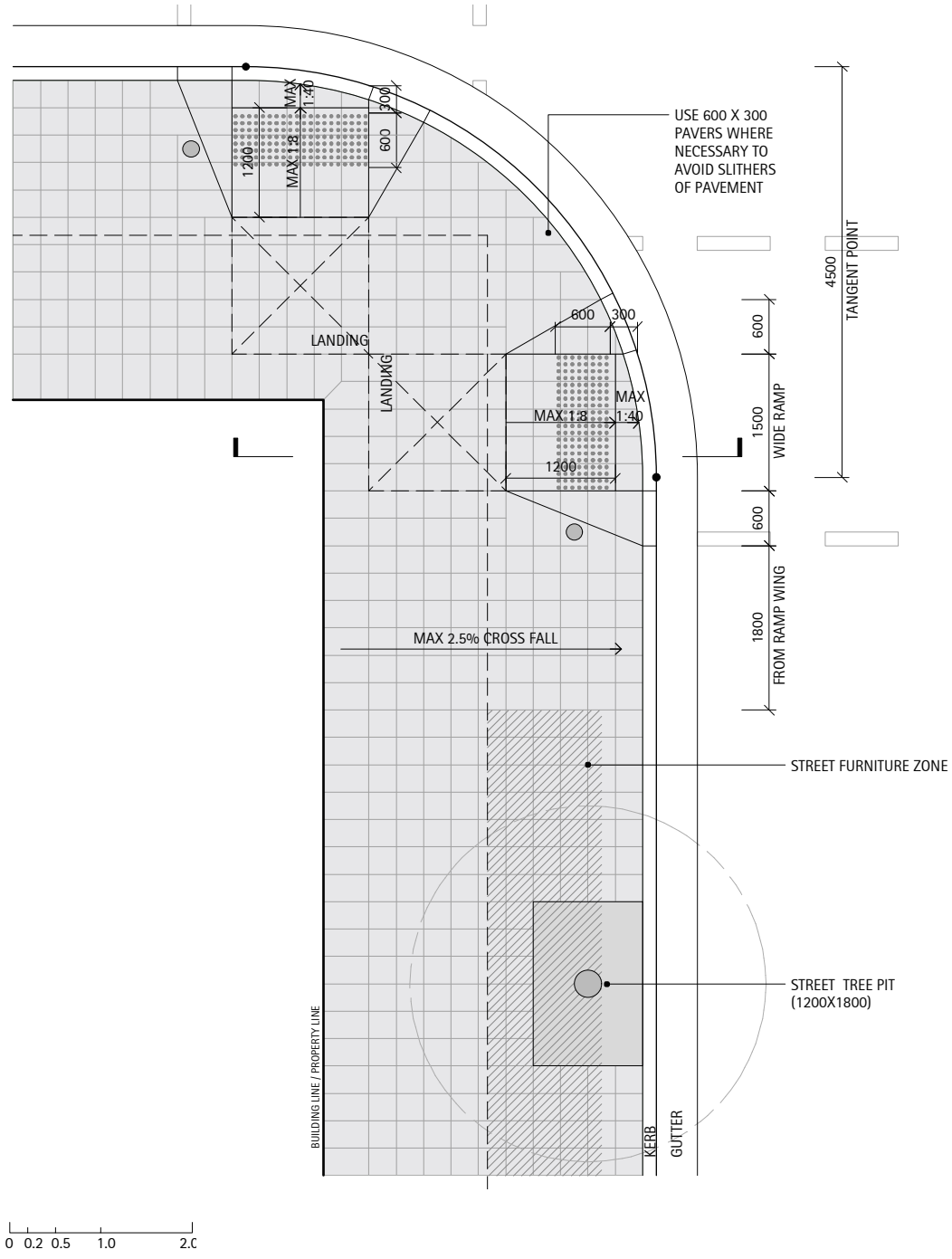

Figure 6.11 Streets Corner Plan: 4500 Radius 1500 Ramp

Streets Corner Plan: 6000 Radius 2100 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 6000mm corner radius
Ramp Size	2100 (W) X 1200mm
Landing	Min. 2100 X 1500mm Same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across min. 1000mm width of ramp Provide warning + directional TGSI where ramp is away from path of travel

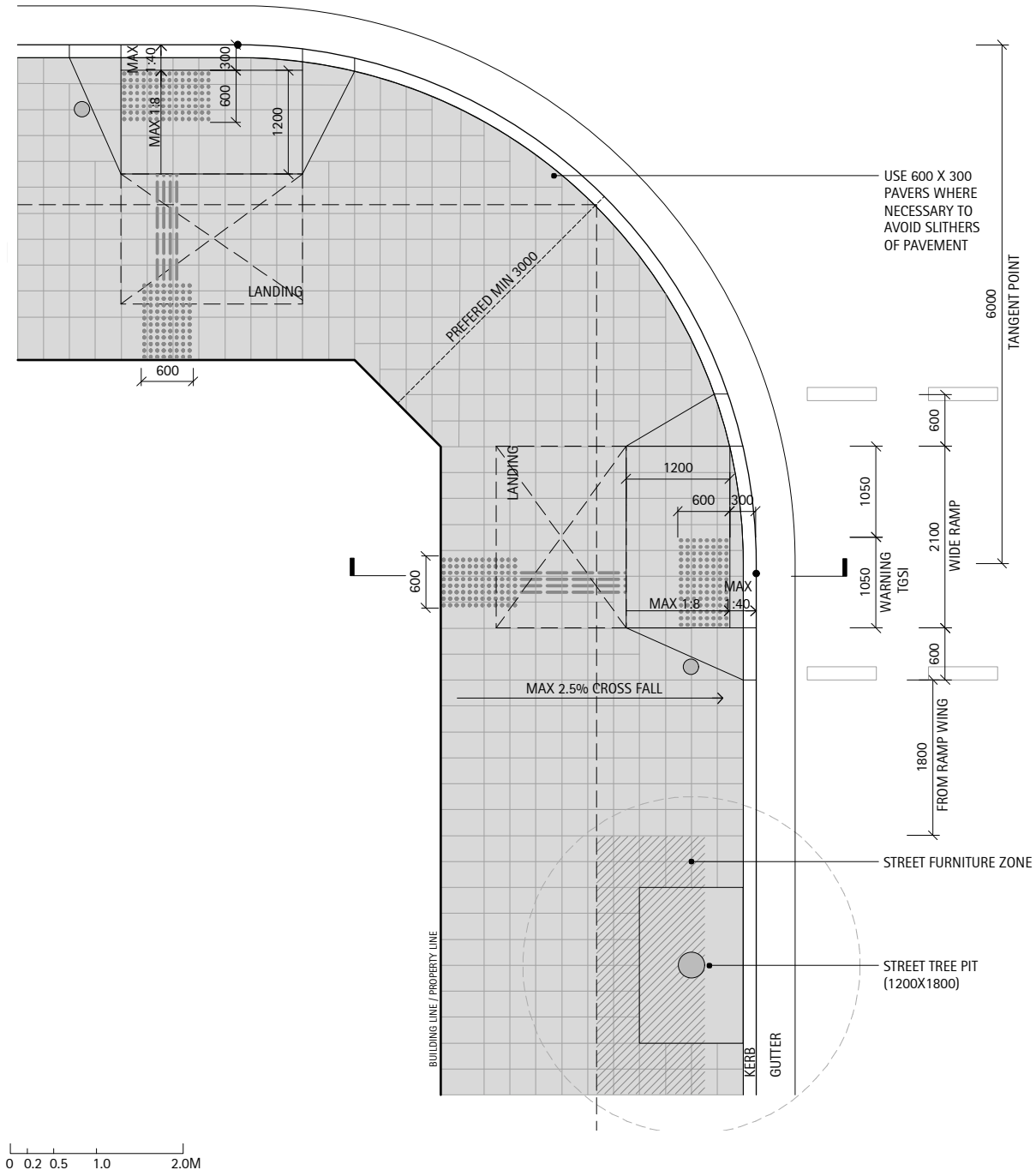

Figure 6.12 Streets Corner Plan: 6000 Radius 2100 Ramp

Streets Corner Plan: 6000 Radius 1500 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 6000mm corner radius
Ramp Size	1500/1800mm (W) x 1200mm
Landing	Min 1500 x 1500mm Same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across min. 1000mm width of ramp Provide warning + directional TGSI where ramp is away from path of travel

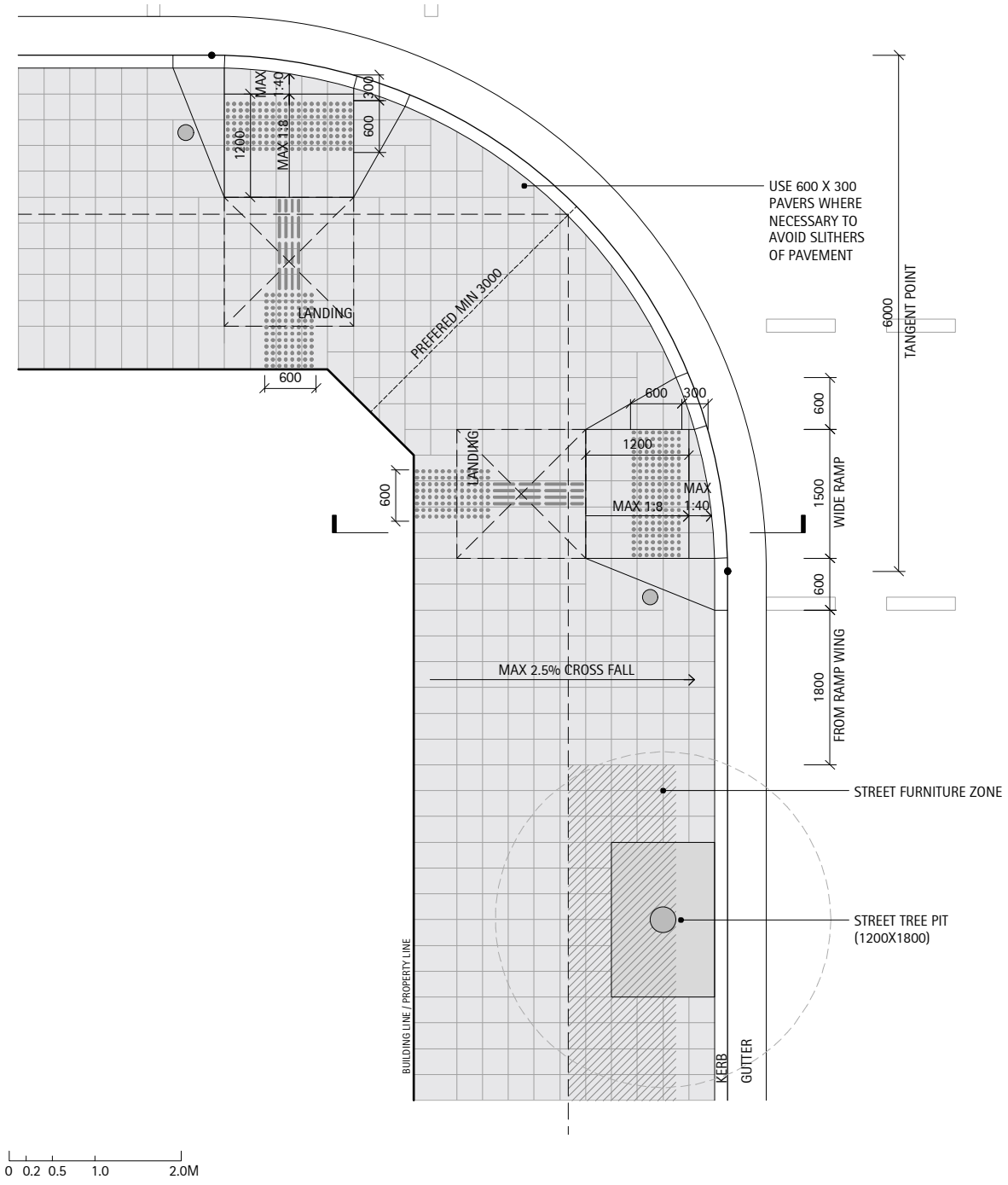

Figure 6.13 Streets Corner Plan: 6000 Radius 1500 Ramp

Streets Corner Plan: 9000 Radius 2100 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 9000mm corner radius
Ramp Size	2100mm (W) x 1200mm
Landing	Min. 2100 x 1500mm. Same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across min. 1000mm width of ramp Provide warning + directional TGSI where ramp is away from path of travel

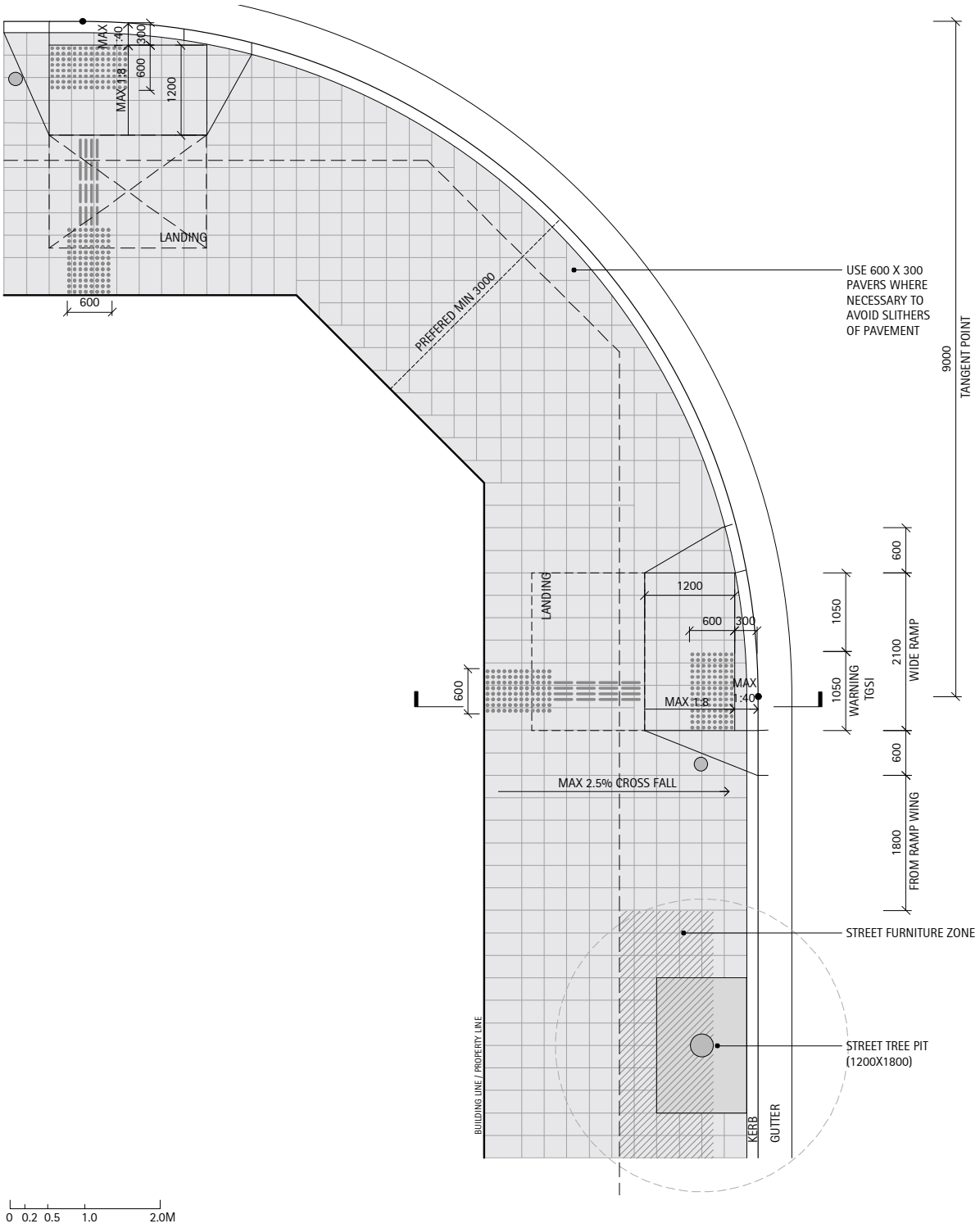

Figure 6.14 Streets Corner Plan: 9000 Radius 2100 Ramp

Streets Corner Plan: 9000 Radius 1500 Ramp	
Tangent Point	Determined by geometry of 3650mm wide footpath and 9000mm corner radius
Ramp Size	1500/1800mm (W) x 1200mm
Landing	Min. 1500 x 1500mm. Same 2.5% cross fall as footpath for continuity
TGSI	Warning TGSI across entire width of ramp Provide warning + directional TGSI where ramp is away from path of travel

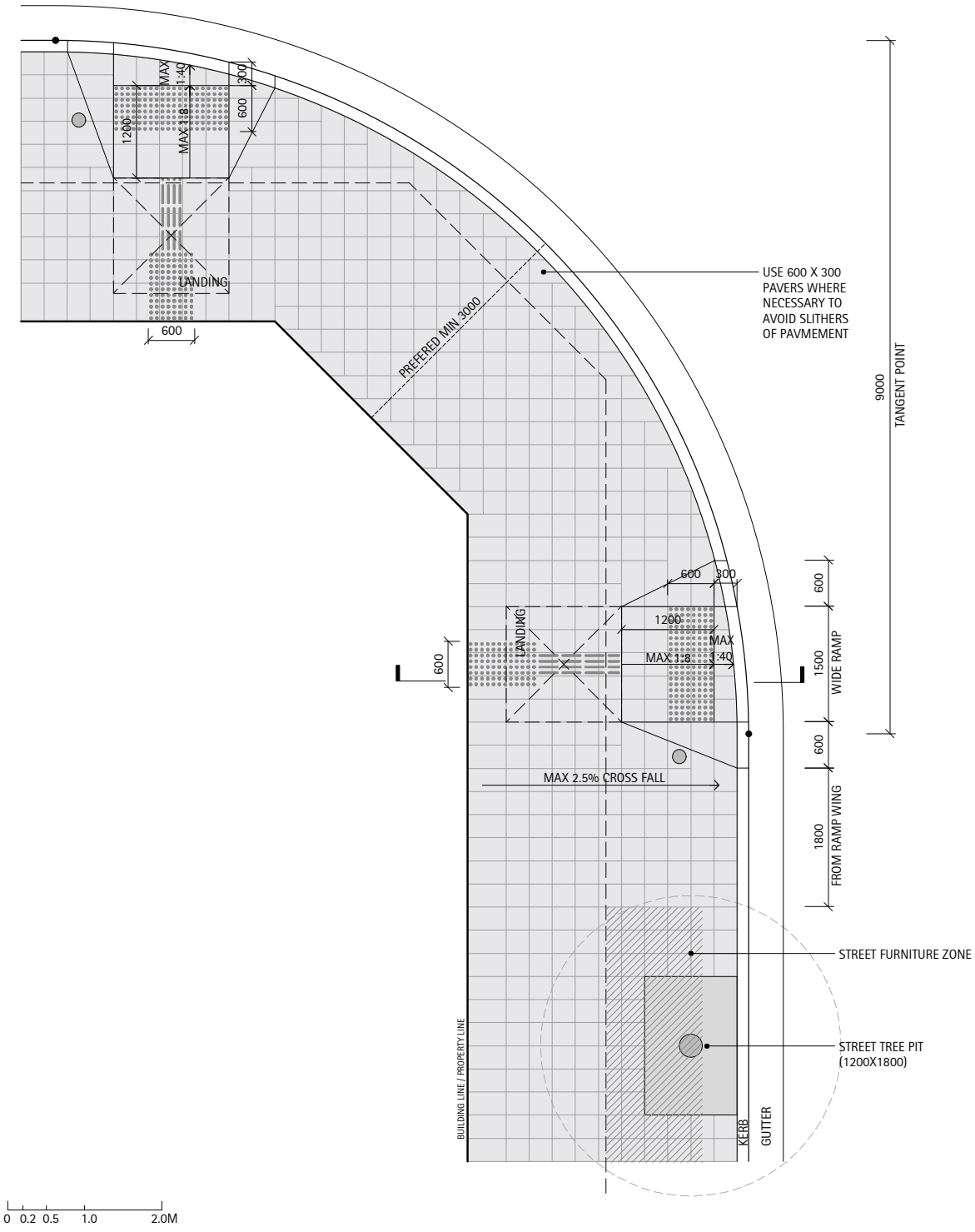

Figure 6.15 Streets Corner Plan: 9000 Radius 1500 Ramp

Streets Corner Plan: Kerb Extensions 2100 Ramp

Tangent Point	Determined by geometry of 3650mm wide footpath and 9000mm corner radius
Ramp Size	2100mm (W) x 1200mm
Ramp Gradient	Max. 1:8 (to 1:8.5) for 1200mm depth of ramp and max 1:40 for remainder
Landing	Min. 2100 x 1500mm. Same 2.5% cross fall as footpath for continuity
TGSI	Separate TGSI from kerb ramps Use directional TGSI to indicate change in direction Warning TGSI across min. 1000 x 600mm min 300mm from hazard

