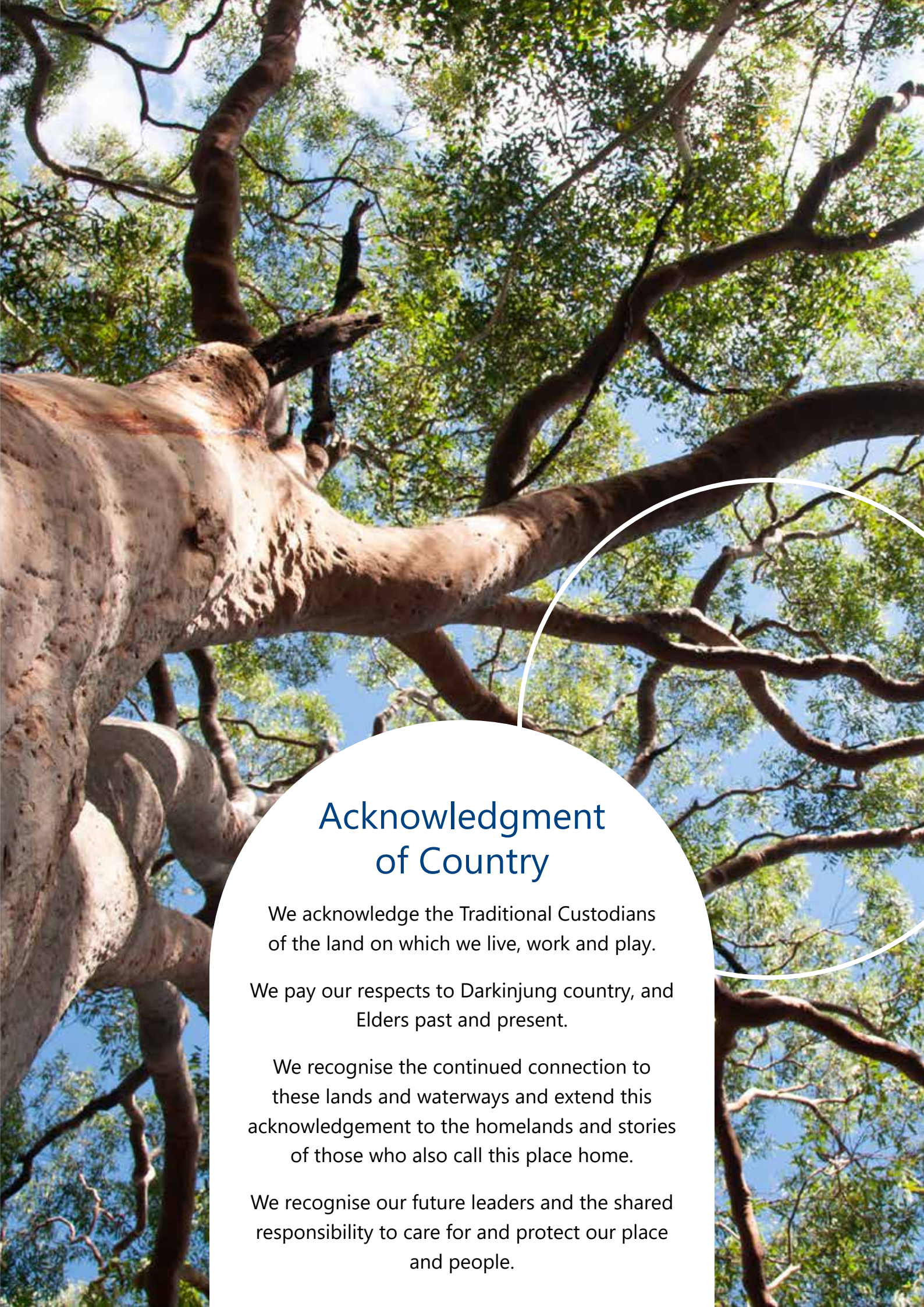
Central Coast Council

Central Coast Council

Street Design Guideline

Record of Amendments

Revision	Date Approved / Authority	Description of changes
1	Tuesday 28 May 2024 / Central Coast Council	Adopted



Acknowledgment of Country

We acknowledge the Traditional Custodians of the land on which we live, work and play.

We pay our respects to Darkinjung country, and Elders past and present.

We recognise the continued connection to these lands and waterways and extend this acknowledgement to the homelands and stories of those who also call this place home.

We recognise our future leaders and the shared responsibility to care for and protect our place and people.

Rouse Hill, NSW

Executive Summary

Central Coast Council is committed to enhancing the quality of life on the Central Coast, as evidenced by the One Central Coast - Community Strategic Plan 2018-2028. This plan recognises the community's strong aspiration to develop town centres and neighbourhoods that are characterised by their liveability, sustainability, and a sense of place.

The Street Design Guideline (the Guideline) together with the Landscape Works Specification (the Specification), have been created to ensure a consistent and coordinated approach to executing public domain projects throughout the Local Government Area (LGA). The Guideline not only sets out a vision for our streets and public spaces but offers detailed guidance on the standards, requirements and materials to be used for public domain works, for relevant development that triggers the preparation of public domain or landscape plans.

The Guideline has been developed for use by Council staff, private developers, design consultants, infrastructure authorities and local residents. Use of the Guideline, in conjunction with related documents such as Council's Civil Works Specifications, and Transport for New South Wales' (TfNSW) Movement and Place Framework, provides a comprehensive approach to designing streets and civic spaces. This integrated approach ensures that any public domain projects on the Central Coast align with industry standards, local regulations and community aspirations.

Ultimately, the use of the Guideline will help professionals create well-designed, functional, and people-centric streets that enhance the liveability and quality of life for everyone on the Central Coast. It also provides guidance to residents seeking to provide landscaping within their verge.

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1. Introduction

The Street Design Guideline focuses on the design and development of streets and civic spaces within our towns and neighbourhoods. These spaces are collectively known as the 'Public Domain'.

Streets constitute a significant portion of public space in urban areas and serve multiple functions beyond providing transportation routes. Ensuring good street design is crucial for enhancing our quality of life.

Streets must be safe, comfortable, attractive, and accessible to all. They are to be inviting spaces where people are encouraged to linger, socialise, and engage with one another. A well-designed street has the power to create a genuine sense of place and foster connections between the community and the towns and neighbourhoods they inhabit.

2. What does the Guideline Cover?

The guideline covers streets identified as:

Residential Streets:

- Access Lanes
- Access Streets
- Local Streets
- Collector Streets
- Distributor Roads

Urban Streets:

- Laneways
- Neighbourhood Streets
- Collector Streets
- Connecting Streets
- Main Streets
- Civic Spaces

Industrial Streets

3. Who does the Guideline apply to?

- **Council staff** working in planning, design, project delivery or asset maintenance of streets and public spaces
- **Private developers** and external **design professionals**
- **Infrastructure authorities** working within the public domain
- **Local Residents** wishing to install landscaping within their verge.

4. Purpose

This Street Design Guideline has been prepared to assist Council Staff, Private Developers, Service Providers and Local Residents, by informing them of Council's requirements with respect to the design and construction of public domain assets, and to ensure that such works are provided to appropriate and sustainable standards.

The Guideline consists of the following volumes, which shall be read in conjunction with one another as required and not in isolation. These documents are available on Council's website:

- **Street Design Guideline**
- **Landscape Works Specification – Standard Drawings**

The Guideline provides minimum requirements and references for the design of public domain works within the Central Coast Local Government Area and must be used in conjunction with all other council guidelines and specifications such as the Civil Works Specification.

5. Structure of the Document:

The document is broken down into the relevant sections:

Sections 1-4: Outlines in detail the purpose of the document, who it is for and what the document covers.