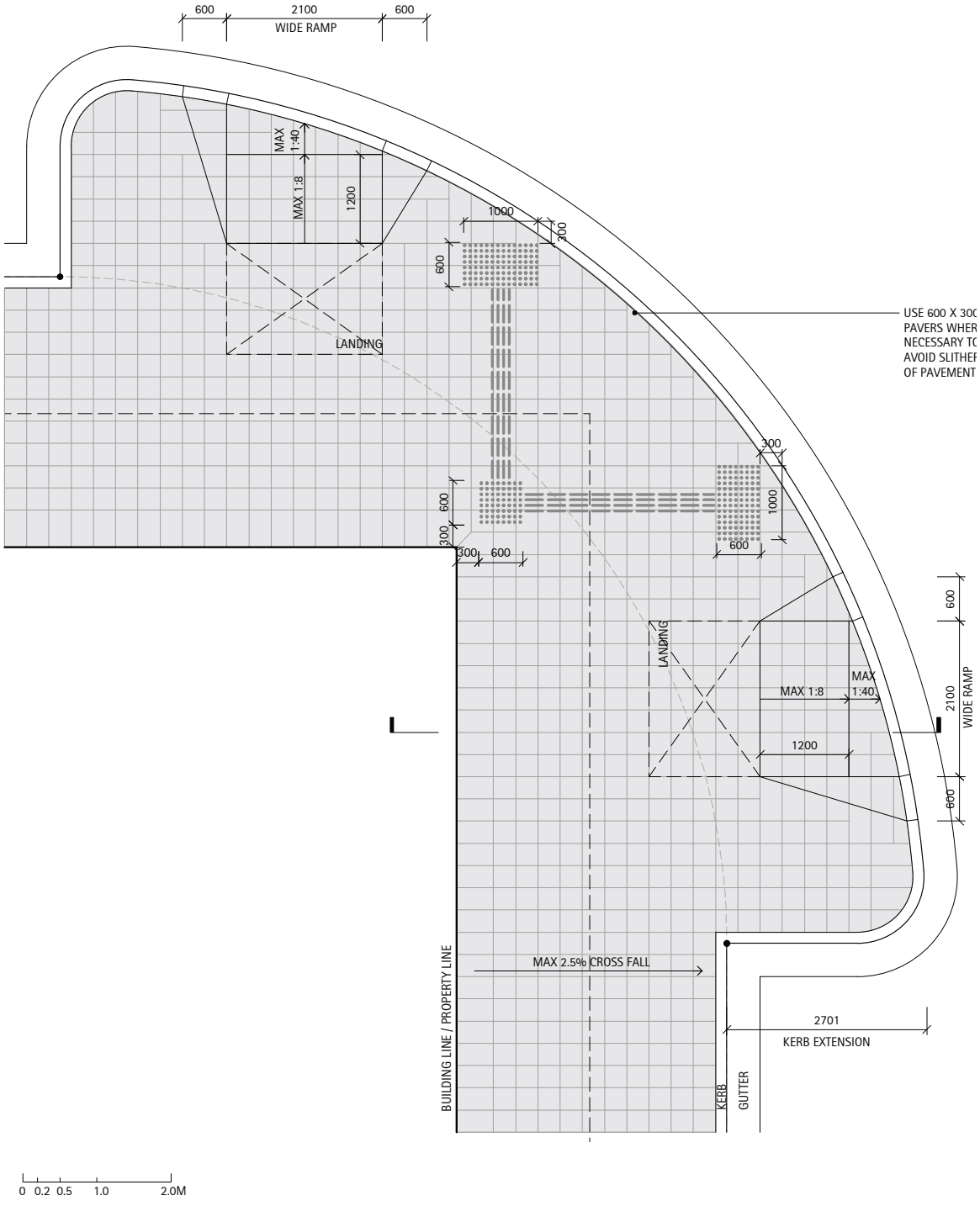

Figure 6.16 Streets Corner Plan: Kerb Extensions 2100 Ramp

Streets Corner Plan: Kerb Extensions 1500 Ramp	
Tangent Point	Determined by geometry of 3650mm wide footpath and 9000mm corner radius
Ramp Size	1500/1800mm (W) x 1200mm
Ramp Gradient	Max. 1:8 (to 1:8.5) for 1200mm depth of ramp and max. 1:40 for remainder
Landing	Min. 1500 x 1500mm. Same 2.5% cross fall as footpath for continuity
TGSI	Separate TGSI from kerb ramps Use directional TGSI to indicate change in direction Warning TGSI across min. 1000 x 600mm min. 300mm from hazard

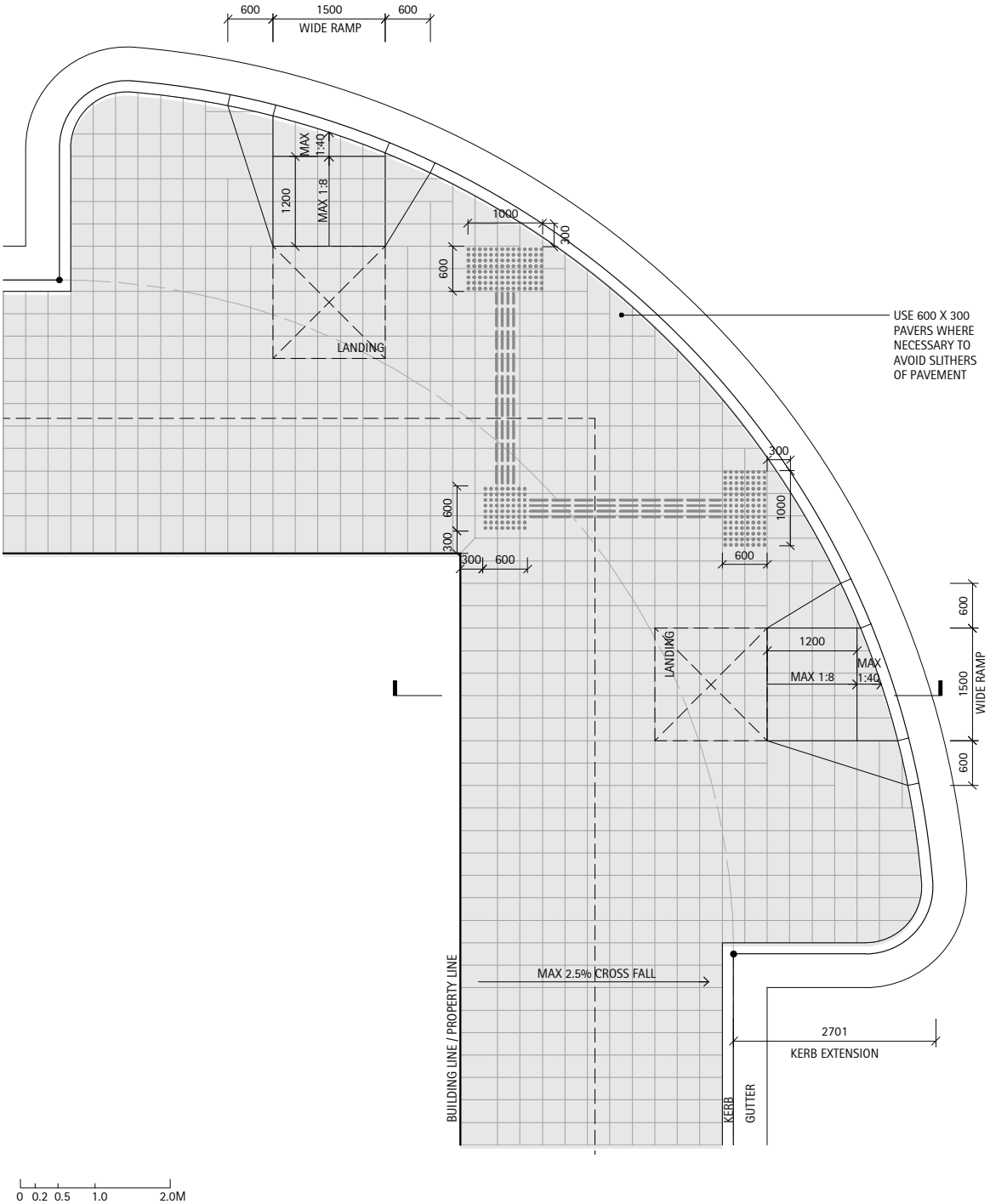

Figure 6.17 Streets Corner Plan: Kerb Extensions 1500 Ramp

Driveway Crossing Layout Plan & Section

Ramp	1:8.5 gradient
Driveway	Concrete pavers (max. 1:40 cross fall) Align pavers at 90° to kerb and building line
Note	All dimensions are in mm unless otherwise specified All ramps and paths to comply with relevant Australian Standards

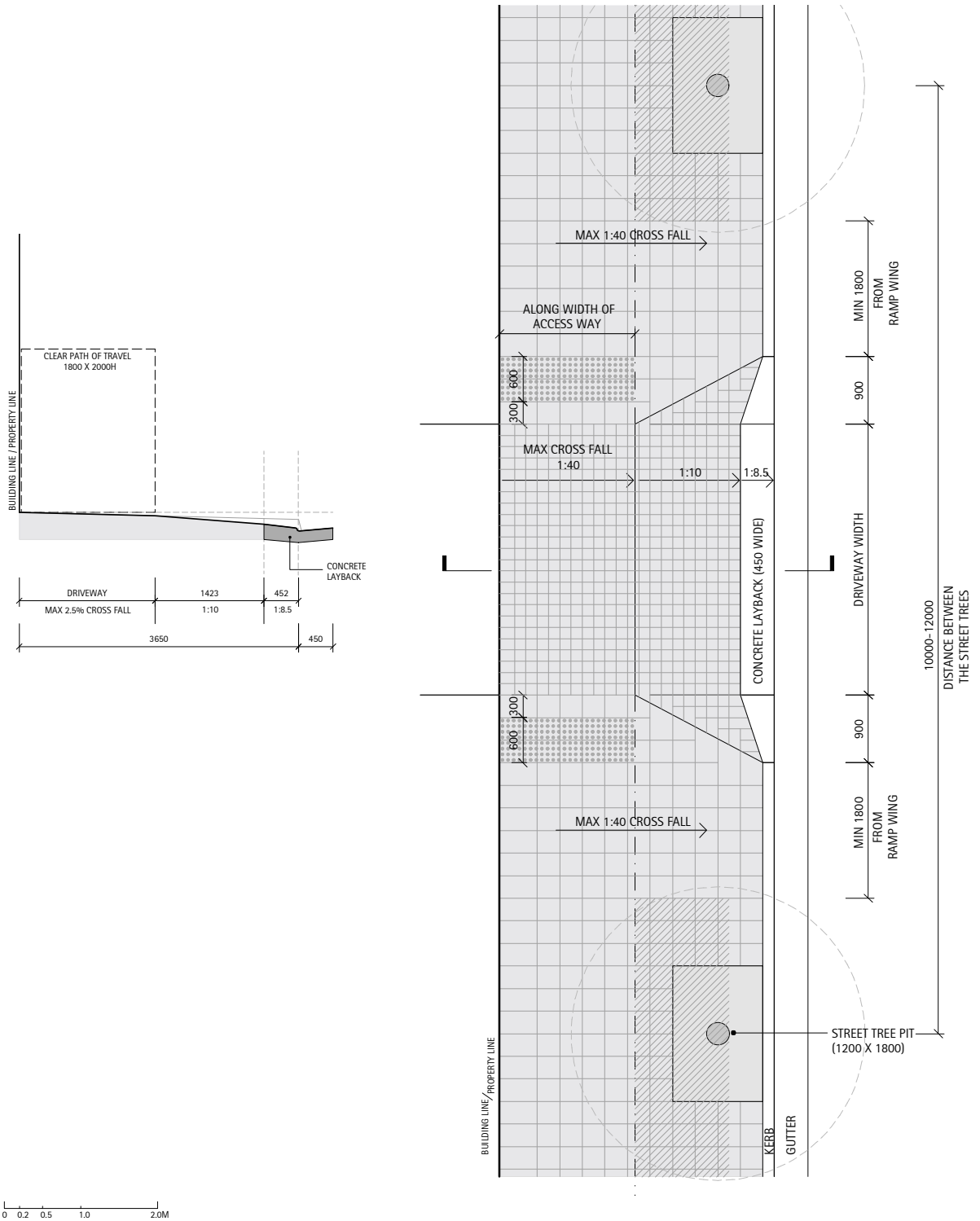

Figure 6.18 Driveway Crossing Layout Plan & Section

6.2 PAVEMENT LAYOUT

6.2.1 GRANITE PAVEMENT

The granite flagstone paving is used in selected CBD, and town centre streets. The material, size and specification must comply with the requirements in DS45.

FULL GRANITE TREATMENT - CBD & GRANVILLE TOWN CENTRE

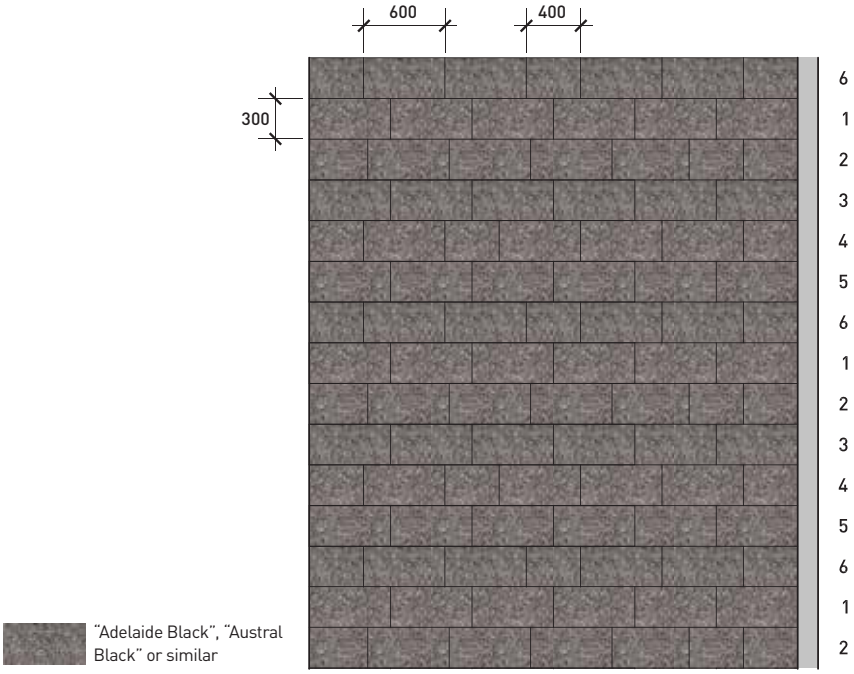

Figure 6.19 Granite Paving Layout_Full Granite_CBD & Granville Town Centre

FULL GRANITE TREATMENT - EPPING TOWN CENTRE

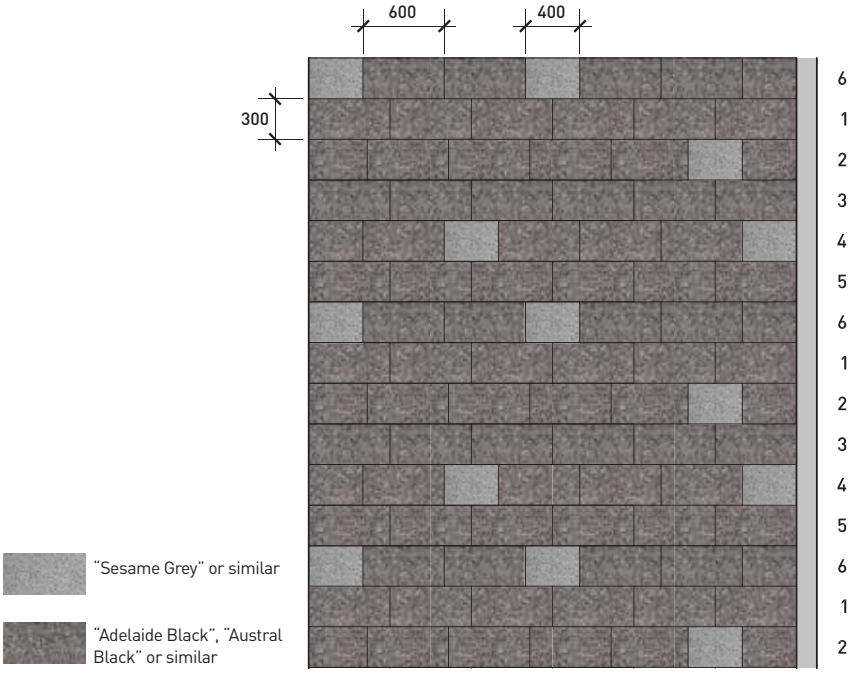

Figure 6.20 Granite Paving Layout_Full Granite_Epping Town Centre

FULL GRANITE TREATMENT - WESTMEAD TOWN CENTRE

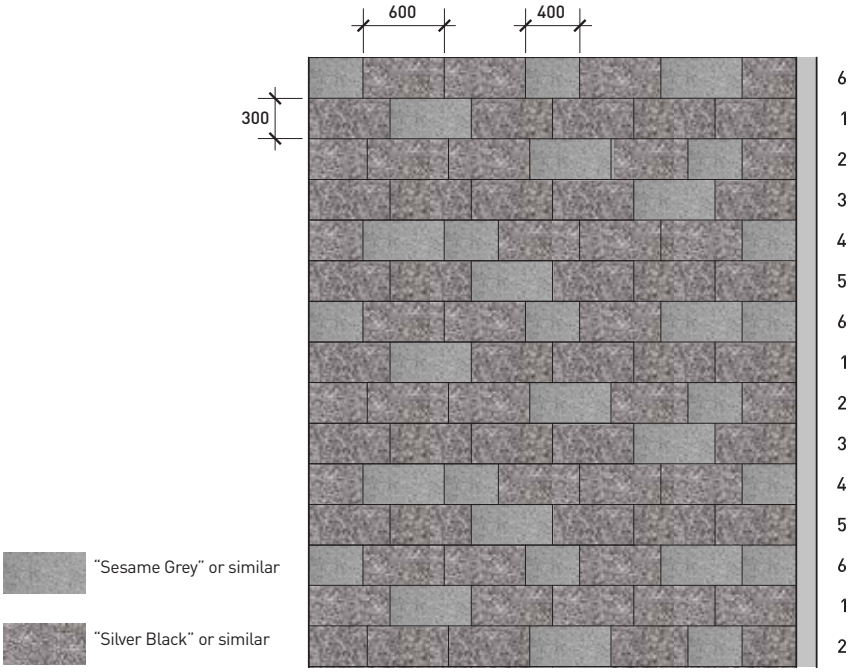

Figure 6.21 Granite Paving Layout_Full Granite_Westmead Town Centre

SECONDARY GRANITE TREATMENT - GRANVILLE TOWN CENTRE

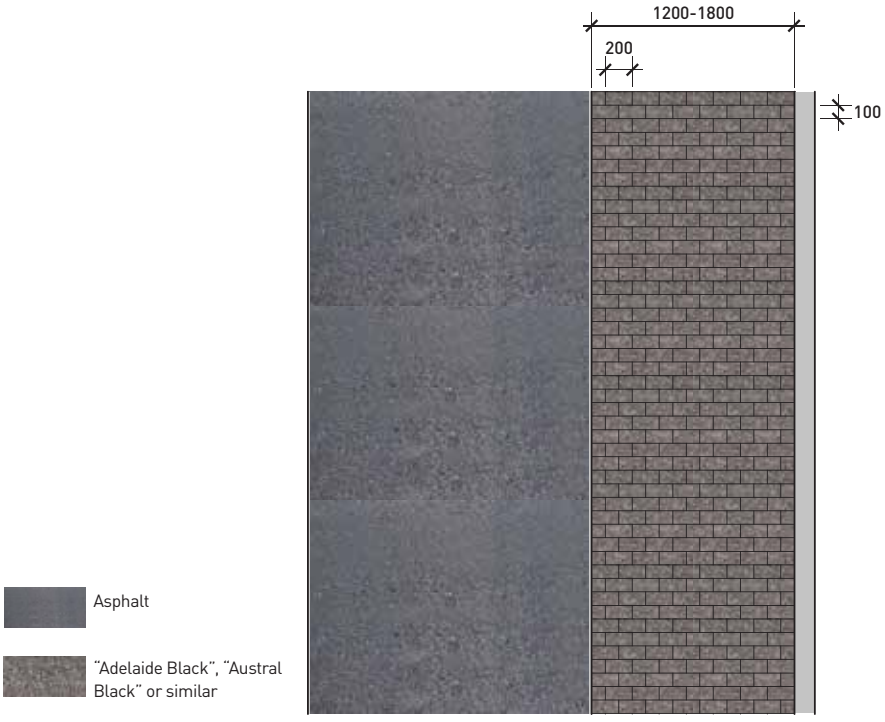

Figure 6.22 Granite Paving Layout_Secondary Granite_Granville Town Centre

6.2.2 CONCRETE UNIT PAVING

The 'City Centre Paving' is comprised of concrete unit pavers with consistent colour and texture. The material, size and specification must comply with the following:

- 300 x 300mm square paver 60mm thick on footpaths;
- 300 x 600mm paver used to make up odd dimensions and to avoid small cut pavers. Avoid cuts less than 150 X 150mm. Refer to Figure 6.23-6.24 'City Centre' Paving Layout A & B;
- Pavers are to be set out perpendicular to the kerb and the building line. Use 600 x 300mm pavers to make up the odd areas created by differing alignments. Refer to Figure 6.25 'City Centre' Paving Layout B;
- Material to be Pebblecrete Insitu Pty Ltd PPX544:35D – colour 'Alluvium'; and
- Pavers with any types of sealant finishes should comply with P5 slip resistance in general areas, and P4 in ramps steeper than 1:14 gradient, as specified in AS 4586:2013.