Sections 6-11: Provides a glossary of terms, outlines any disclaimers and liabilities, provides a list of reference documents and conflicting standards that proponents need to be aware of.

Section 12: Broadly outlines the different requirements for various works within the public domain.

Sections 13-19: Outlines the application process for Public Domain Works, including DA and CC applications, plus what is required both during and after construction works.

Appendix A: Outlines the Key Aims and Design Principles of good street design, and also provides a list of performance indicators with which to measure the relative success of a public domain project.

Appendix B: Outlines the different elements to consider when designing a street or civic space, and provides minimum design standards for a range of residential and urban streets.

Appendix C: Provides design details for specific components of street design, and outlines the materials and finishes schedules for individual town centres.

6. Glossary of Terms

AHD – Australian Height Datum

Access Laneway – Access for small lot housing with very limited through traffic.

Access Street – Minor suburban streets that have limited through traffic.

Carriageway - Portion of road or bridge used by vehicles (including shoulders and auxiliary lanes or between the face of kerbs).

CBD – Central Business District.

CC – Construction Certificate.

Civic Spaces – Public areas within town centres designed to prioritise pedestrians such as malls, town squares and shared zones.

Collector Street – Linked to major roads and carry between 2000 and 5000 cars per day.

Connecting Streets – Cater for mixed business use in urban areas and connect to the Main Street.

Contractor – Person, private sector entity or consortium engaged by an Applicant, Developer or Service Provider to execute a contract.

Council – Central Coast Council. Council may also be referred to as the Principal under a construction contract.

Council's Representative – Staff member nominated by Central Coast Council to act on Council's behalf in the discharge of its contractual responsibilities and/or the person responsible/ delegated to make a decision for the Council. This person may be referred to as the superintendent under a Construction Contract.

Cycleway – Paved surface designed specifically for cyclists.

Cycle lane – Lane within a carriageway designed specifically for cyclists.

DA – Development Application.

Deep Soil - Area of deep natural or imported soils soil minimum 1.5m depth and free of services.

Distributor Road – Major movement roads designed to accommodate considerable traffic loads.

Flexible Zone – Area of carriageway usually designed as a parking lane.

Footpath – Paved surface specifically for pedestrian movement.

Gateway Streets – Main entry streets to towns or individual suburbs.

Green Links – Streets in specific town centres that link areas of important open space.

Industrial Streets - Streets in major industrial of business park areas.

Kerb and Gutter – Combined roadside element forming an open drain to capture and discharge runoff.

Lane – Rear access point for buildings in commercial areas.

LGA – Local Government Area.

Local Street – Residential Street designed to carry up to 200 cars per day.

Main Street – Generally located though a town centre of CBD.

MGA – Map Grid of Australia

Neighbourhood Street – Located within urban areas and accommodate a range of housing or apartment types.

NSW – New South Wales

PAMP – Pedestrian Access and Mobility Plan.

Public Domain – Generally refers to the portion of the street designated for pedestrian movement and activity and can include all street types, laneways and civic spaces.

Public Domain Plans – Plans required by a developer that outline the design requirements for all built elements within the public domain.

Road Reserve – Area of street measured from property boundary to property boundary.

Shared Path – Paved surface designed for pedestrians and cyclists to share.

Shared Zone – Low speed areas designed for max. 10km/per vehicle speeds.

Standard Drawings - Standard Landscape or Civil Engineering drawings provided by Council as part of the specifications package.

TfNSW – Transport for New South Wales.

Urban Centres - an urban area central to the heart of a region or suburb that contains the majority or business and commerce.

WSUD – Water Sensitive Urban Design.

Verge - Portion of road or street between the property boundary and the kerbline, generally containing footpaths, services and street tree planting.

VPA – Voluntary Planning Agreement

7. Disclaimer and Limitations of Liabilities

Central Coast Council does not guarantee that this document is free from errors and does not accept responsibility for any claims by any person or organisation resulting from the use or application of these documents and drawing. Copyright ownership in this document belongs to Central Coast Council unless otherwise indicated.

8. Reference Documents

Reference documents include but are not limited to:

- Austroads publications for which there is a specific Glossary of Terms publication and also incorporates some definitions in individual documents.
- Transport for NSW (TfNSW) or documents which incorporate definitions.
- Australian Standards documents for which there is a specific Glossary of Terms, such as AS 1348 Road and traffic engineering and incorporated definitions in individual documents.
- TfNSW Movement and Place Framework
- Healthy Streets
- Other Central Coast Council documents including the Civil Works Specifications.

In any instance, where because of terminology, the interpretation of this Guideline is in dispute, definitions shall be clarified by Council's Representative.

9. Conflicting Standards and Guidelines

Where this Guideline refers to an Australian Standard, Australian/New Zealand Standard, Austroads or TfNSW publication or other document that has been superseded by a new or updated version, issued after commencement of the works, then Council's Representative shall be consulted as soon as possible to determine which requirements apply.

Where there is any ambiguity between the provisions of this document and any other provisions, the applicant must adequately inform Council's Representative of any potential and actual conflicts as soon as they become aware to allow Council the maximum time available to resolve the conflict. The applicant shall provide all necessary information to adequately inform Council's Representative of any associated and consequential impacts on design or construction prior to the contract commencing.

Council's Policies and Procedures take precedence for all Central Coast Council employees.

10. Departure from the Guideline

Consideration may be given for products or work methods which do not strictly comply with the Guideline or Specifications. Details of the proposed departure from the Guideline and Specifications need to be submitted to Council's Representative for approval.

11. Bushfire Prone Areas

In carrying out the design and construction of public domain works, designers shall ensure that bushfire protection measures required by conditions of consent, other approvals or other Authorities' requirements are incorporated into design plans and specifications. Designers must also ensure that all works do not create previously unidentified bushfire protection issues. This may include the impact of fully established landscaping on fire protection measures.

Designers shall reference relevant documents published by the NSW Rural Fire service, current Australian Standards and the Building Code of Australia when designing for provisions related to bushfire protection.

Hornsby, NSW

12. Approval of Landscape and Public Domain Works

A number of approvals are required prior to and during any works undertaken on land that is owned/managed by or is to be dedicated to Council that is referred to as the Public Domain. This generally includes Residential Streets, Urban Streets, Civic Spaces and Industrial Streets.

Landscape or Public Domain Plans are required for:

- Any re-zoning application requiring a Planning Proposal (PP) where public domain works are involved.
- Any commercial development application requiring DA consent where public domain works are involved.
- Any residential or mixed-use development application requiring DA consent where public domain works are involved.
- Any subdivision development requiring approvals under the Roads Act, inc. Local Govt. Act and/or Water Management Act (Council).
- Any residential development where a Development Application or Complying Development Certificate (CDC) is being applied for where public domain works are involved.

Unless stated otherwise, Landscape and Public Domain Plans must be prepared by a suitably qualified Landscape Architect.

Whilst certain development can be undertaken by Council and other government departments and infrastructure providers without development consent under Part 5 of the Environmental Planning and Assessment Act 1979, it is expected that these works will comply with Appendices A to C of this Guideline and that relevant Landscape and Public Domain Plans will be prepared.

Landscape and/or public domain plans are not required to be submitted to Council where a resident is simply landscaping the verge in front of their existing property. The resident however must seek approval from Council where any digging or excavation works are being proposed (e.g. tree planting) to avoid personal injury and/or damage to existing services or assets.

Refer to section C.2.4 for guidance where businesses / residents wish to plant within the verge.

13. Lodging an application

Up-to-date guidance on how to lodge a development application can be found on Council's website:

centralcoast.nsw.gov.au/plan-and-build/development-applications/make-submission

14. Coordinating Your Public Domain Plans

All Landscape or Public Domain Plans must be fully coordinated with any other application material required for assessment and approval, such as architectural or engineering plans. The applicant must ensure that any information provided on the plans does not contradict information provided elsewhere.