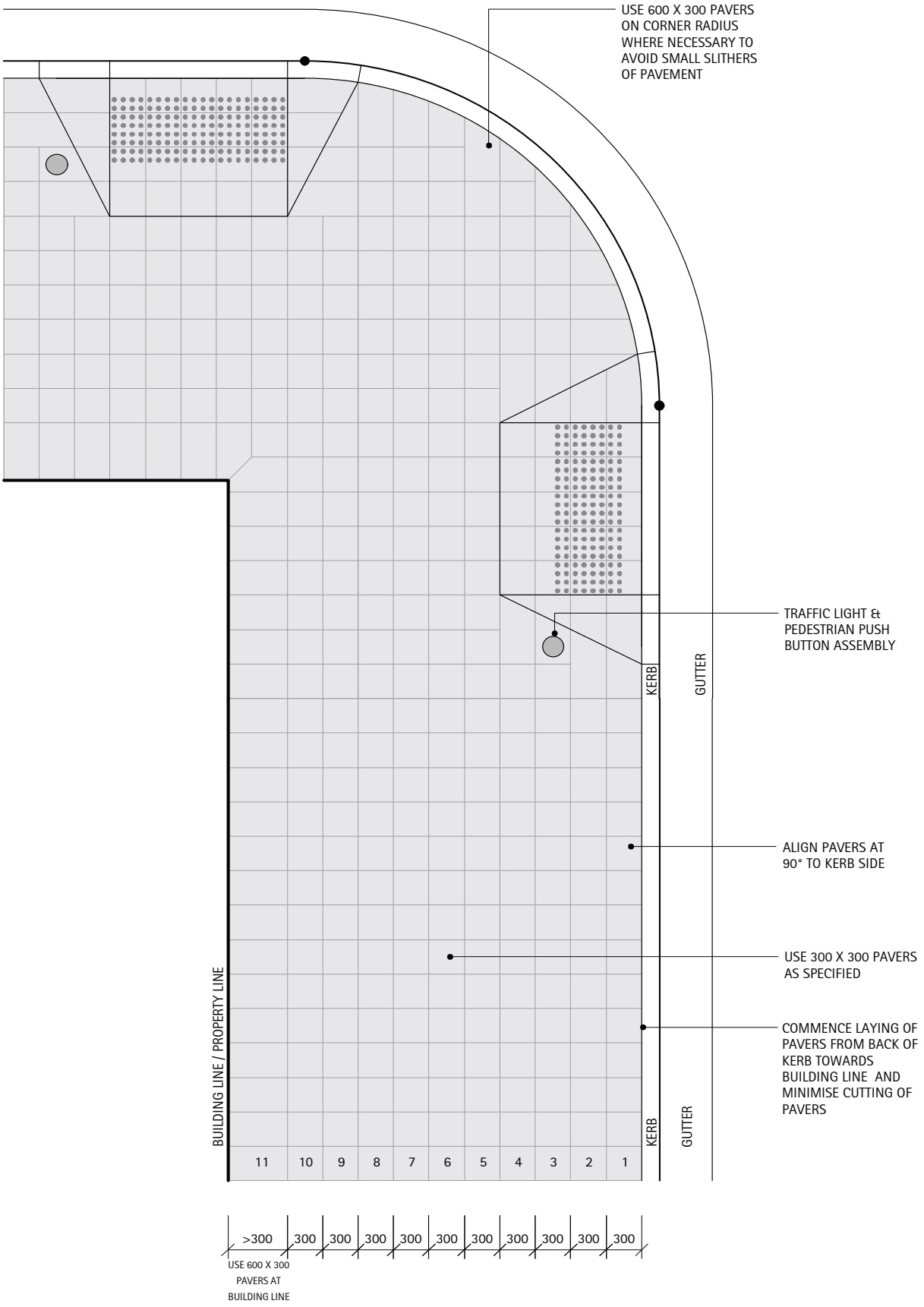

Figure 6.23 Standard 'City Centre Paving' - Layout A

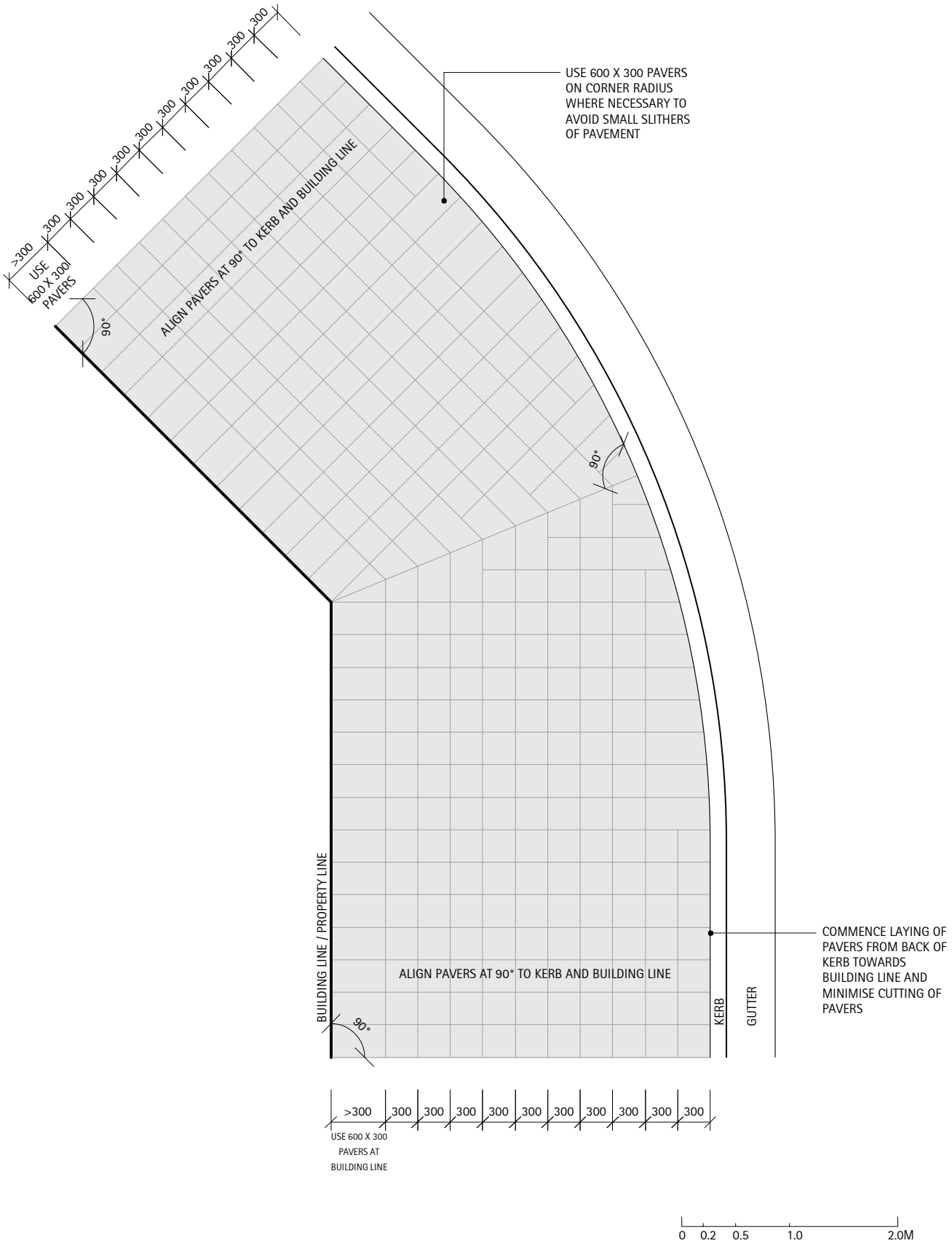

Figure 6.24 Standard 'City Centre Paving' - Layout B

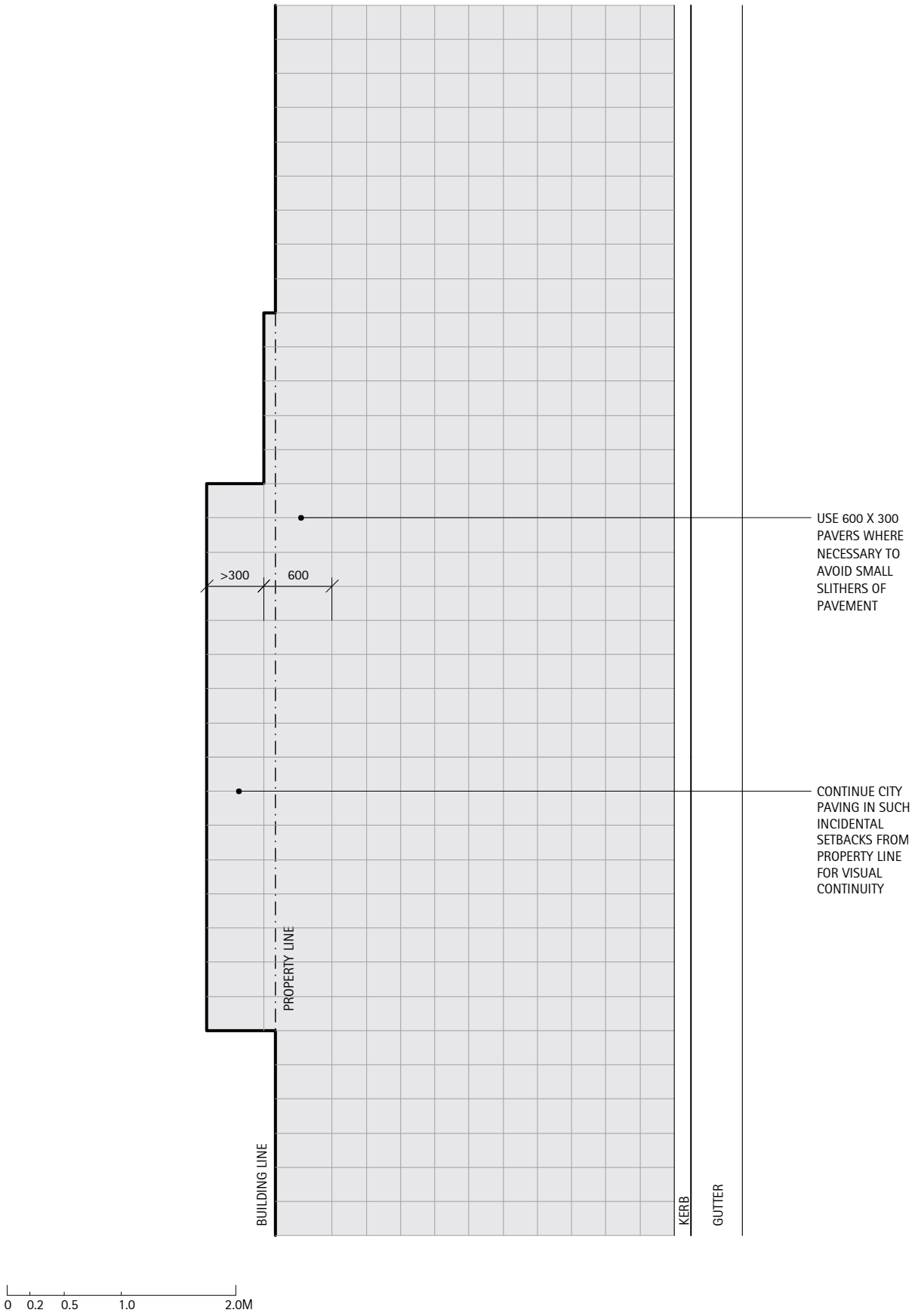

Figure 6.25 Standard 'City Centre Paving' - Layout C

6.2.3 PAVING MERGES

When different paving treatments need to merge in a street corner, the higher quality paving type is usually the primary treatment to be applied in the corner area. For instance, when the Full Granite treatment merges 'City Centre Paving', the Full Granite treatment shall be applied on the corner and finish after the intersection landing areas. An exceptional scenario is when the secondary granite paving merges full asphalt pavement, the asphalt should be used on the corner (see Figure 6.29).

The following diagrams indicates the treatments in the standard situations. The standard layouts may change subject to site conditions.

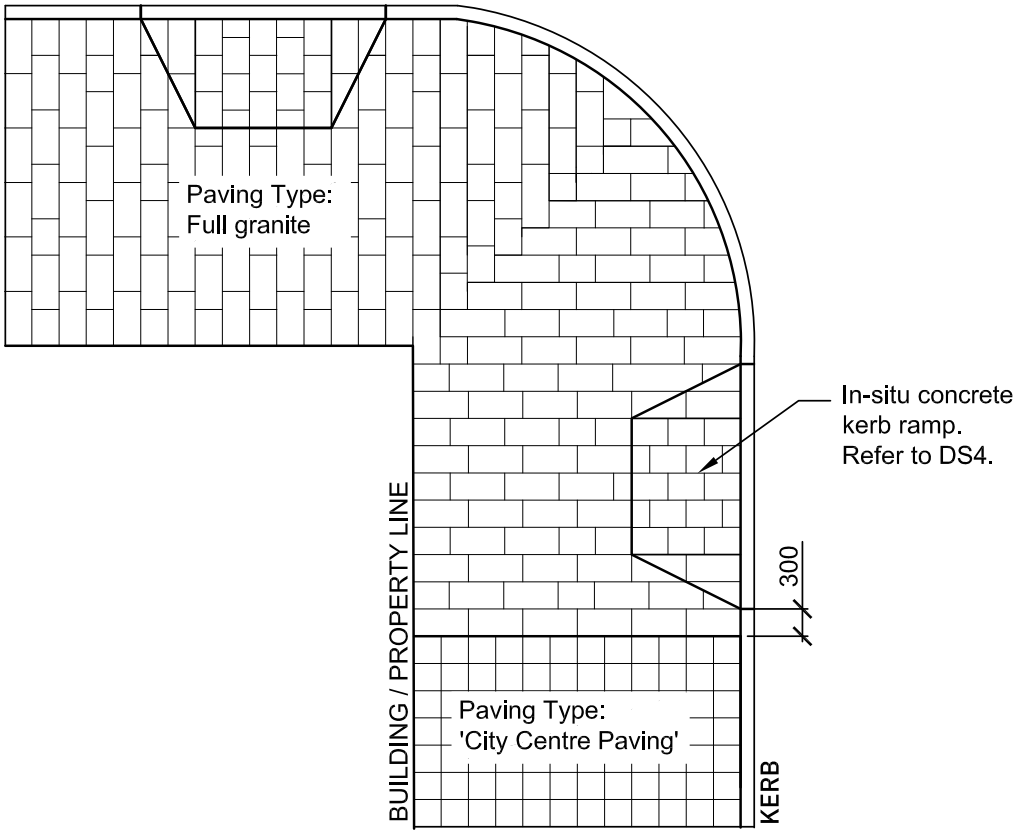

Figure 6.27 Paving merge - Full Granite and 'City Centre Paving'

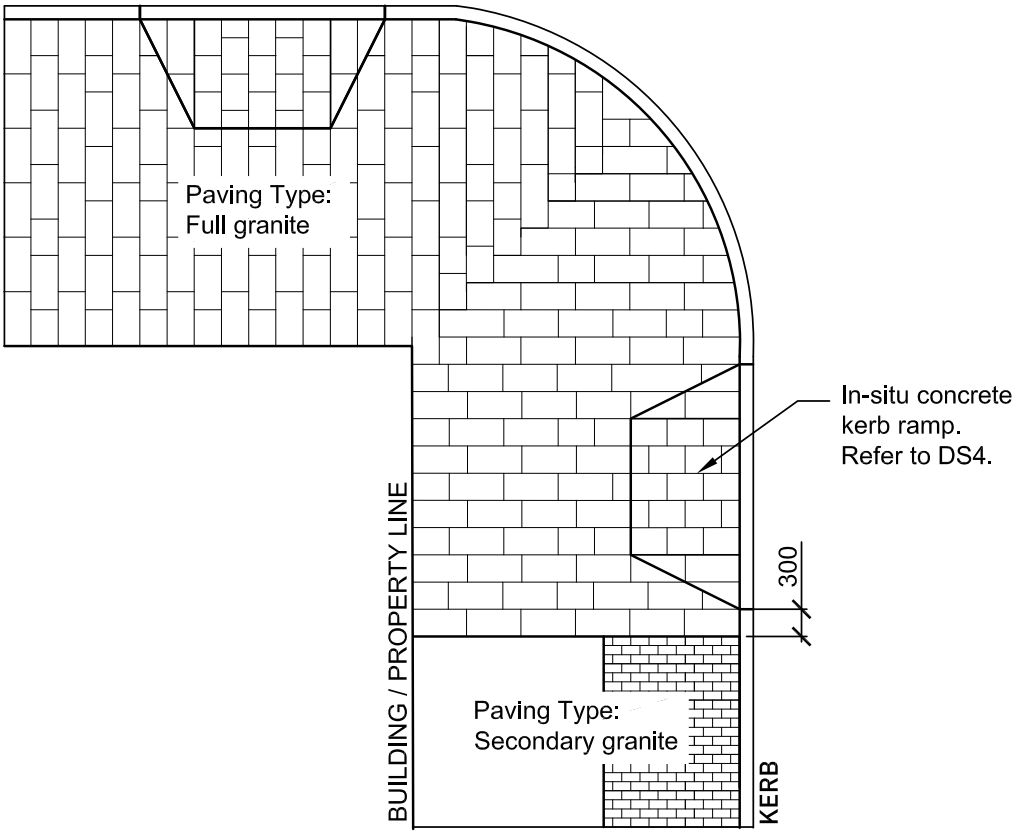

Figure 6.28 Paving merge - Full Granite and Secondary Granite

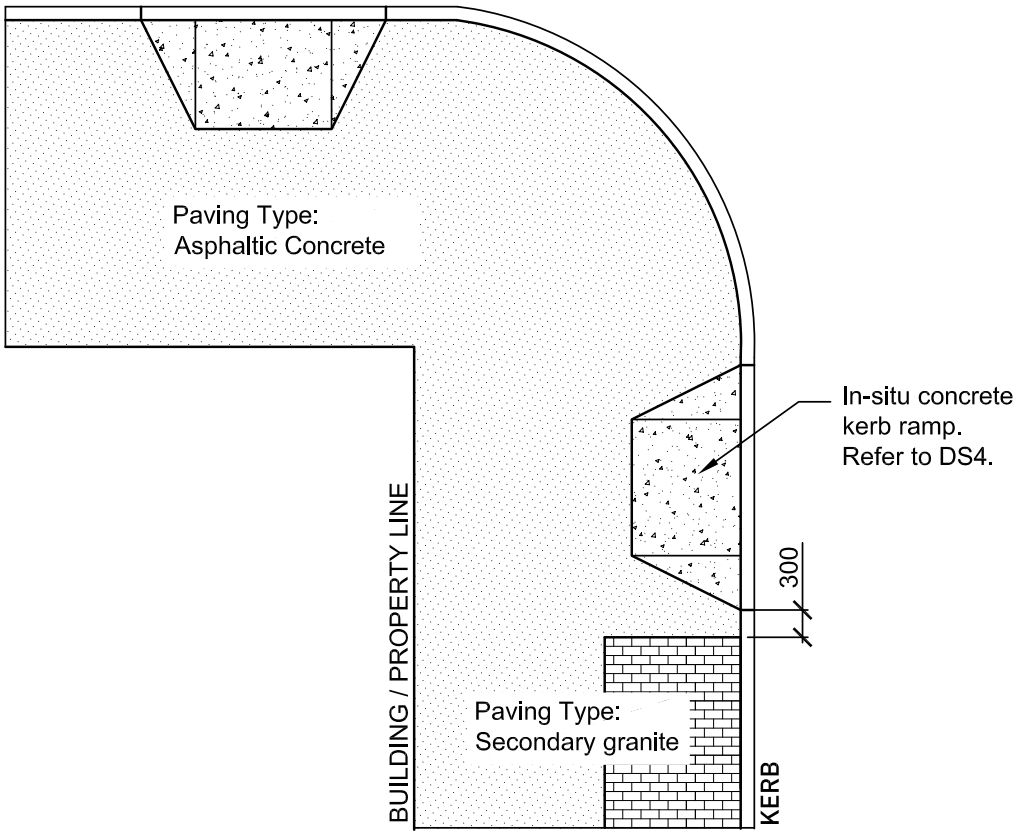

Figure 6.29 Paving merge - Full Granite and Secondary Granite

6.2.4 PIT LIDS & INFILLS

The footways incorporate many utilities and pit lids that need to be considered in the overall design. Pit lids should be made level with the new footpath and aligned to coordinate with the pavement joints. Wherever possible move utilities away from the kerb ramps to allow for the required gradients to be achieved. Refer Figure 6.30.

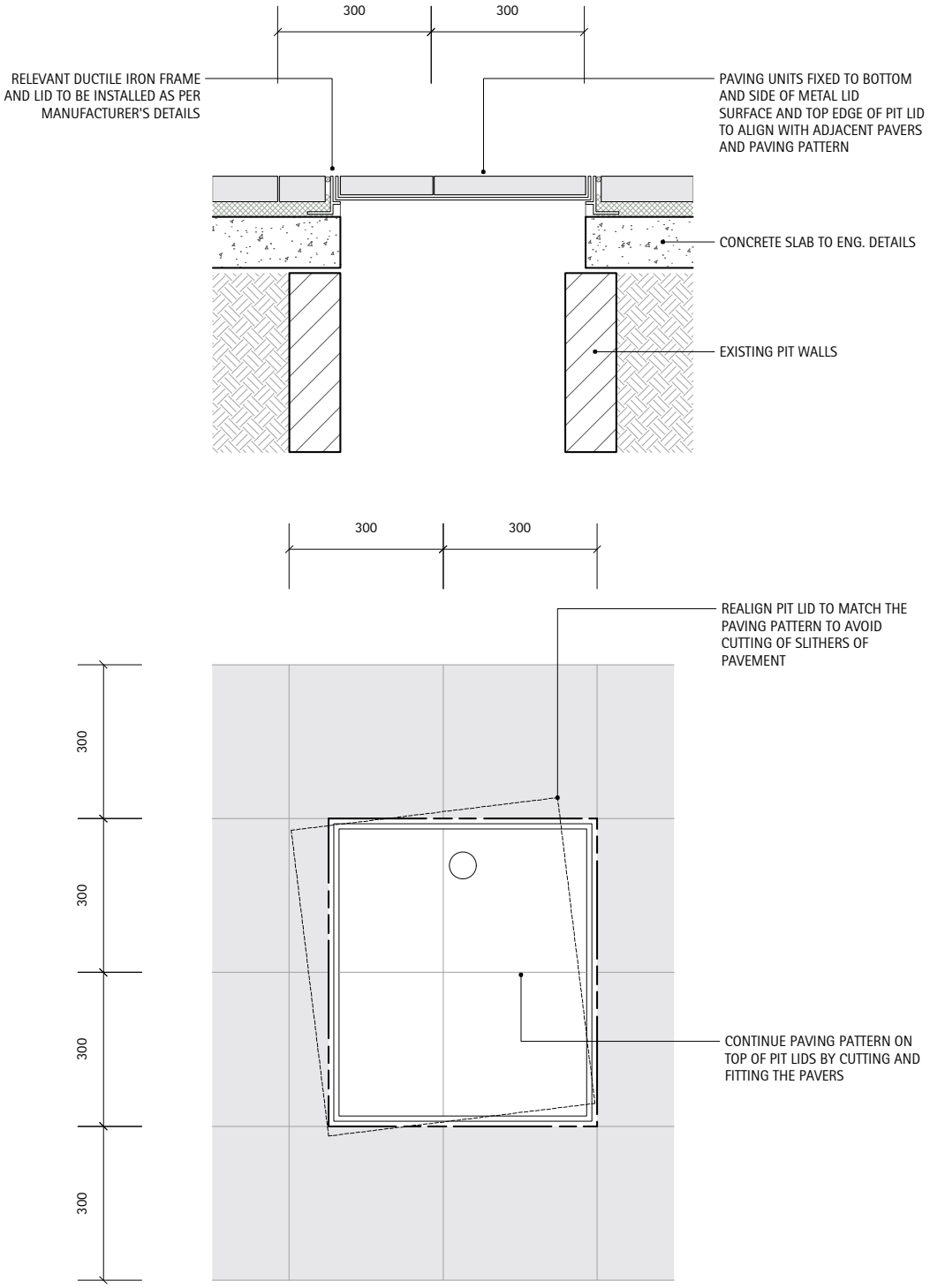

Figure 6.30 Pit Lids with Unit Paving

6.3 LANEWAYS

Most existing lanes in the City are either 3m or 6 - 7m wide, and there is little chance of widening these. There will be opportunities to create new lanes in the future and a variety of lane types are shown in the following pages. Refer to Section 3.3.8 - Laneways for geometry requirements when designing new laneways.

The laneway types discussed in this section are:

- Shared zone (6m)
- Shared zone (10m)
- Service lane (6m)
- Service lane (10m)
- Pedestrian lane
- Entrance threshold

6.3.1 PEDESTRIAN LANES

Pedestrian Lanes: 3000 Wide

Lane Type	Lane for pedestrians only
Clear Path of Travel	Min. 1200mm wide (1500mm preferred) and 2400mm high
Furniture Zone	Furniture zone to allow for seating and/or landscape WSUD area
Pavers	Refer to Chapter 4 Align pavers at 90° to kerb and building line
Cross fall	Max 2.5% cross fall to the centre
Pit Lids	Pit lids must be pedestrian safe and preferably match the surrounding pavement
Lighting	Cantilevered lighting is preferred Pole type and lighting level refer to Chapter 4
Awnings and entrance canopies	To be cantilevered
Notes	All dimensions are in mm unless otherwise specified

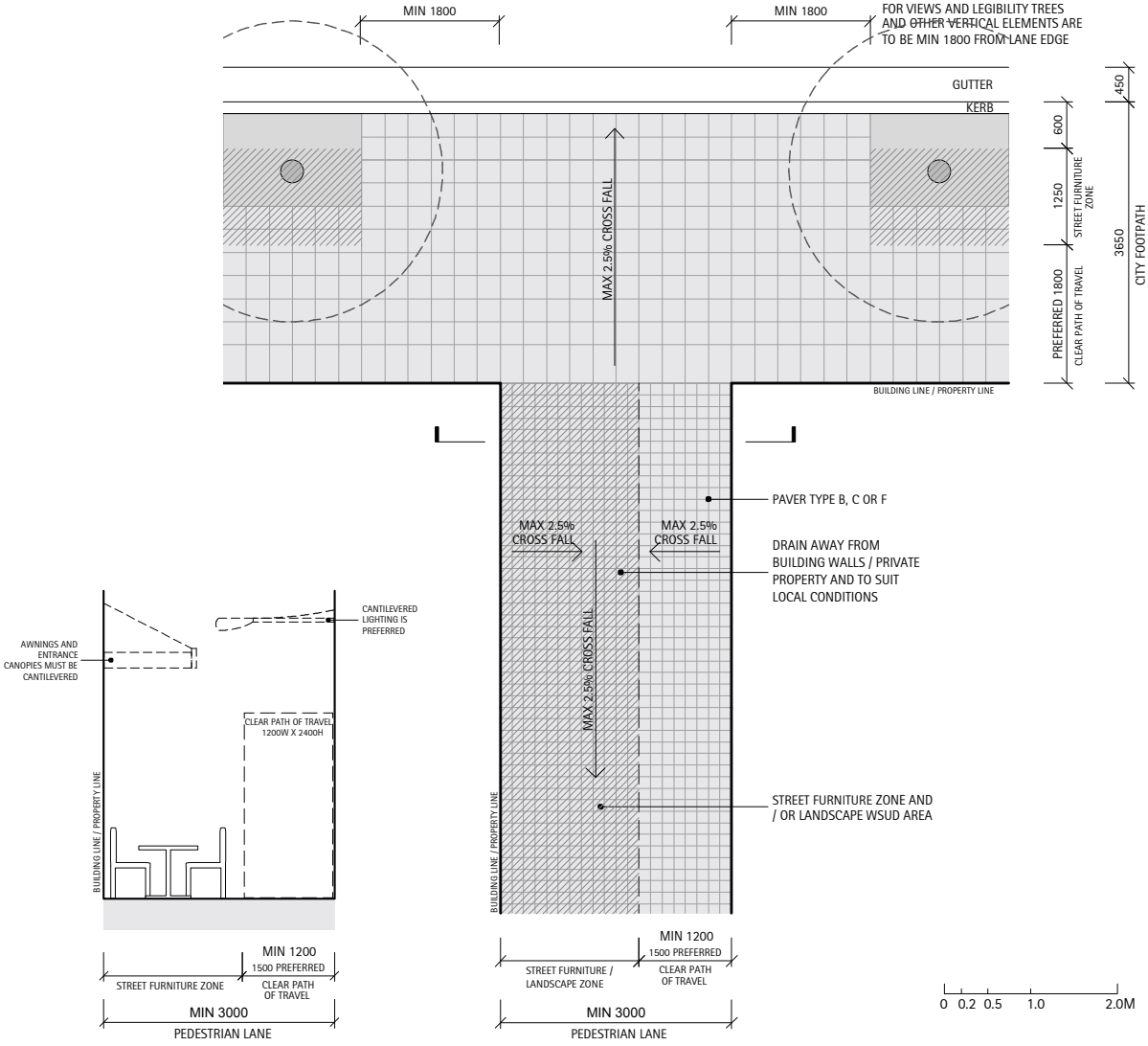

Figure 3.31 Typical Design for Pedestrian Lane: 3000 Wide

6.3.2 SERVICE LANES

Service Lanes: 6000 Wide

Lane Type	Lane for vehicular traffic Entrance to lane is to be narrowed to slow traffic down
Maximum speed of vehicular traffic	Refer to TfNSW safer speeds policy and guidelines
Ramp Size	1500/1800 (wide) x 1200mm
Ramp Location	Coordinate ramps with path of travel Align ramps to match pavers
Ramp Gradient	Max. 1:8 (to 8.5) For 1200mm depth of ramp and max 1:40 for remainder
landing	Min. 1500 x 1500mm with same 2.5% Cross fall as footpath continuity
tgsi	Hazard tactiles across entire width of ramp
PAVERS	Refer to Chapter 4 Align pavers at 90° to kerb and building line
Lane Cross Fall	One way preferred (max 2.5%) or to suit local conditions
Pit Lids	Pit lids must be pedestrian vehicular safe and preferably match the surrounding pavement
Lighting	Cantilevered lighting is preferred and at a height to allow for truck access and to meet lighting design safety Pole type and lighting level refer to Chapter 4
Awnings and Entrance Canopies	To be cantilevered and setback 600mm from carriageway
Advice for Use	This treatment has been included mainly as a potential treatment for existing service lanes to provide improved appearance and traffic calming at entrance and for lanes with high traffic volumes
Notes	Design may vary depending on whether it is a 1-way or 2-way lane for vehicle movements All dimensions are in mm unless otherwise specified

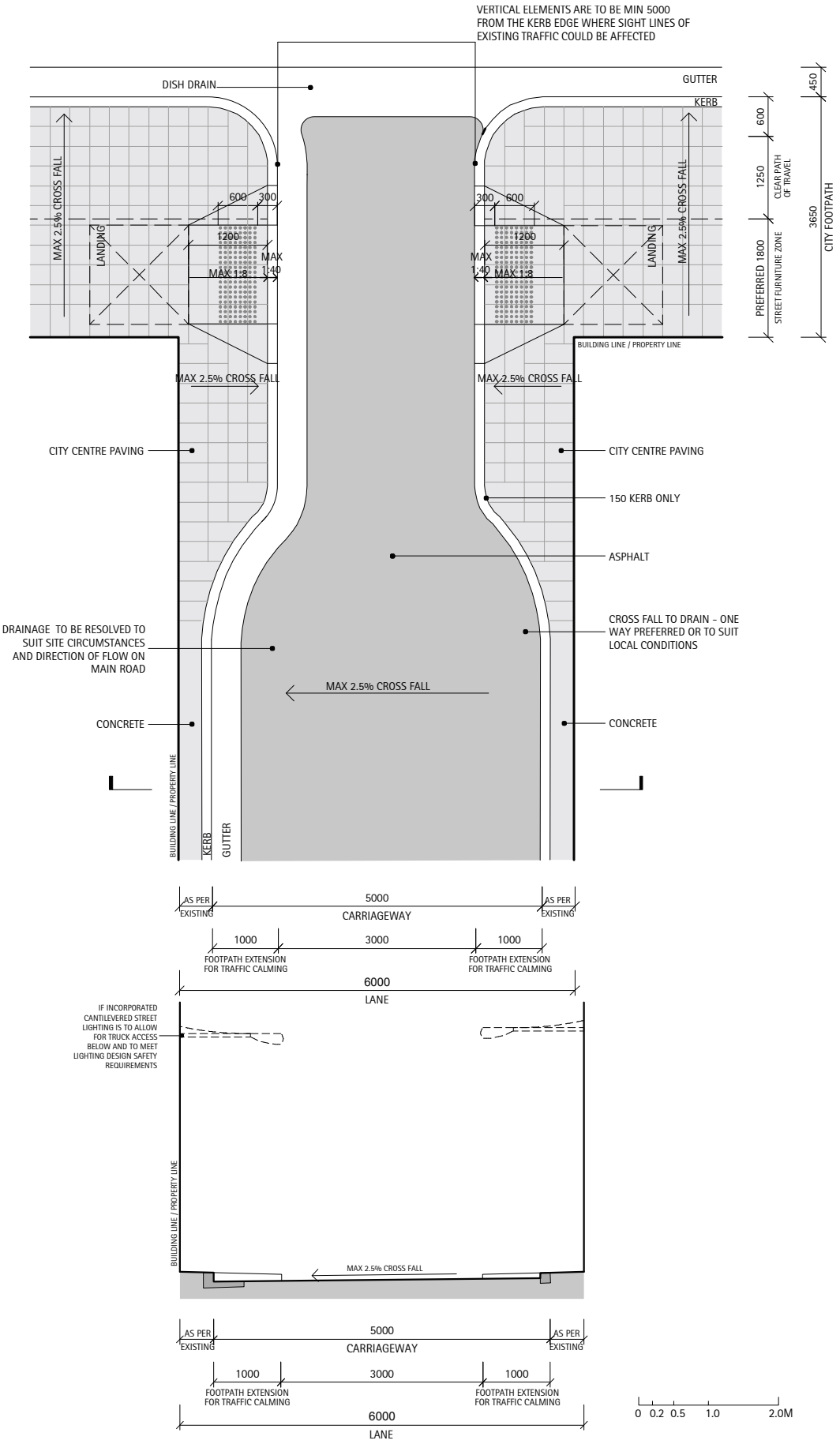

Figure 6.32 Typical Design for Service Lane: 6000mm

Service Lanes: 10000 Wide

Lane Type	Service Lane
Maximum Speed of Vehicular Traffic	Refer to TfNSW safer speeds policy and guidelines
Clear Path of Travel	To be a minimum of 1200 wide (1500 preferred) and 2400 high
Ramp Size	1500/1800 (wide) x 1200mm
Ramp Location	Coordinate ramps with path of travel Align ramps to match pavers
Ramp Gradient	Max 1:8 (to 8.5) for 1200mm depth of ramp and max 1:40 for remainder
Landing	Min 1500 x 1500mm with same 2.5% cross fall as footpath continuity
TGSI	Hazard tactiles across entire width of ramp
Pavers	Refer to Chapter 4 Align pavers at 90° to kerb and building line
Lane Cross Fall	One way preferred (max 2.5%) or to suit local conditions
Pit Lids	Pit lids must be pedestrian vehicular safe and preferably match the surrounding pavement
Lighting	Cantilevered lighting is preferred and at a height to allow for truck access and to meet lighting design safety Pole type and lighting level refer to Chapter 4
Awnings and Entrance Canopies	To be cantilevered and set back 600mm from carriageway
Advice for Use	This treatment has been included mainly as a potential treatment for existing service lanes to provide improved appearance and traffic calming at entrance and for lanes with high traffic volumes
Additional Notes	Design may vary depending on whether it is a 1-way or 2-way lane for vehicle movements All dimensions are in mm unless otherwise specified

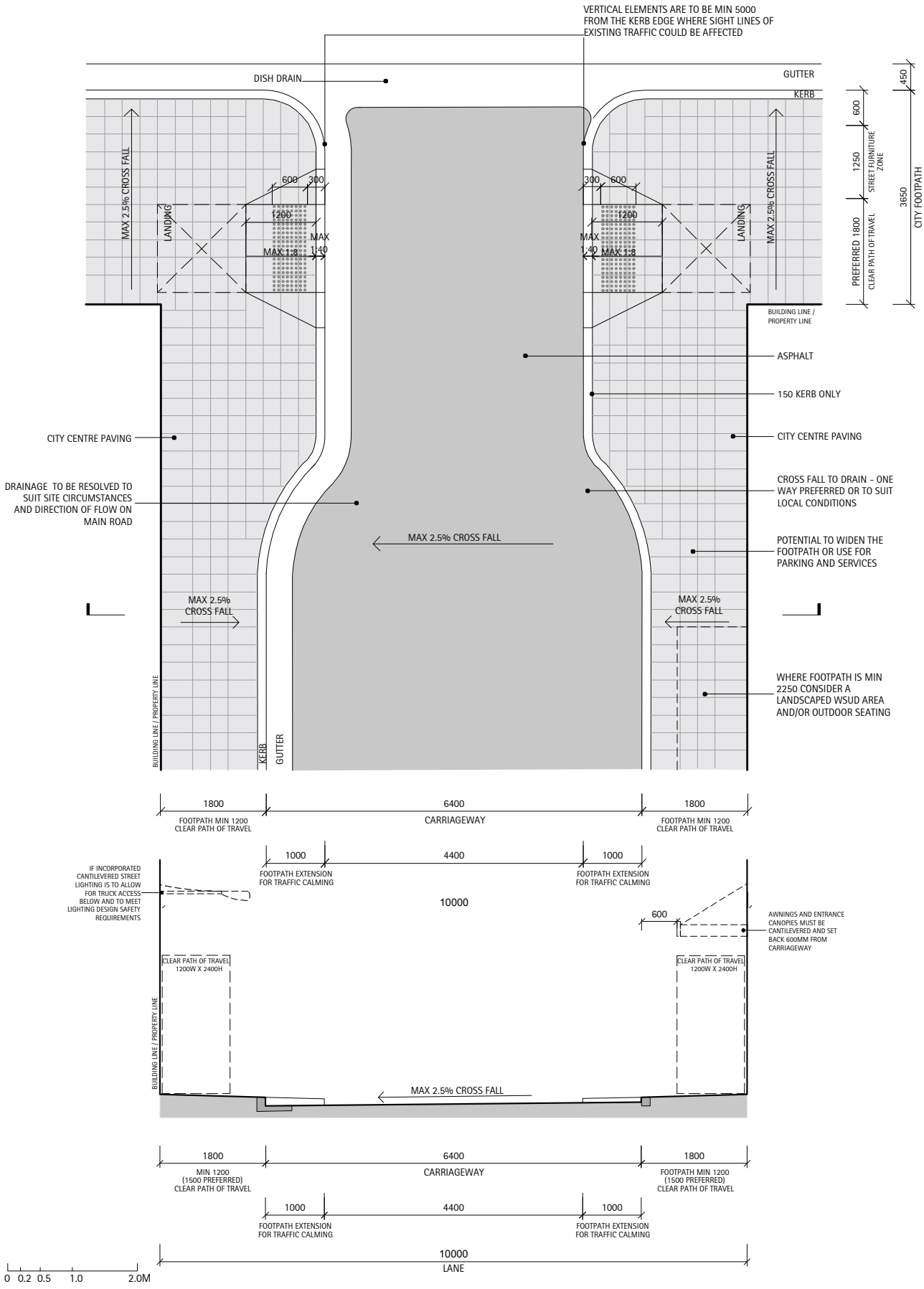

Figure 6.33 Typical Design for Service Lane: 10000mm

6.3.3 SHARED ZONE

Shared Zones: 6400 Wide

Lane Type	Shared zone for pedestrian and vehicular traffic.
Maximum Speed Of Vehicular Traffic	10 km/h
TGSI	Provide hazard warning and directional TGSI as indicated on plan.
Furniture Zone	Street furniture zone to allow for seating and/or landscape WSUD area.
Pavers - Shared Zone	Small dimensioned paving within the shared zone to differentiate it from the surrounding road network. Refer to Chapter 4 Align pavers at 90° to kerb and building line.
Lane Cross Fall	Max 2.5% cross fall to gutter
Pit Lids	Pit lids must be pedestrian vehicular safe and preferably match the surrounding pavement.
Lighting	Cantilevered lighting is preferred and at a height to allow for truck access and to meet lighting design safety. Pole type and lighting level refer to Chapter 4
Awnings And Entrance Canopies	To be cantilevered and set back 600mm from carriageway.
Signage	Shared zone signage required conforms to TfNSW Shared Zone Guidelines and policy.
Notes	Design and installation should comply with TfNSW Shared Zone Guidelines. Design may vary depending on whether it is a 1-way or 2-way lane for vehicle movements. A consent from RMS needs to be obtained prior to the construction. All dimensions are in mm unless otherwise specified.

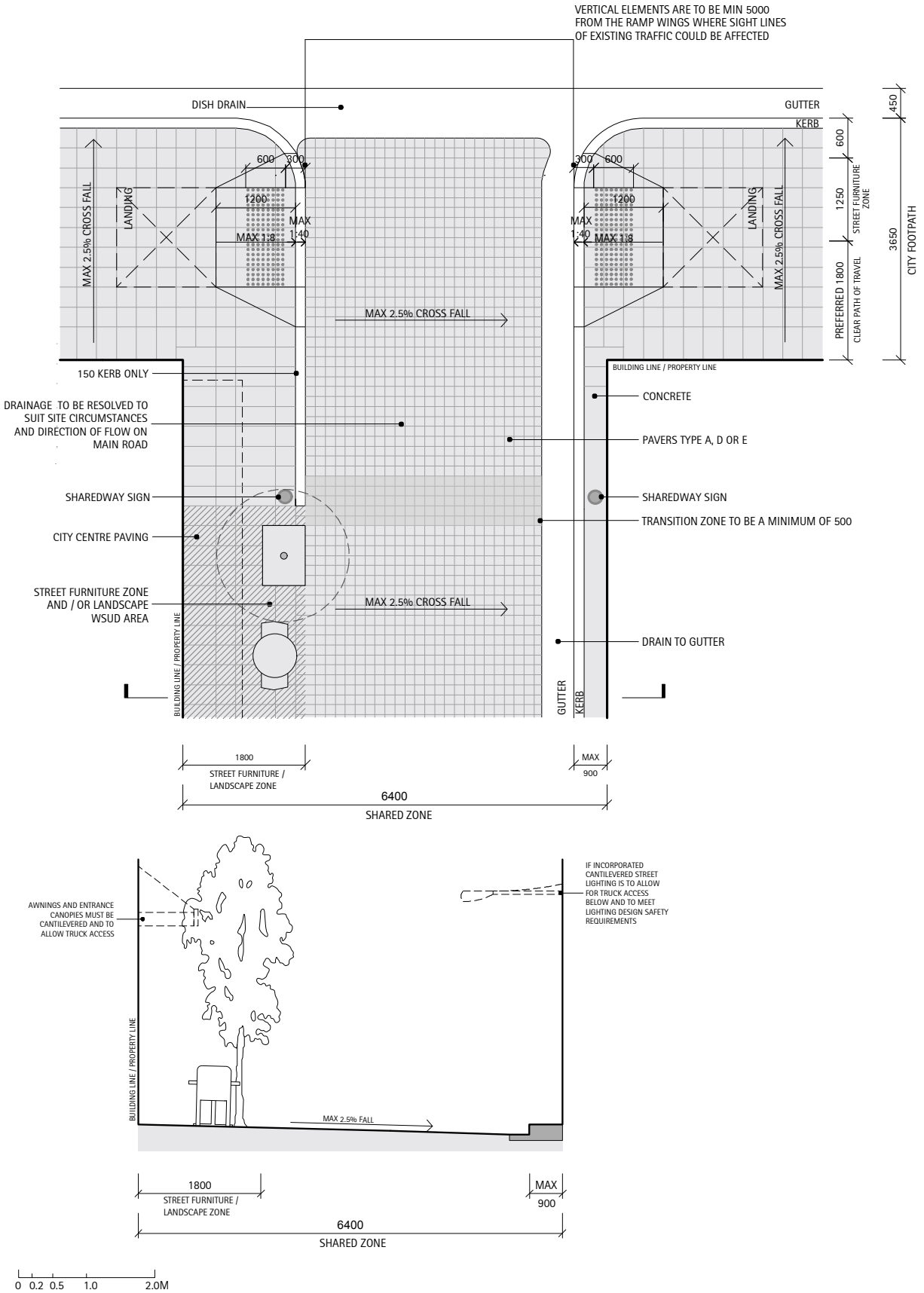

Figure 6.34 Typical Design for Shared Zone: 6400mm

Shared Zones: 10000 Wide

Lane Type	Shared lane for pedestrian and vehicular traffic
Maximum Speed Of Vehicular Traffic	10 km/h
TGSI	Provide hazard warning and directional TGSI as indicated on plan
Furniture Zone	To allow for seating and/or landscaped WSUD area
Pavers	Refer to Chapter 4 Align pavers at 90° to kerb and building line
Lanes Cross Falls	Max 2.5% cross fall to gutter
Pit Lids	Pit lids must be pedestrian vehicular safe and preferably match the surrounding pavement.
Lighting	Cantilevered lighting is preferred and at a height to allow for truck access and to meet lighting design safety. Pole type and lighting level refer to Chapter 4
Awnings And Entrance Canopies	To be cantilevered and set back 600mm from carriageway
Signage	Shared zone sign age required conforms to RMS shared zone guidelines and policy
Notes	Design and installation should comply with TfNSW Shared Zone Guidelines. Design may vary depending on whether it is a 1-way or 2-way lane for vehicle movements. A consent from RMS needs to be obtained prior to the construction. All dimensions are in mm unless otherwise specified.

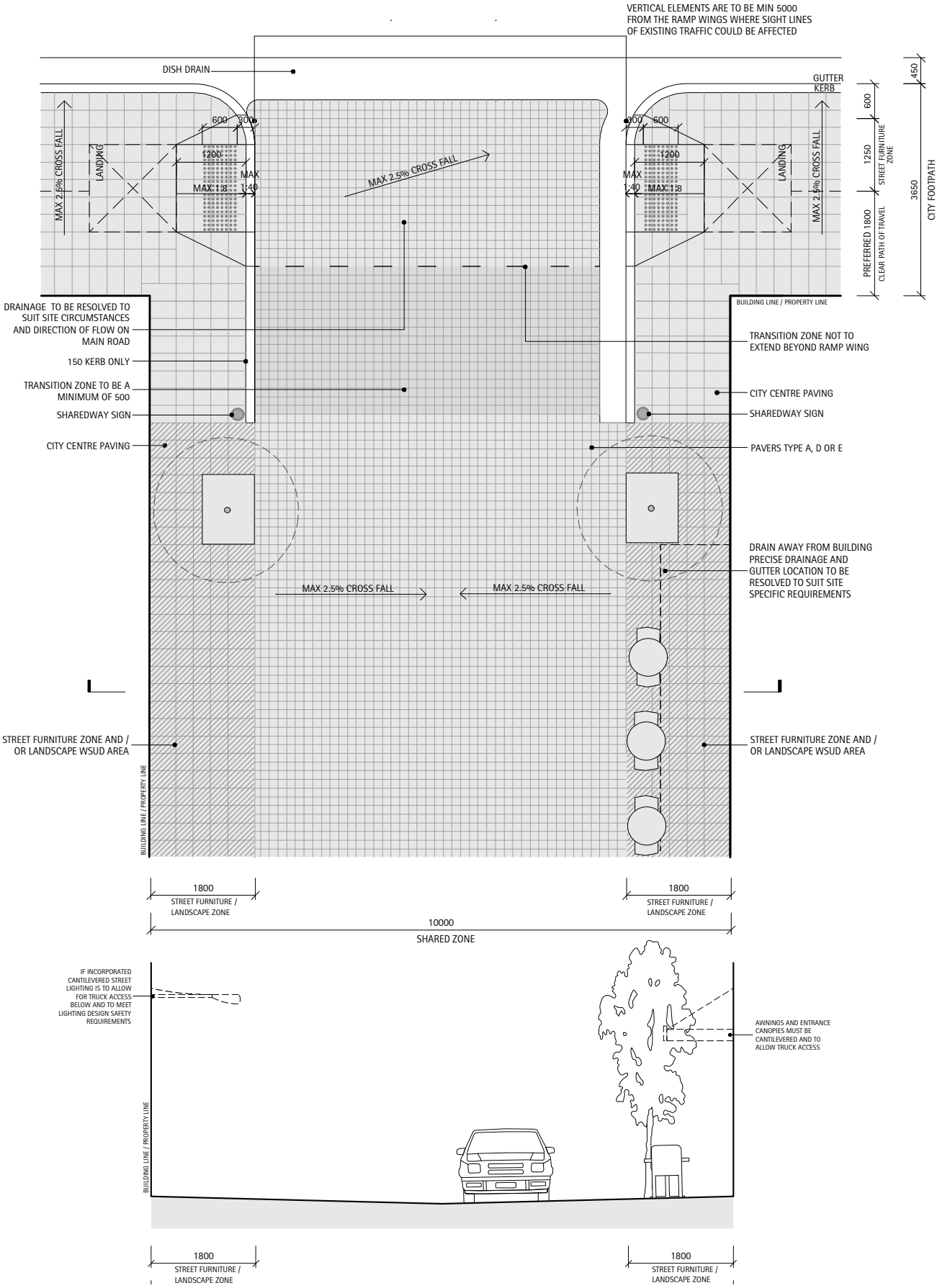

Figure 6.35 Typical Design for Shared Zone: 10000mm

6.3.4 ENTRANCE THRESHOLD

Entrance Threshold: Service Lanes

Lane Type	Lane for vehicular traffic max. 45 cars per hour
Maximum Speed Of Vehicular Traffic	Refer to TfNSW safer speeds policy and guidelines
TGSI	Provide hazard warning and directional TGSI as indicated on plan
Street Tree Pit	Vertical elements are to be a minimum of 5000mm from the ramp wings where sight lines of existing traffic are affected.
Pavers	Refer to Chapter 4 Align pavers at 90° to kerb and building line
Lane Cross Fall	Traffic calming area - to drain water away from buildings walls / private property and to suit local conditions Lane - one way preferred (max. 2.5%) or to suit local conditions
Lighting	Cantilevered lighting is preferred and at a height to allow for truck access and to meet lighting design safety. Pole type and lighting level refer to Chapter 4
Awnings And Entrance Canopies	To be cantilevered and set back 600mm from carriageway
Signage	Shared zone signage not applicable as does not conform to TfNSW Shared Lane Guidelines
Advice for Use	This treatment has been included mainly as a potential treatment for existing service lanes to provide improved appearance and traffic calming at entrance
Additional Notes	Design may vary depending on whether it is a 1-way or 2-way lane for vehicle movmements. Designers should seek guidance in the intial stage to check what RMS approvals will be required and should obtain approval from RMS and/or City of Parramatta Traffic Committee prior to obtaining a final approval from council. All dimensions are in mm unless otherwise specified.

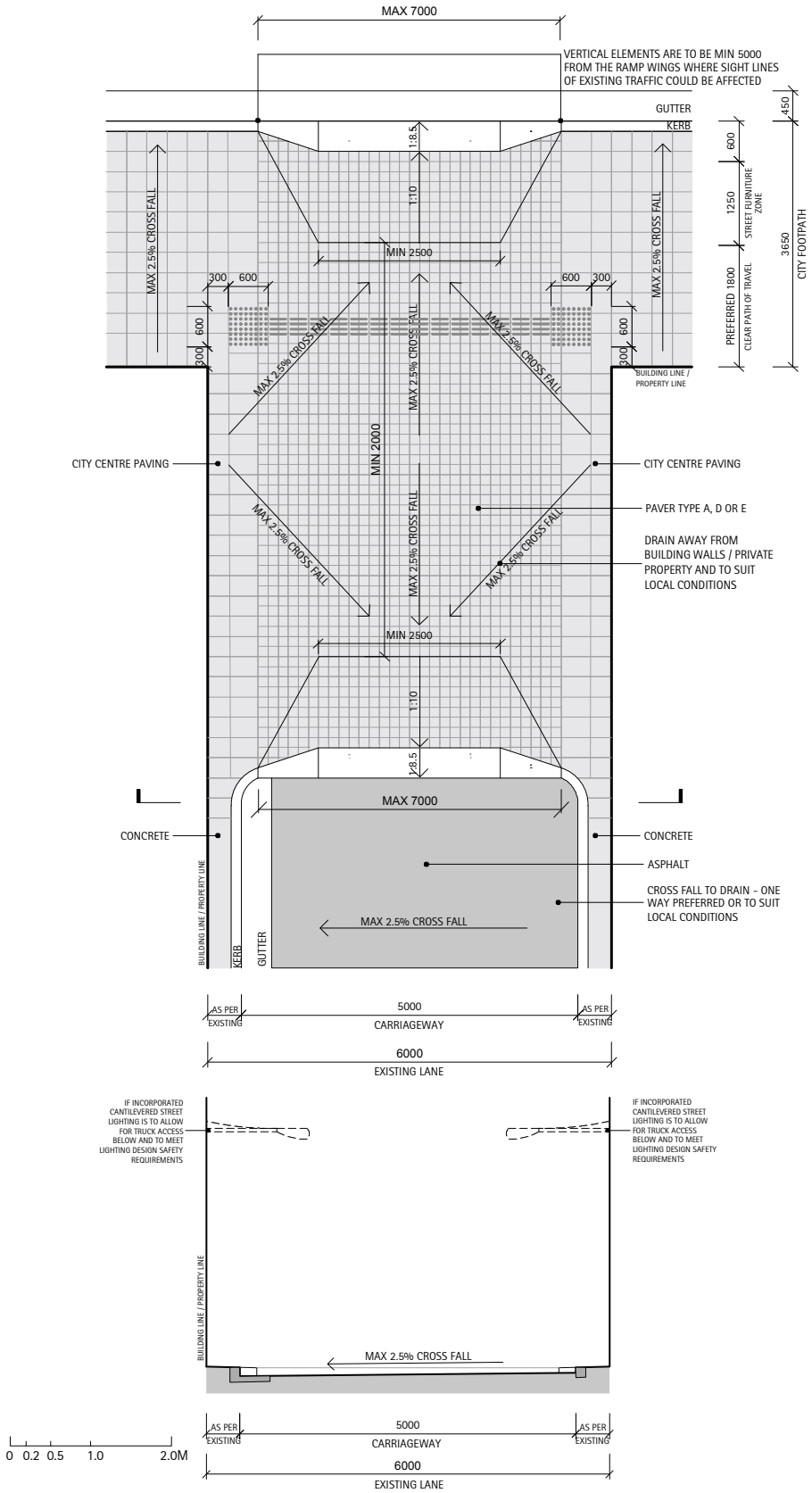

Figure 6.36 Typical Design for Threshold in Service Lanes

Entrance Threshold: Shared Zones

Lane Type	Shared lane for pedestrian and vehicular traffic max. 45 cars per hour
Maximum Speed of Vehicular Traffic	10 km/h
TGSI	Provide hazard warning and directional TGSI as indicated on plan
Street Furniture Zone	Street furniture zone to allow for seating and/or landscape WSUD area
Street Tree Pit	Vertical elements are to be a min. of 5000mm from the ramp wings where sight lines of existing traffic are affected
Pavers	Refer to Chapter 4 Align pavers at 90° to kerb and building line
Lane Cross Fall	Max. 2.5% cross fall to gutter
Lighting	Cantilevered lighting is preferred and at a height to allow for truck access and to meet lighting design safety. Pole type and lighting level refer to Chapter 4
Awnings and Entrance Canopies	To be cantilevered and set back 600mm from carriageway
Signage	Shared zone signage required conforms to tfnsw shared zone guidelines and policy
Notes	Design may vary depending on whether it is a 1-way or 2-way lane for vehicle movements. Designers should seek guidance in the initial stage to check what RMS approvals will be required and should obtain approval from RMS and/or parramatta traffic committee prior to obtaining approval from council. All dimensions are in mm unless otherwise specified.

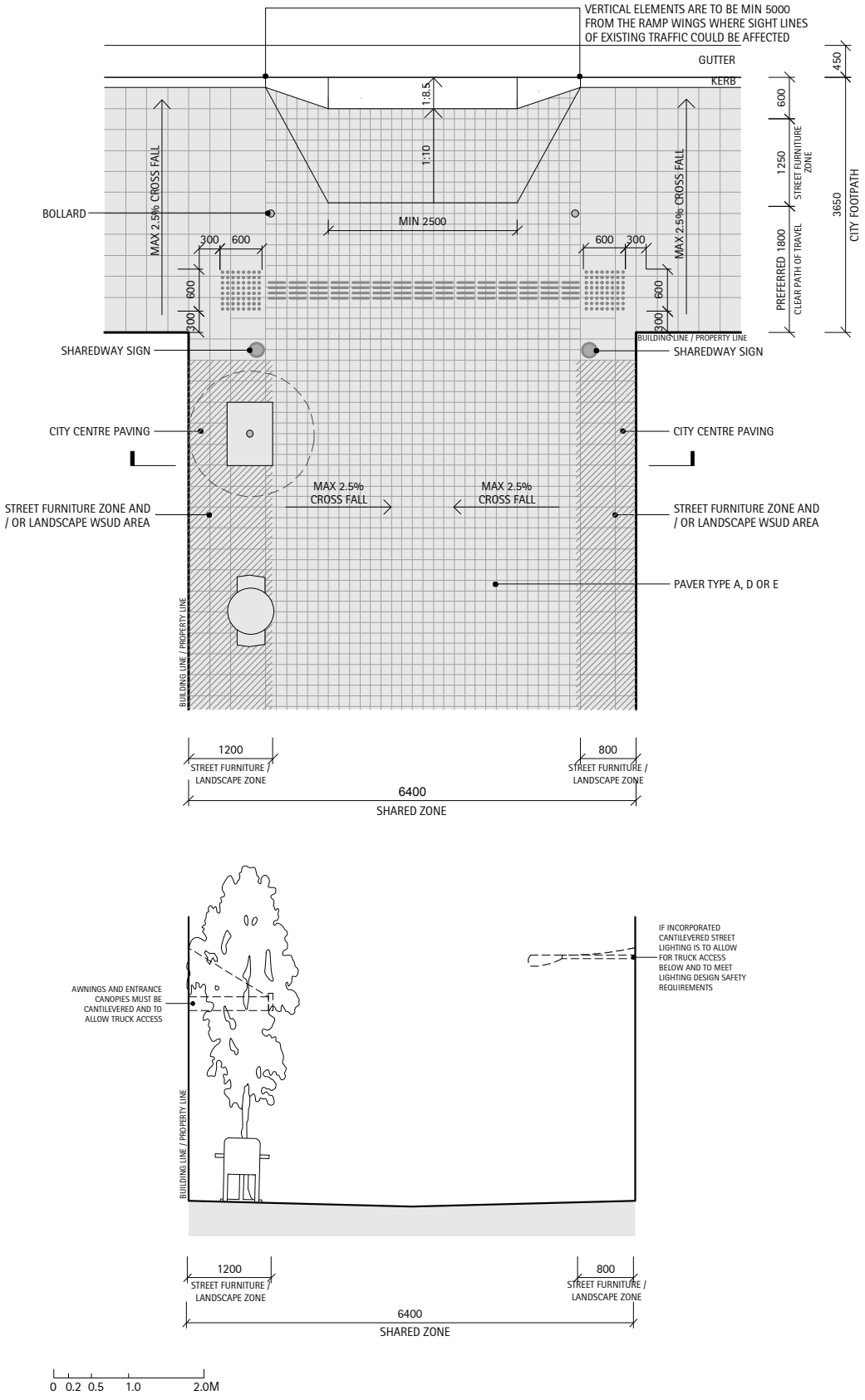

Figure 6.37 Typical Design for Threshold in Shared Zones

6.4 TREES & PLANTING

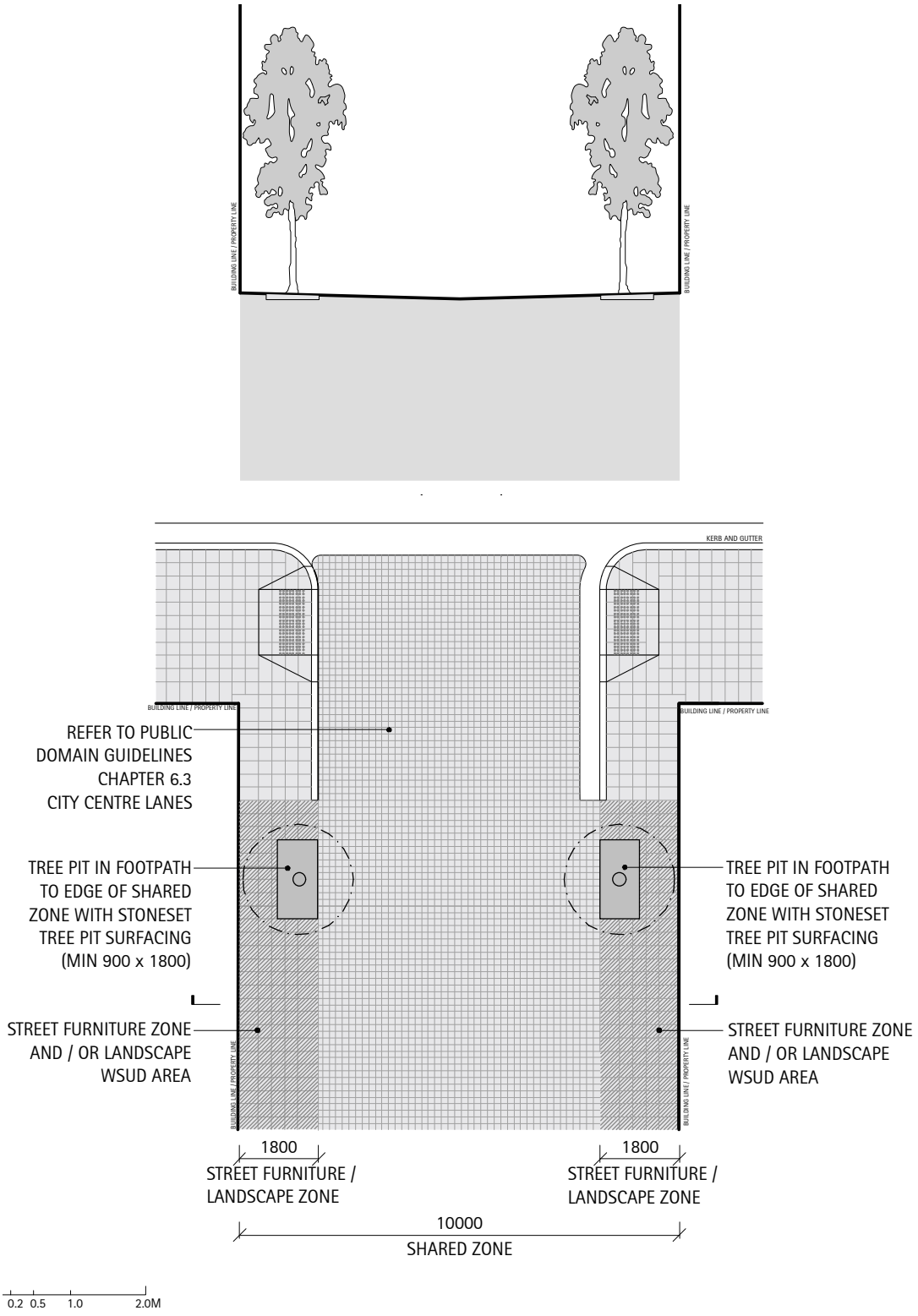

Figure 6.38 Street Tree Typical Pit Location: 10000mm Lane

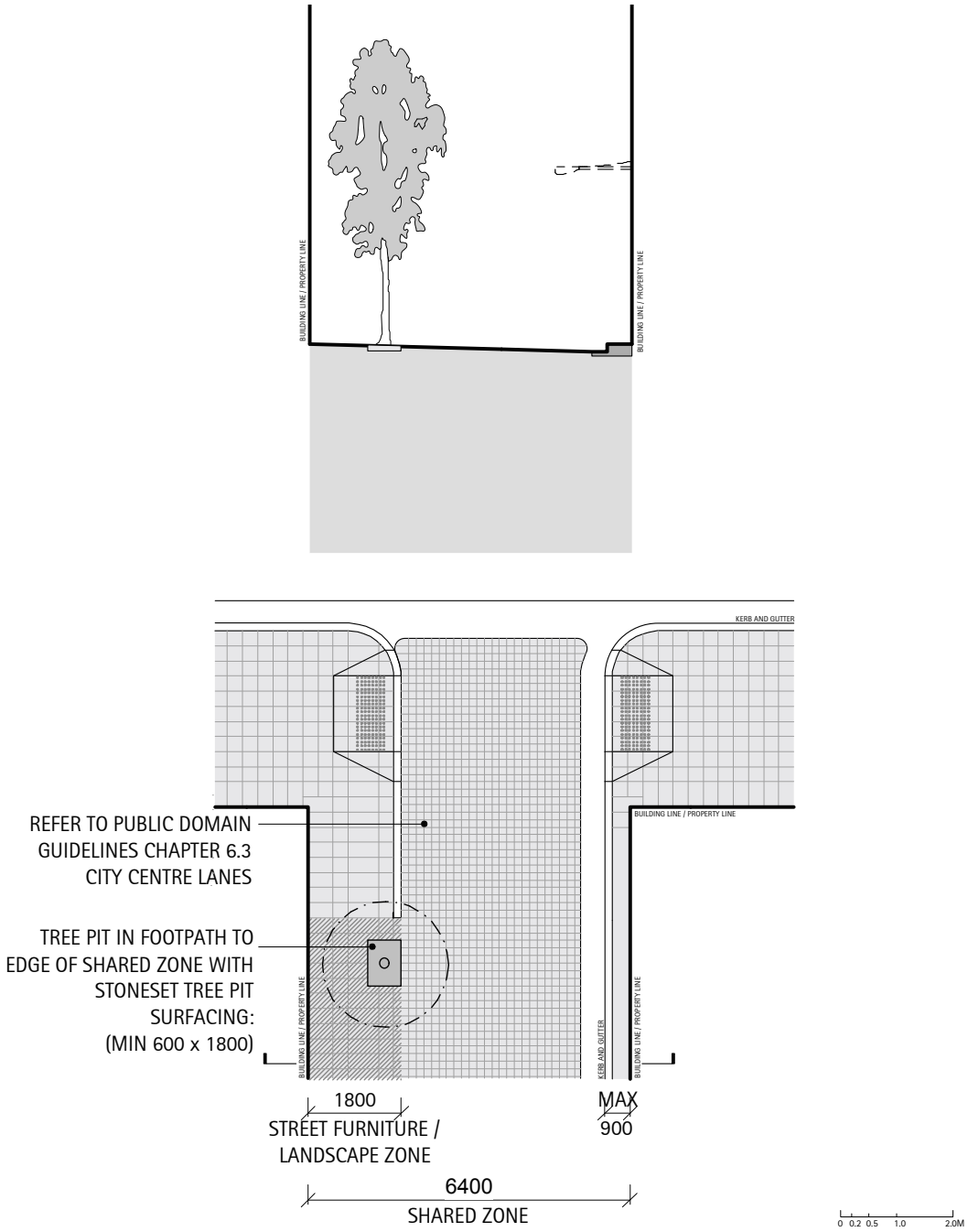

Figure 6.39 Street Tree Typical Pit Location: 6400mm Wide Lane

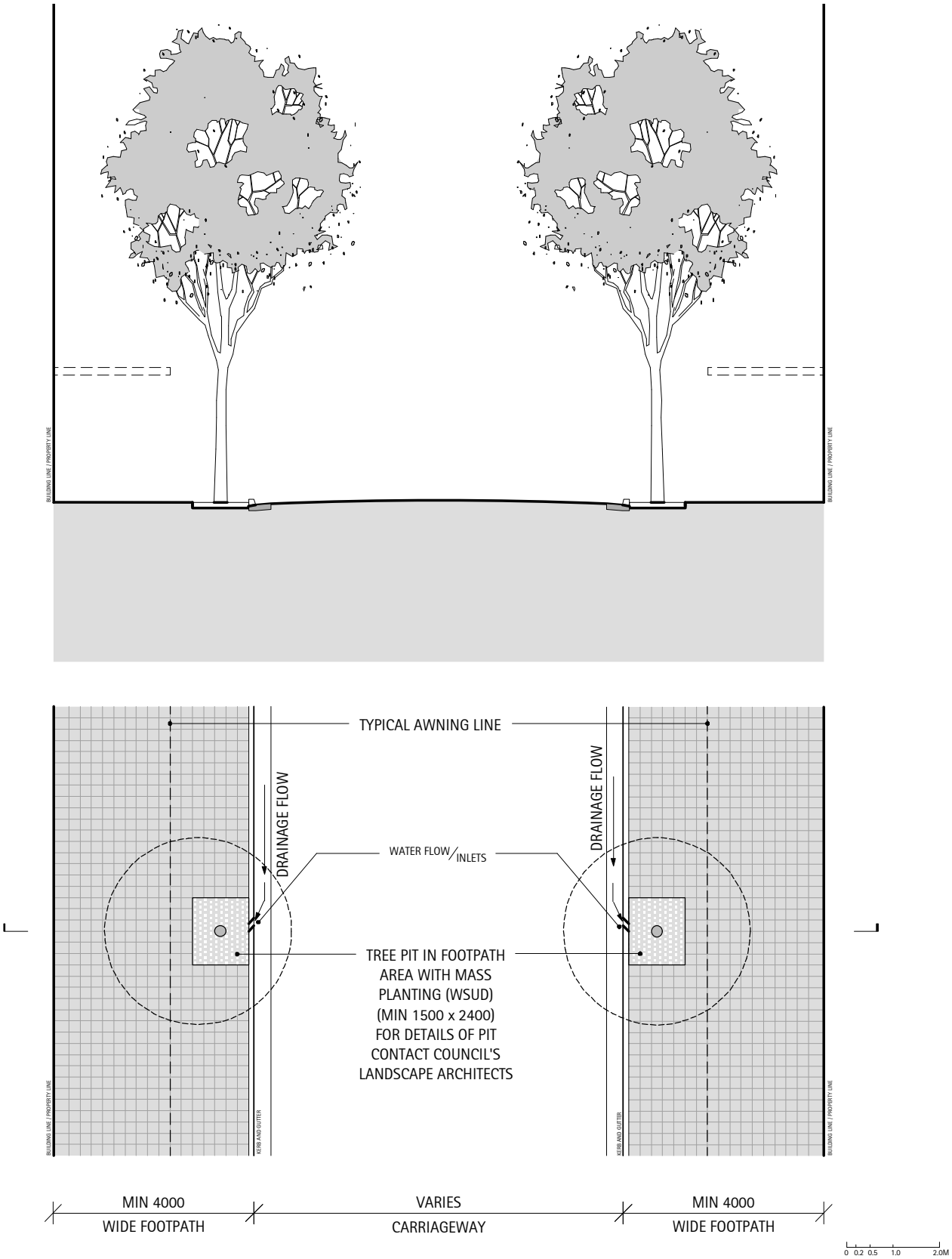

Figure 6.40 Street Tree Typical WSUD Pit Location in Footpath > 4000

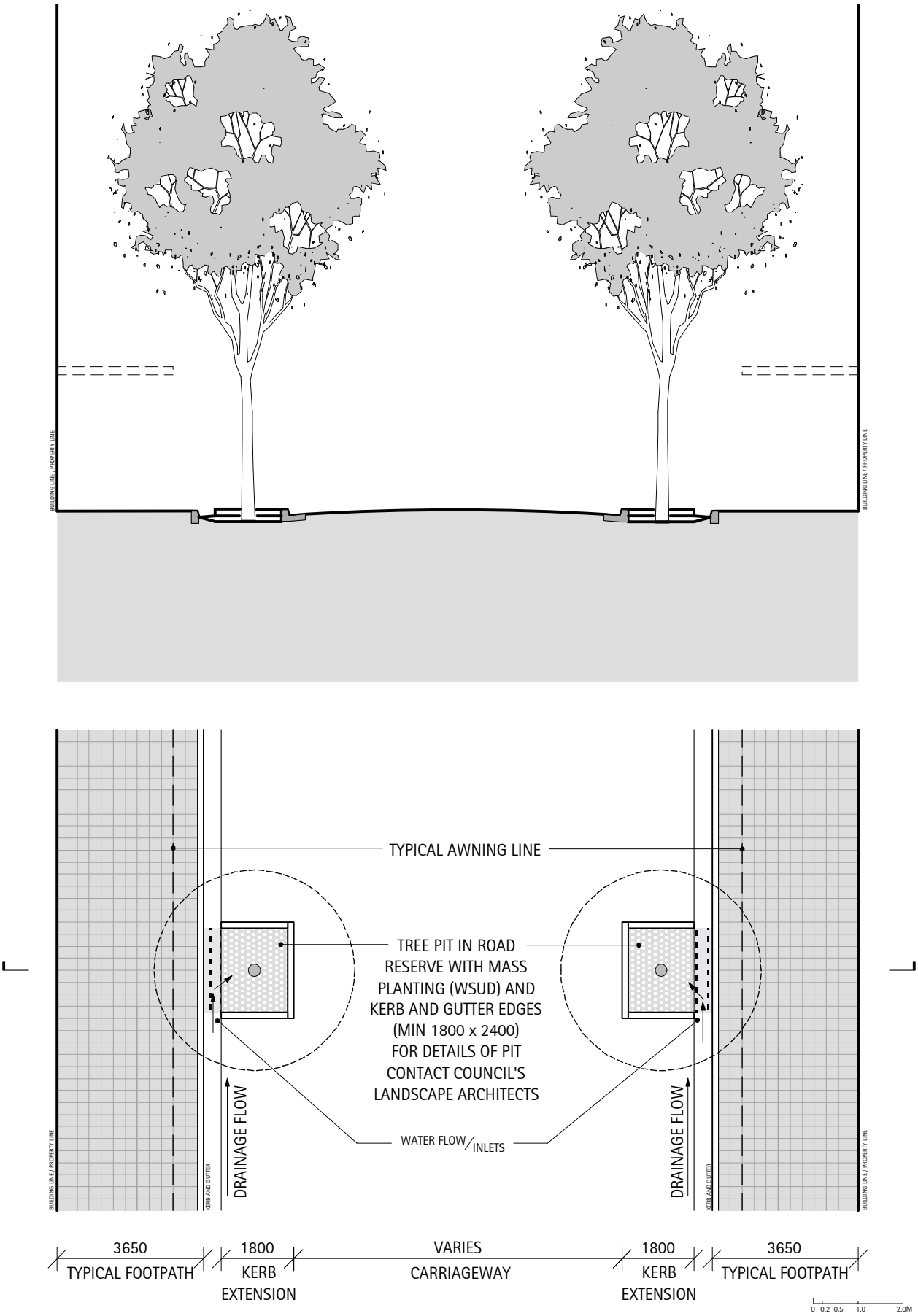

Figure 6.41 Street Tree Typical WSUD Pit Location in Roadway

6.5 FURNITURE

6.5.1 BIKE RACKS

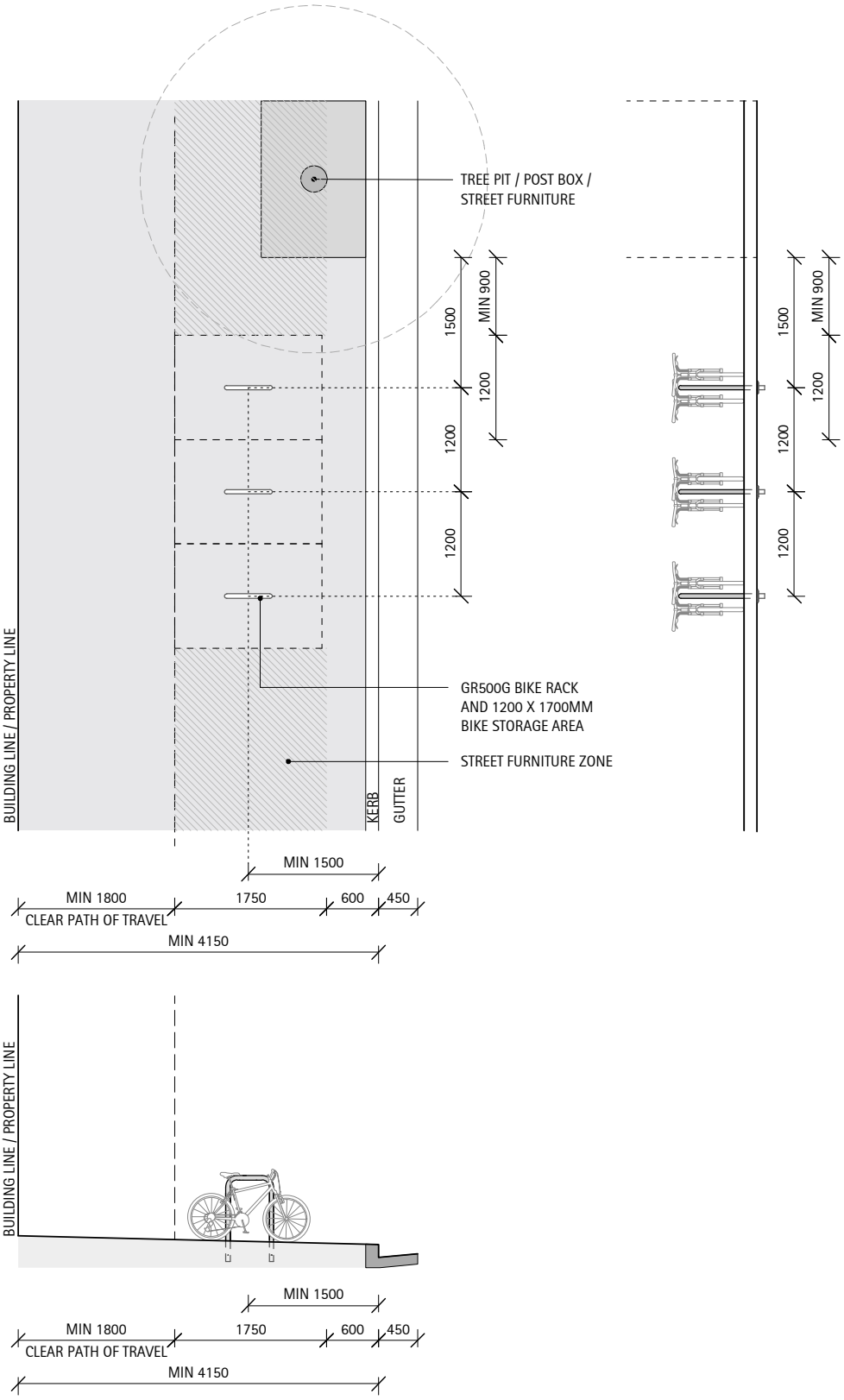

Figure 6.42 Bike rack layout option A - most preferred for CBD, Centres and any wider footpaths

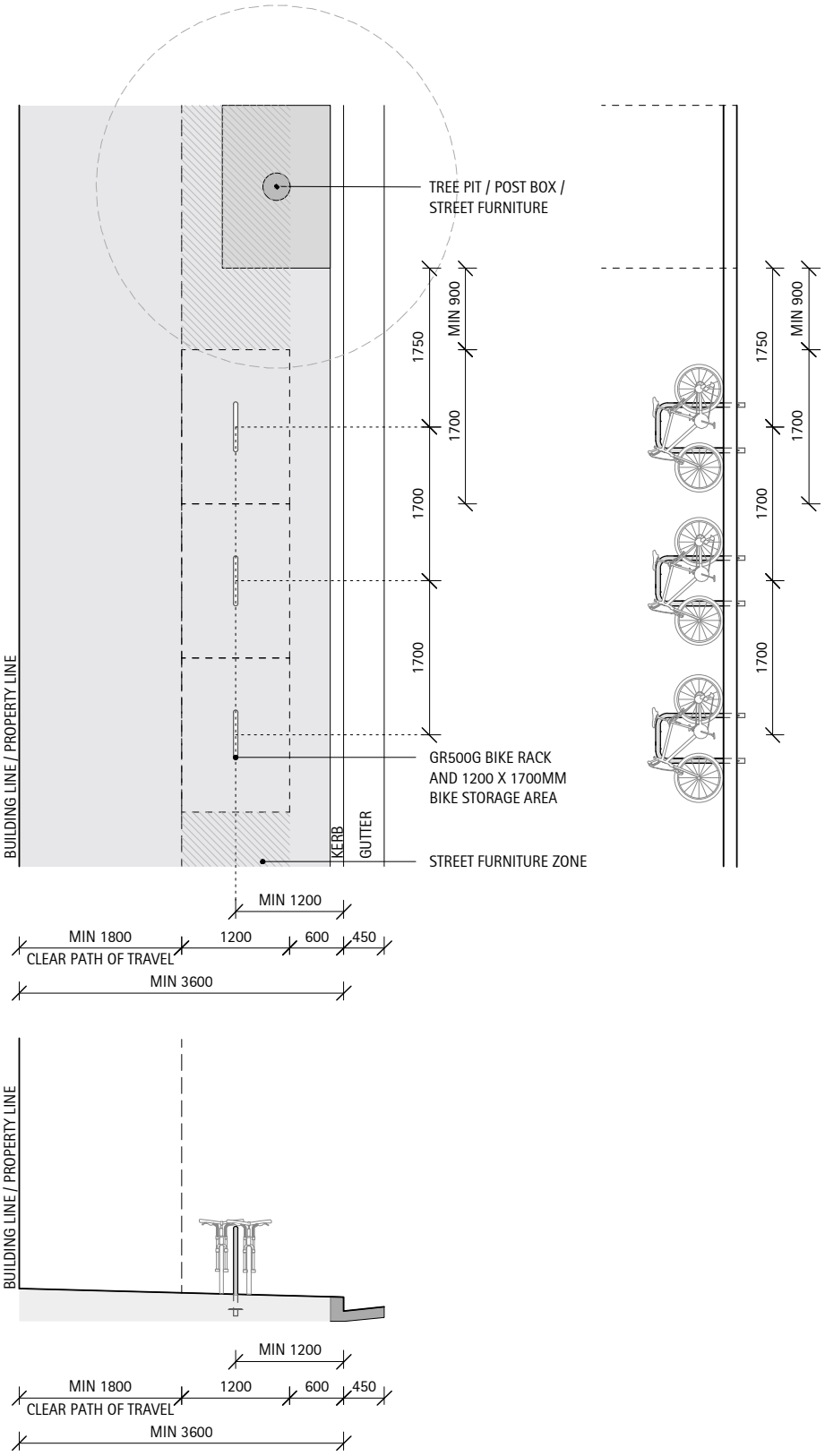

Figure 6.43 Bike Rack Layout Option B - less preferred for CBD, Centres and standard footpaths

6.5.2 BUS STOPS & SHELTERS

The bus stops are to be set out as per the following:

- The Bus Sign sets out where the bus will stop and must be located in relation to the Boarding Area and the Bus Stop Pad, as shown in Figure 4.1;
- The Boarding Area is to have a 2070mm X 1540mm unobstructed firm level area to facilitate boarding and disembarking of the bus passengers;
- The TGSIs provided at the Boarding Area are to be 600mm wide;
- The area at the edge of the Bus Stop Pad along the kerb is to be unobstructed to facilitate egress;
- Bus Stop Pad to be fully paved for 9000mm X Footpath Width, provided with or without bus shelter / seats as necessary (Refer to layouts shown in Figures 4.2-4.9 for a range of conditions);
- Bus Sign to be 600-800mm wide and located 300mm away from face of kerb and Boarding Area.; and
- Adjacent paths that connect to Bus Stop Pad are to be minimum 1200mm wide and should join Bus Stop Pad at right angle.

Standard Bus Stop Set Out Plan

TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max. 2.5%
Bus Stop Sign	Min. 300 clear from face of kerb Min. 300 clear from boarding AREA
Adjacent Path	Min. 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified

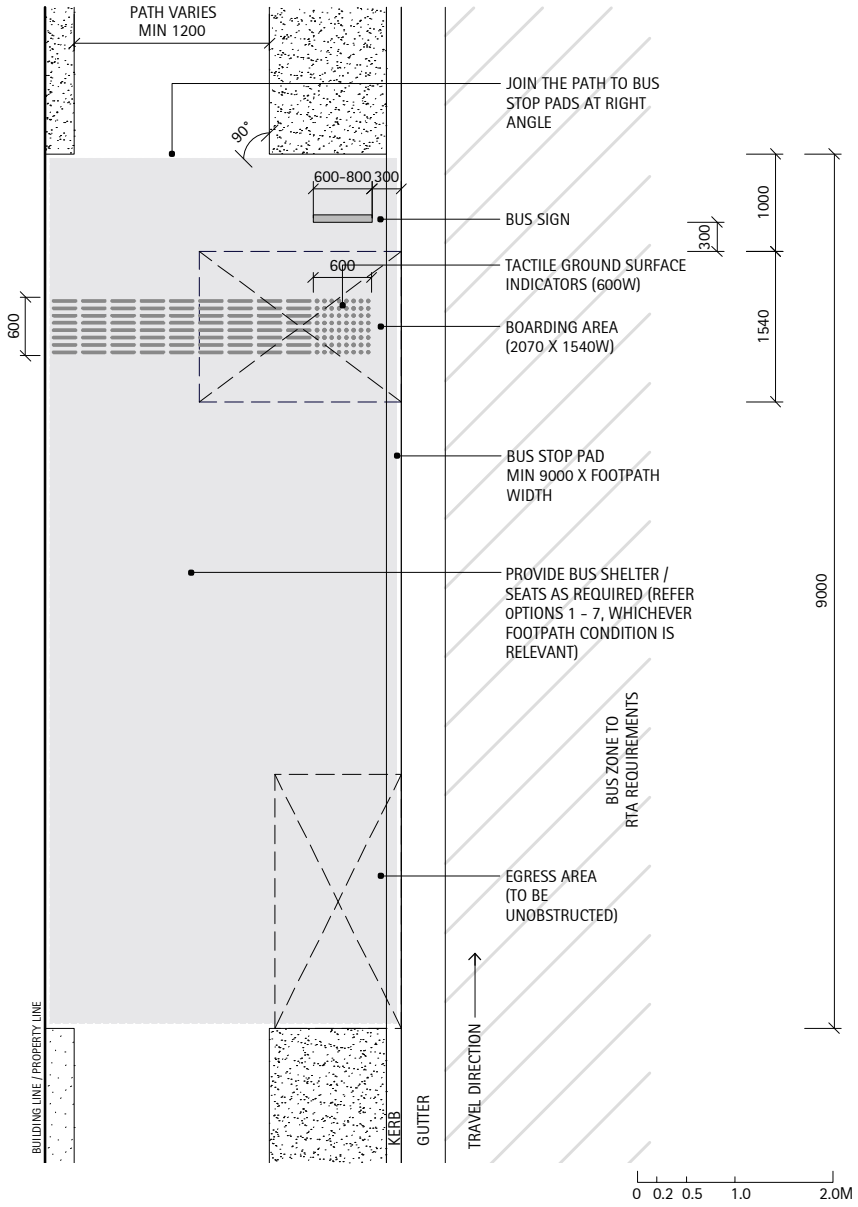

Figure 6.44 Standard Bus Stop Set Out Plan

The preferred layout for bus shelters allows passage to both sides of the shelter. Typical footpaths in Parramatta are 3650mm wide and the ideal clearances are not achievable when the Adshel Classic Bus Shelter is used. Wherever possible footpaths should be widened to accommodate this and where footpaths are 4155mm wide or greater the layout shown in Figure 6.49 is to be used.

BUS SHELTERS ON STANDARD FOOTWAYS

Layouts shown in Figures 6.45 - 6.48 apply to bus stops on standard footpaths. For locations where the footpath cannot be widened, the layout shown in Figure 6.45 should be followed which provides the minimum distance to both sides of the bus shelter.

Where procurement arrangements allow and on high volume standard footpaths it is recommended that the layout shown in Figure 6.46 is followed. This provides passage to both sides of the bus shelter as well as the preferred more generous area between the bus shelter and the kerb. Figure 6.46 layout requires a narrow bus shelter to be procured.

There are also locations where the footpath abuts a wall or fence rather than a property requiring access. These locations are adjacent to the railway and/or parks. In these instances clear passage to the rear of the bus shelter is not necessary and the layout shown in Figure 6.47 can be used which provides the preferred more generous area between the bus shelter and kerb and incorporates the standard Adshel Classic Bus Shelter. On streets with awning protection and less used bus stops, bus shelters are generally not used. In these instances provide tactiles, bus sign and seat(s) as shown in the Figure 6.48 layout.

Bus Shelter on Standard Width Footpath: Adshel Classic

Paving	Fully paved on bus stop pad
Boarding Area	Unobstructed firm level - 2070 x 1540w minimum
Bus Stop Pad	Min 9000l x footpath width
Bus Shelter Type	Adshel Classic - 1355 (deep) x 3820 x 2645h
Bus Shelter Set Out	Preferred 1200 from the face of kerb
Clear Path of Travel	Min 1000 along the building line
TGSI	Directional + warning indicators (600w)
Cross Fall	Max 2.5%
bus stop sign	Min 300 clear from face of kerb Min 300 clear from boarding area
Adjacent Path	Min 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified

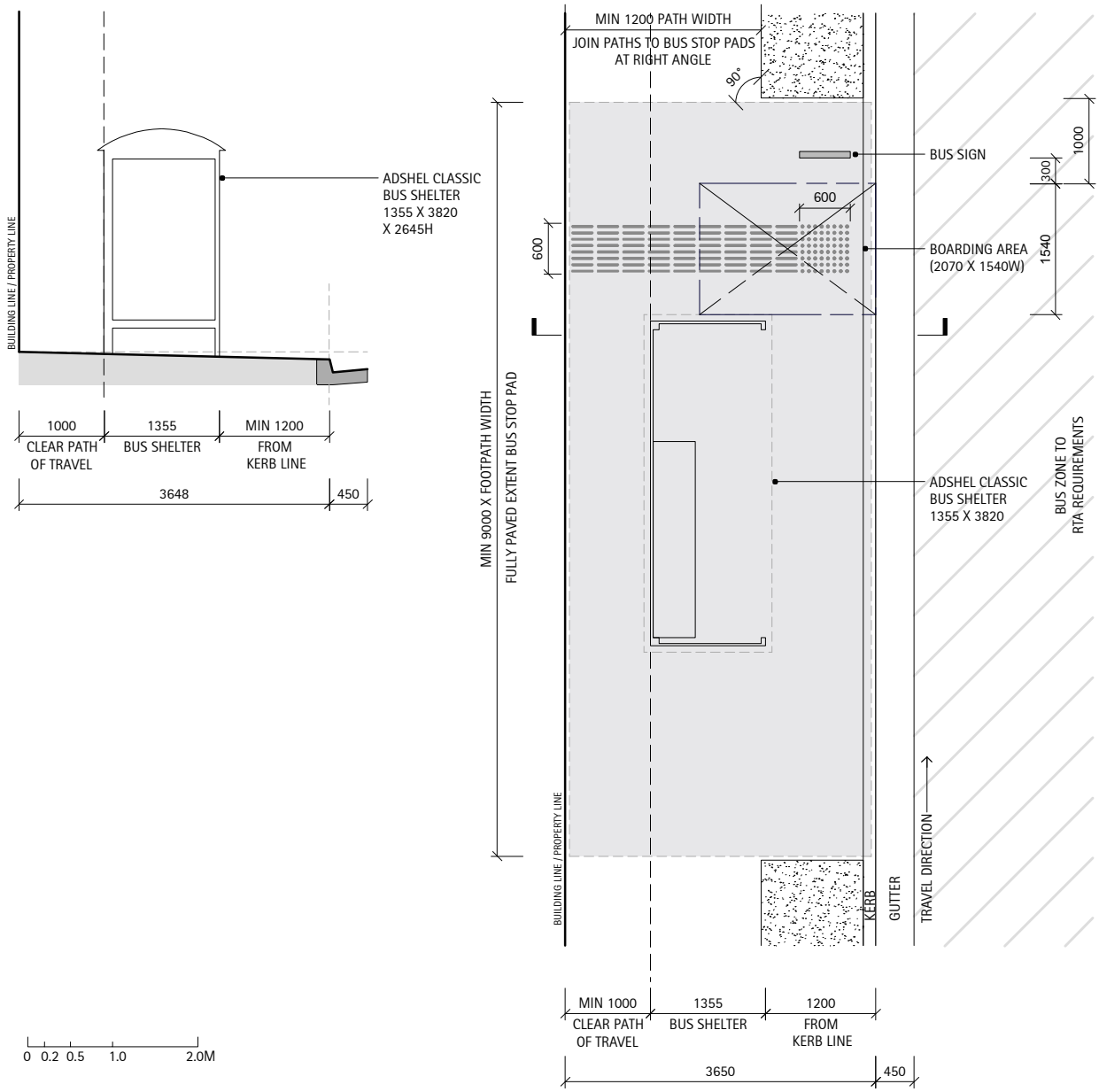

Figure 6.45 Bus Shelter on Standard Width Footpath: Adshel Classic

Bus Shelter on Standard Width Footpath: Adshel 'Mini' Classic

Paving	Fully paved on bus stop pad
Boarding area	Unobstructed firm level - 2070 x 1540w minimum
Bus Stop Pad	Min 9000l x footpath width
Bus Shelter Type	Adshel Mini - 1075 (D) X 2620 X 2705 (H)
Bus Shelter Set Out	1575 (min. 1200) from the kerb face
Clear Path of Travel	Min. 1000 along the building line
TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max. 2.5%
Bus Stop Sign	Min. 300 clear from face of kerb Min. 300 clear from boarding area
Adjacent Path	Min 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified

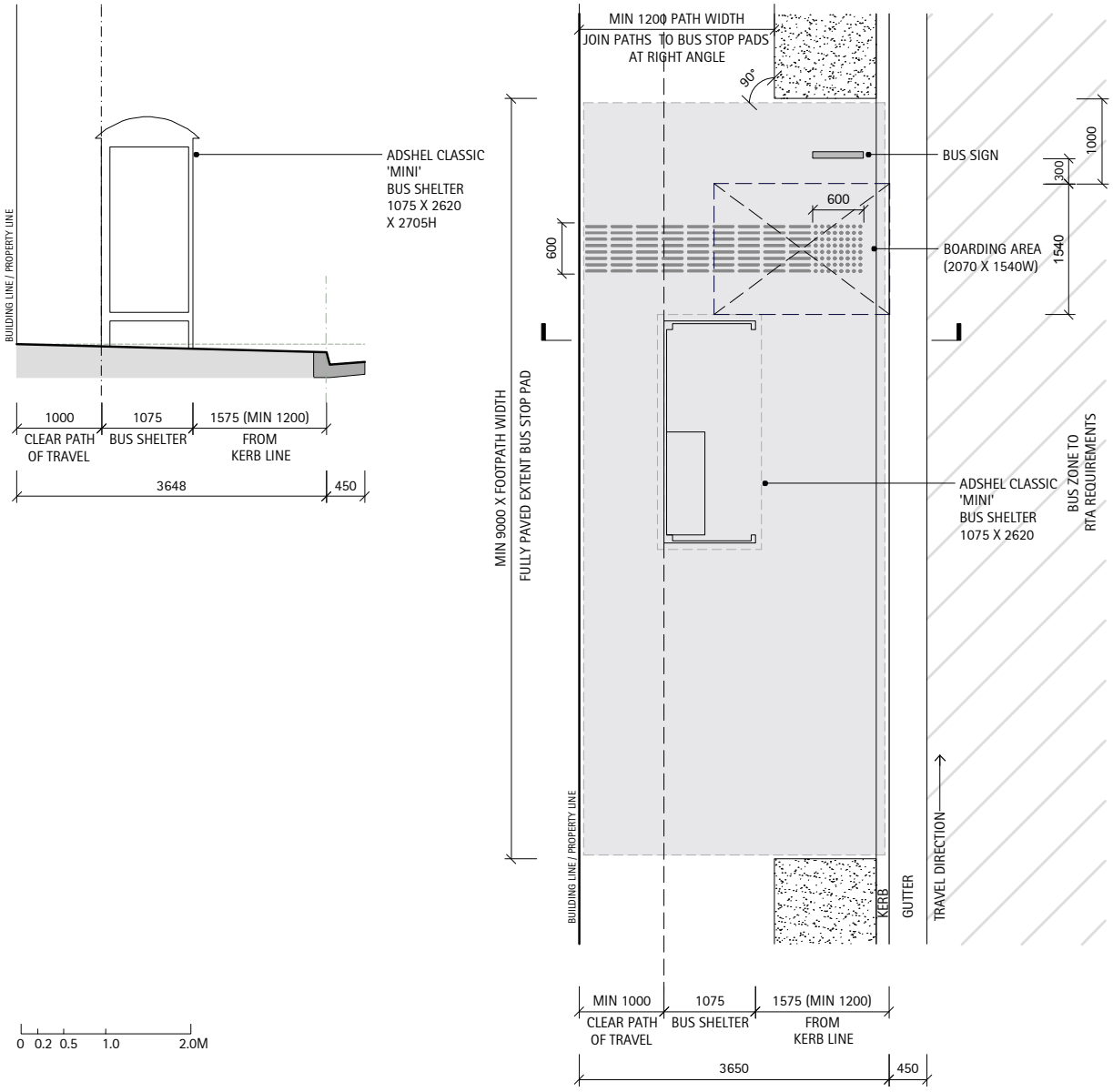

Figure 6.46 Bus Shelter on Standard Width Footpath: Adshel 'Mini' Classic

Bus Shelter on One Sided Streets with Standard Width Footpath: Adshel Classic

Set out for standard width footpath - one sided streets next to parks &/ railway

Paving	Fully paved on bus stop pad
Boarding Area	Unobstructed firm level - 2070 x 1540w minimum
Bus Stop Pad	Min.9000 (L) x footpath width
Bus Shelter Type	Adshel Classic - 1355 (D) X 3820 X 2645 (H)
Bus Shelter Set Out	Preferred 1600 from kerb face
Clear Path of Travel	N.A.
TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max 2.5%
Bus Stop Sign	Min 300 clear from face of kerb Min 300 clear from boarding AREA
Adjacent Path	Min 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified Locate bus shelters 600mm from building line/property line to allow for cleaning access

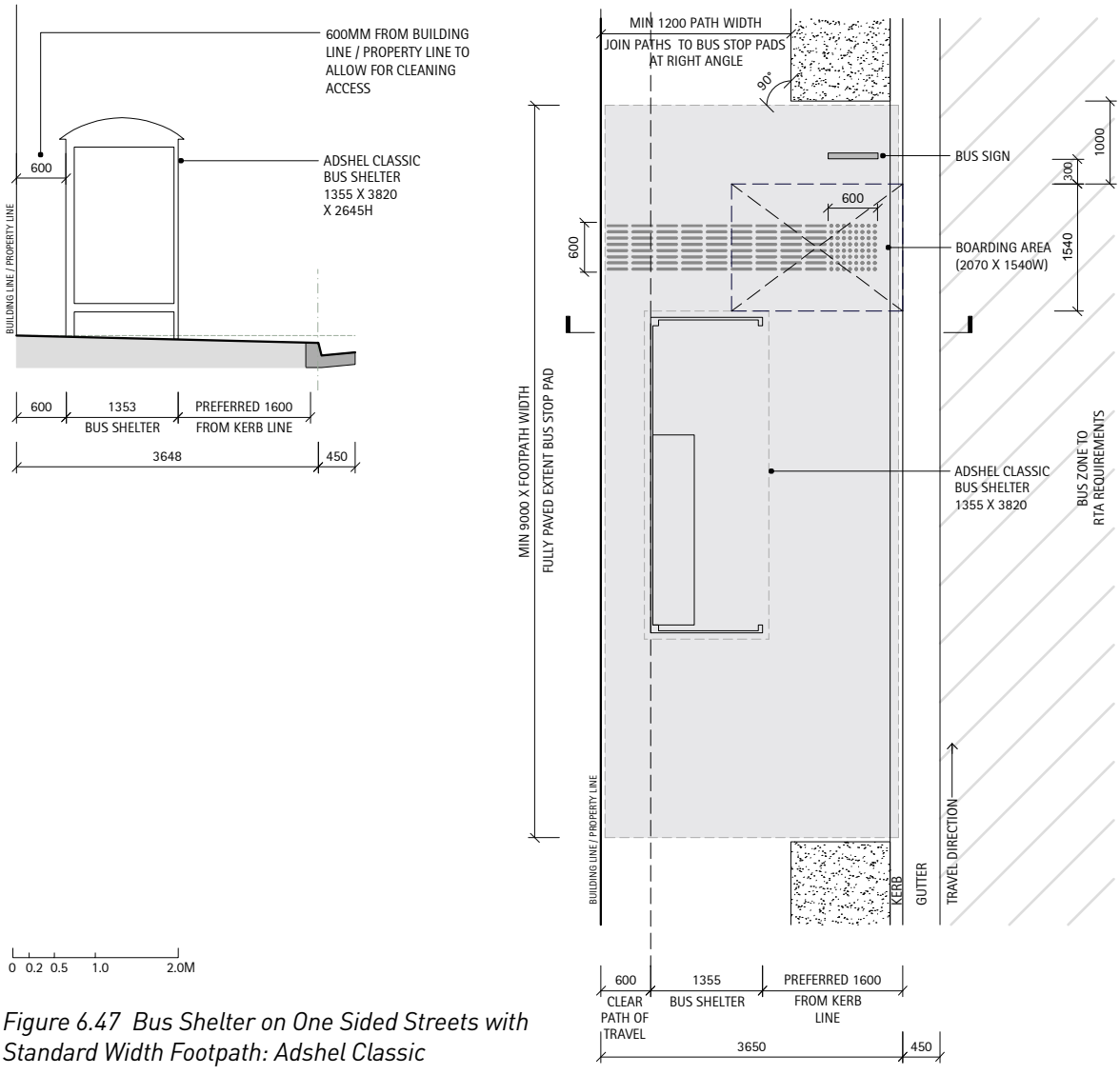

Figure 6.47 Bus Shelter on One Sided Streets with Standard Width Footpath: Adshel Classic

Bus Stop on Standard Width Footpath without Shelter

Paving	Fully paved on bus stop pad
Boarding Area	Unobstructed firm level - 2070 x 1540 (W)
Bus Stop Pad	Min. 9000 (L) x footpath width
Bus Shelter Type	N.A.
Bus Shelter Set Out	N.A.
Clear Path of Travel	Retain clear path of travel as required in Chapter 3
TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max. 2.5%
Bus Stop Sign	Min. 300 clear from face of kerb Min. 300 clear from boarding AREA
Adjacent Path	Min. 1200 wide Join path to bus stop pads at right angle
Furniture	Provide seats as per passenger volume
Note	All dimensions are in mm unless otherwise specified

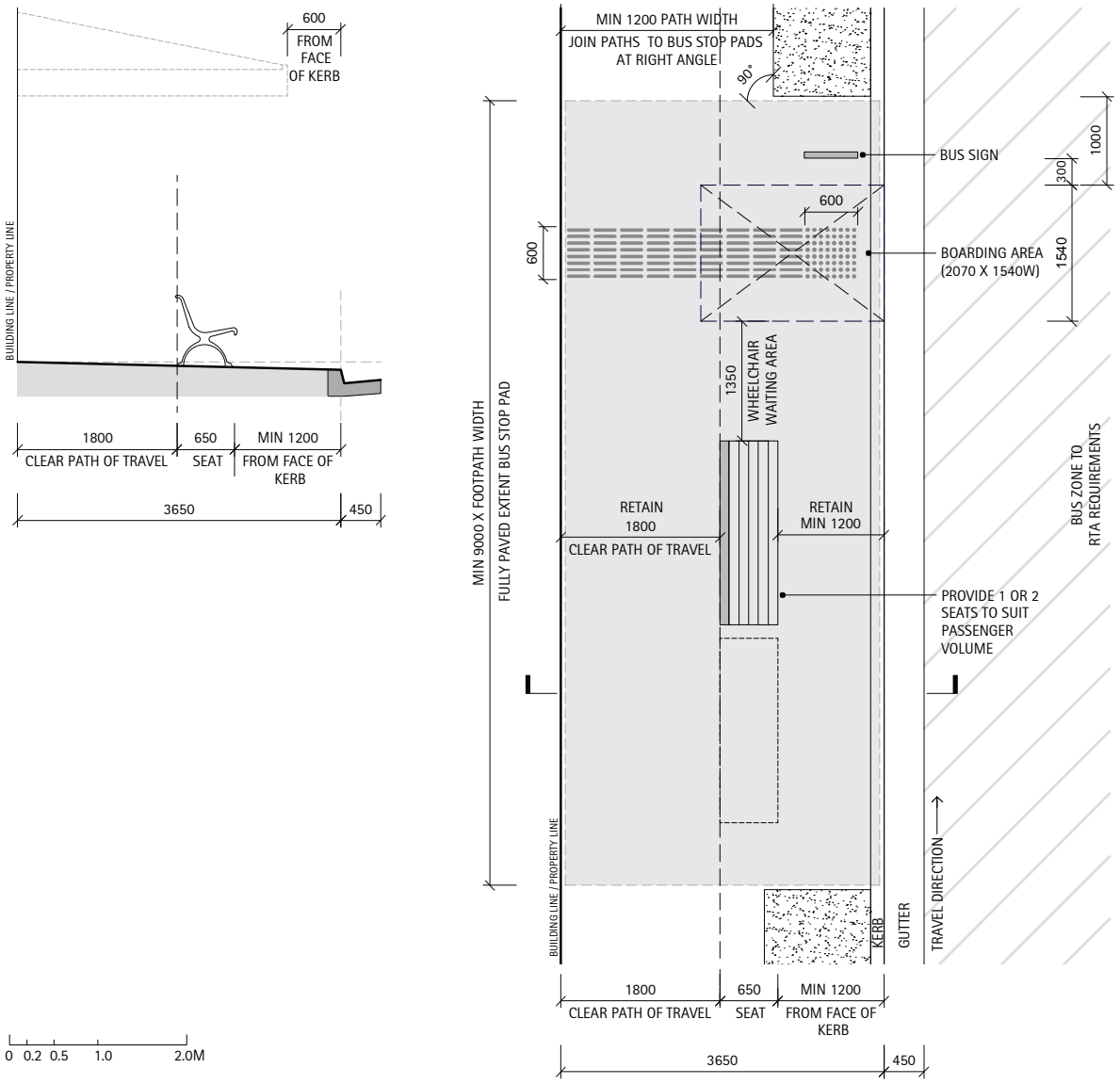

Figure 6.48 Bus Stop on Standard Width Footpath without Shelter

BUS SHELTERS ON WIDE FOOTWAYS

Bus Shelter on Wide Footpath ≥ 4155: Adshel Classic (Preferred Solution)

Paving	Fully paved on bus stop pad
Boarding Area	Unobstructed firm level - 2070mm x1540mm wide minimum
Bus Stop Pad	Min. 9000l x footpath width
Bus Shelter Type	Adshel Classic - 1355 (D) x 3820 x 2645 (H)
Bus Shelter Set Out	Preferred 1600 from the kerb face
Clear Path Of Travel	Preferred 1200 along the building line to be centred in boarding area
TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max. 1 in 40
Bus Stop Sign	Min. 300 clear from face of kerb Min. 300 clear from boarding area
Adjacent Path	Min. 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified

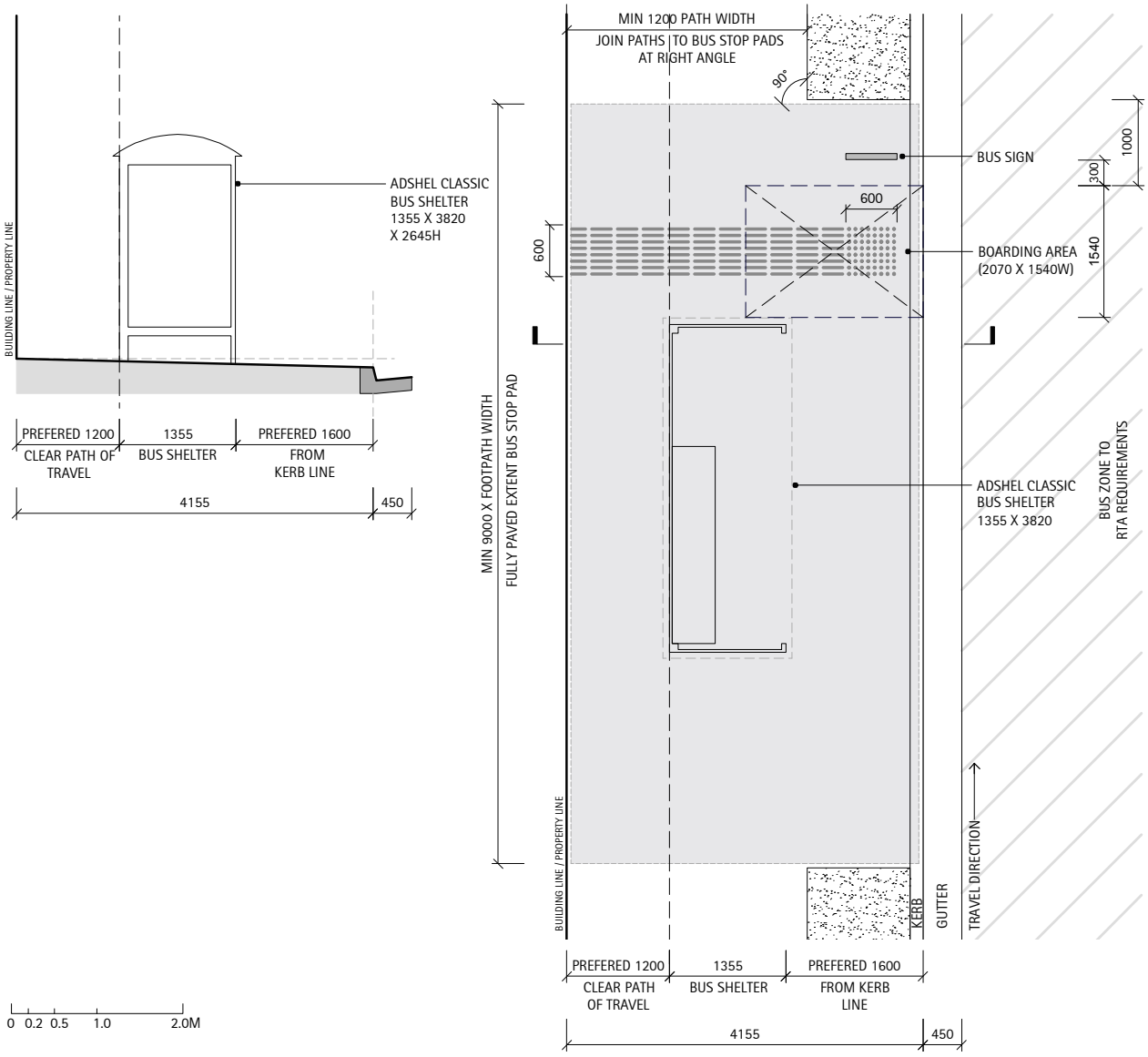

Figure 6.49 Bus Shelter on Wide Footpath ≥ 4155: Adshel Classic (Preferred Solution)

BUS SHELTERS ON NARROW FOOTWAYS

Bus Shelter on Narrow Footpath < 3650 (>3275): Adshel 'Mini' Classic

Paving	Fully paved on bus stop pad
Boarding Area	Unobstructed firm level - 2070 x 1540 (W)
Bus Stop Pad	Min 9000 (L) x footpath width
Bus Shelter Type	Adshel Mini - 1075 (D) x 2620 x 2705 (H)
Bus Shelter Set Out	Min. 1200 from the face of kerb
Clear Path of Travel	Min. 1000 along the building line
TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max. 2.5%
Bus Stop Sign	Min. 300 clear from face of kerb Min. 300 clear from boarding AREA
Adjacent Path	Min. 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified

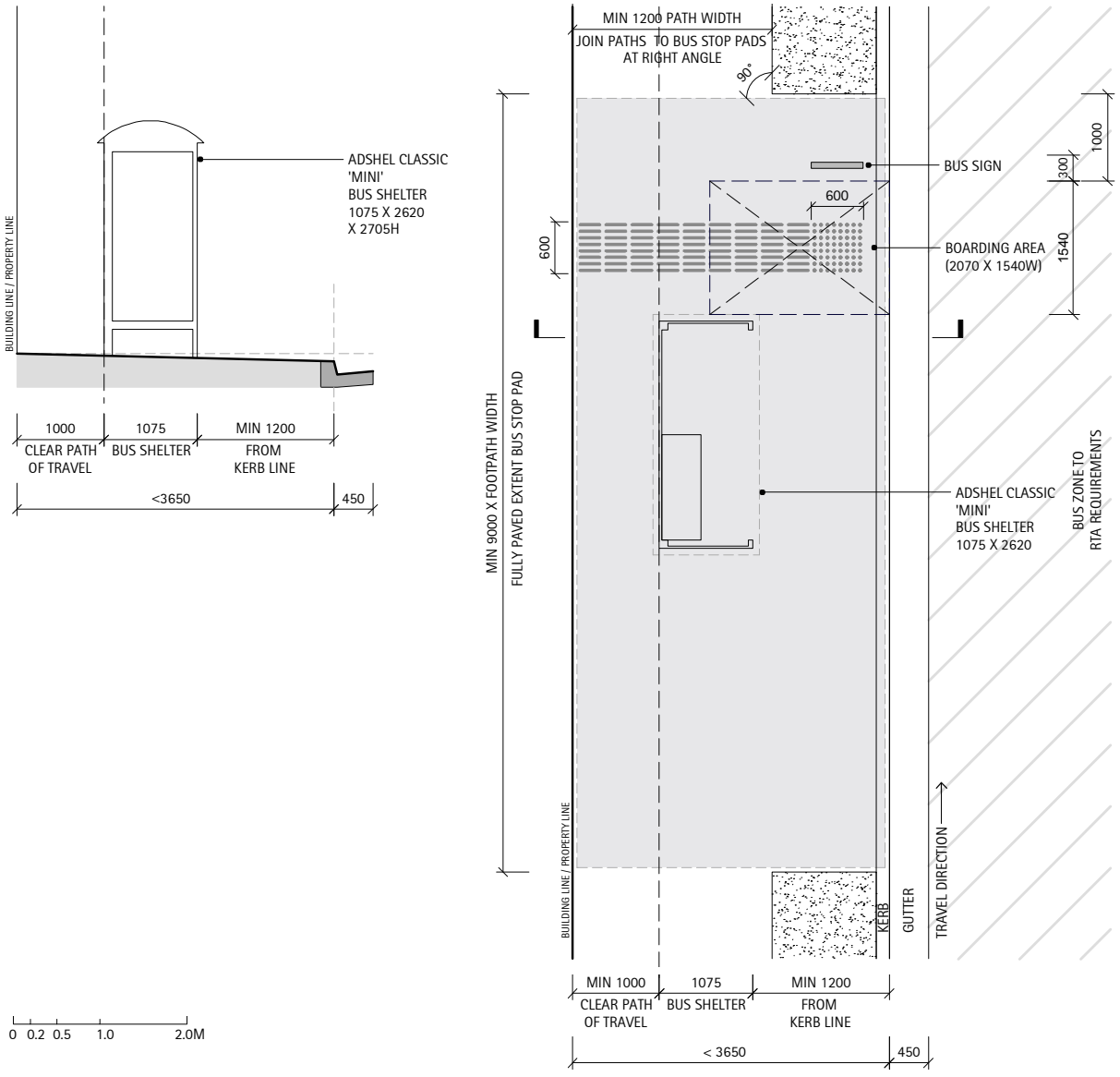

Figure 6.50 Bus Shelter on Wide Footpath ≥ 4155: Adshel Classic (Preferred Solution)

Bus Shelter on Narrow Footpath ≤ 3275mm: Adshel 'Mini' Classic

Paving	Fully paved on bus stop pad
Boarding Area	Unobstructed firm level - 2070 x 1540 (W)
Bus Stop Pad	Min. 9000 (L) x footpath width
Bus Shelter Type	Adshel Mini - 1075 (D) X 2620 X 2705 (H)
Bus Shelter Set Out	Min. 1200 from face of kerb
Clear Path of Travel	N.A.
TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max. 2.5%
Bus Stop Sign	Min. 300 clear from face of kerb Min. 300 clear from boarding area
Adjacent Path	Min. 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified Locate bus shelter 600 from building line/property line to allow for cleaning access

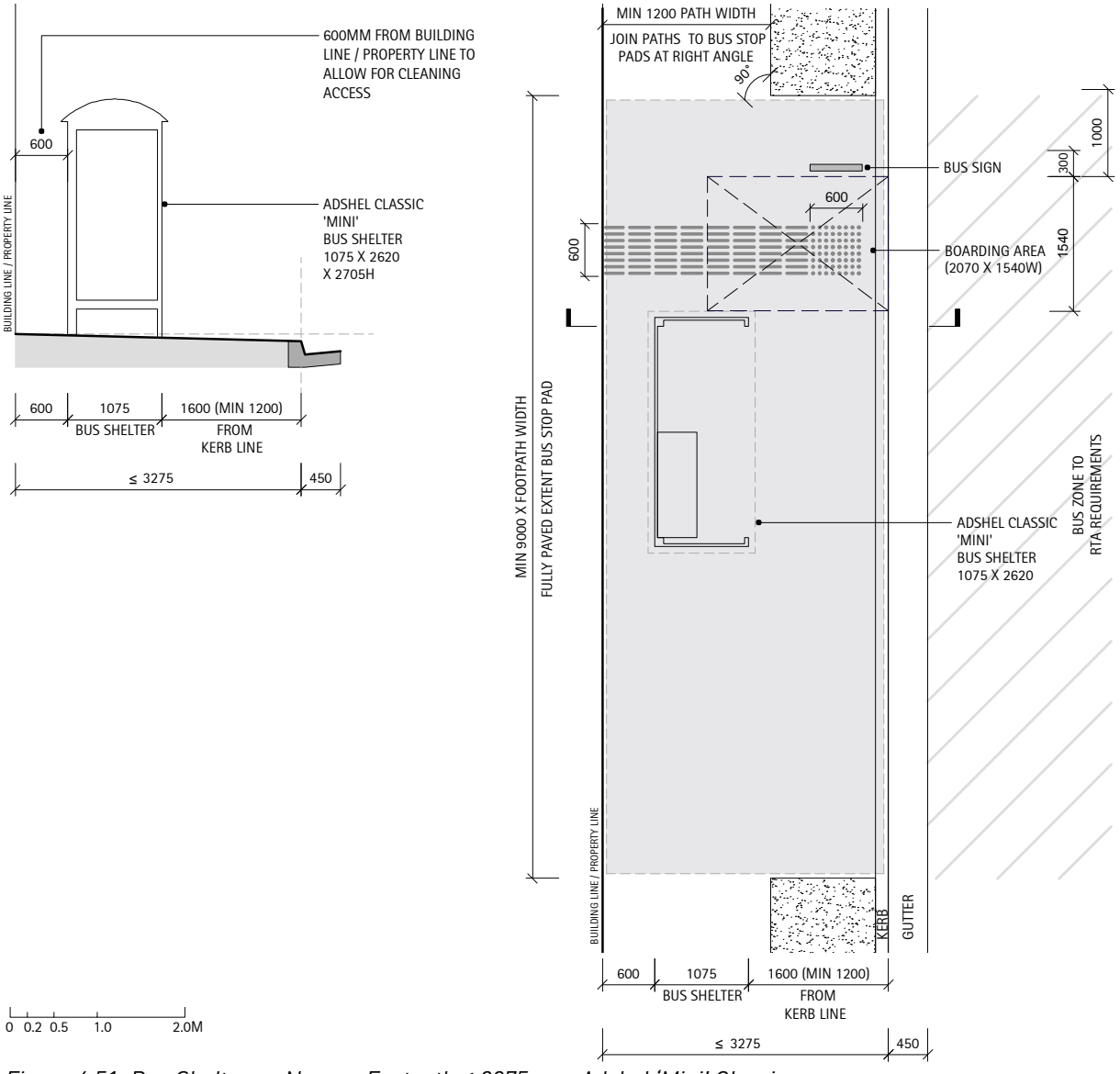

Figure 6.51 Bus Shelter on Narrow Footpath ≤ 3275mm: Adshel 'Mini' Classic

BUS SHELTER ON SHARED PATHS

Shared pedestrian and cycle paths should be located to the rear of bus shelters/seats (see Figure 6.52). The shared path area may be reduced to a minimum of 1.8m, with a minimum of 1m behind bus shelter/seats subject to Council's approval.

Bus Shelter on Shared Path: Adshel Classic

Paving	Fully paved on bus stop pad
Boarding Area	Unobstructed firm level - 2070 x 1540 (W)
Bus Stop Pad	Min. 9000l x footpath width
Bus Shelter Type	Adshel Classic - 1355 (D) x 3820 x 2645 (H)
Bus Shelter Set Out	Preferred 1200 from kerb face
Clear Path of Travel	Min. 1000 along the building line
TGSI	Directional + warning indicators (600 wide)
Cross Fall	Max. 2.5%
bus stop sign	Min. 300 clear from kerb face Min. 300 clear from boarding AREA
Adjacent Path	Min. 1200 wide Join path to bus stop pads at right angle
Note	All dimensions are in mm unless otherwise specified

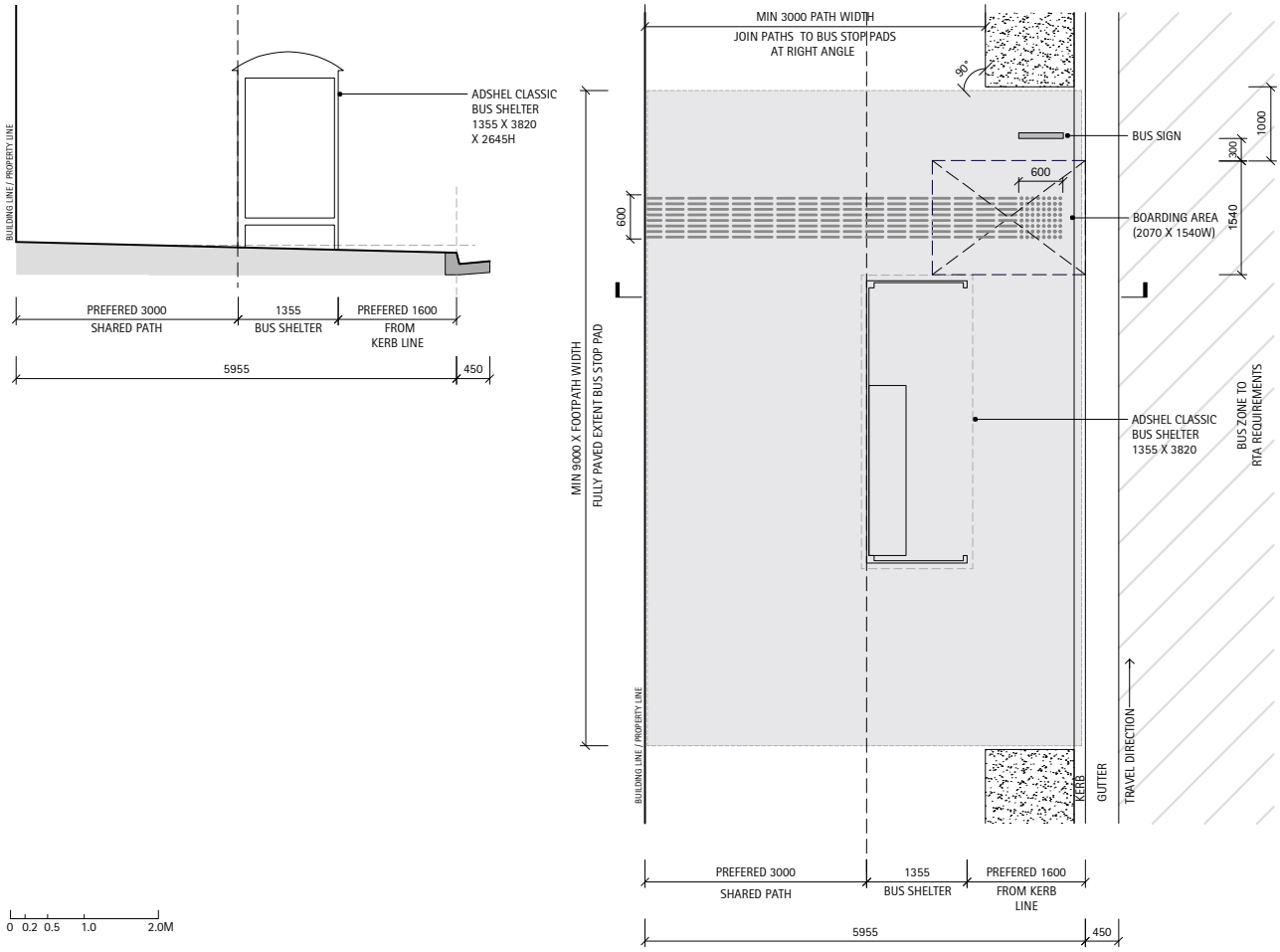

Figure 6.52 Bus Shelter on Shared Path: Adshel Classic

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CITY OF PARRAMATTA

URBAN DESIGN TEAM

JULY 2017