Depending on the stage of work, the applicant must ensure that all essential components of the public domain works such as kerb alignments, buildings, light poles, services, furniture and street trees are shown in the same locations across all sets of plans, and that any superfluous information is omitted for clarity.

Approvals can be delayed when applicants have failed to carefully coordinate their works.

15. Pre-Lodgement

A Pre-Lodgement meeting with Council is recommended for any major project which involve Public Domain works. Applicants are encouraged to provide preliminary site survey, site analysis and concept design drawings at least 7 days before a pre-lodgement meeting. Any drawings or information that helps broadly outline the scope of the project will assist Council with the process.

Drawing Requirements (Pre-Lodgement):

Drawings	Requirements	Format	Scale
Site Survey	Site Survey Plans are to be prepared by a suitably qualified Surveyor and include all relevant elements of the site including existing buildings; foot, cycle or shared paths; roads; vehicle access crossovers; kerbs and service pits; existing trees and vegetation; existing site furniture and light and power poles. The survey is to also include datum height levels across the site and be positioned using MGA coordinates.	PDF Copies	1:500
Site Analysis	Site analysis plans are to be prepared by a qualified Landscape Architect and must clearly articulate the site context and outline the various opportunities and constraints.	PDF Copies	1:500
Public Domain Concept Plans	Public Domain Concept Plans must outline the concept in sufficient detail to allow Council officers to review and address the main components of the scheme. The plans are to demonstrate how the Design Principles outlined in this guideline will be addressed and how existing site constraints and services will be addressed to ensure the best quality outcome is achieved.	PDF Copies	1:500

16. Development Application (DA)

16.1 Requirements

A set of Landscape or Public Domain Plans must be provided as part of any Development Application involving landscape or public domain works.

16.2 When Required

Landscape or Public Domain plans are required to be submitted for any private development projects including:

- Developments in which changes are being made to the existing Public Domain infrastructure including roads, footpaths, laneways, public plazas, etc.
- Developments in which new public space is being created such as building forecourts which contribute to the public domain.
- Developments within Gosford CBD or other Urban Centres; subdivisions, or any future growth areas which contribute to the public domain.
- In the following land use zones: E1 Local Centres, E2 Commercial Centre, E3 Productivity Support, MU1 Mixed Use, SP4 Enterprise and Productivity, R1 General Residential, R2 Low Density, R3 Medium Density Residential, R4 High Density Residential (Refer Central Coast Council LEP and Central Coast Council DCP, SEPP Gosford City Centre 2018).

16.3 Design Considerations

Public Domain works must be fully resolved, be in keeping with the design principles outlined in this document and contribute as a piece of quality public space for the residents of the Central Coast. Full consideration needs to be given to the following elements:

Levels and Gradients:

- Ensure that a continuous path of travel is provided in accordance with the principles of this document. Any path of travel is to be fully accessible and free of trips, hazards or obstacles.
- Finished levels of all elements must be coordinated (spot heights provided to AHD) including kerbs, walls, fences and service pit lids.
- Any existing public domain surrounding a development that does not comply with Council's standards is required to be reconstructed.
- Indicate any works to be demolished.

Layout:

- Ensure the street layout is designed in accordance with the principles outlined in this document.
- All elements including street trees, furniture, services, lights, ramps, stairs and walls are to be coordinated at DA stage to avoid any conflicts and ensure the approved DA plans can be executed at the construction stage.
- Indicate proposed adjustments to footpaths and gradients to accommodate new building entries, stairs or pedestrian ramps or driveways.
- Provide road alignments and indicate elements such as pedestrian crossing points, kerb ramp locations, refuge islands etc.
- Adjustment of footpath or driveways levels to address flooding issues will only be permitted where consistent with recommendation and certification by a flood engineer. Flood levels must be considered as part of any building development.
- Indicate locations of all fixed structures such as walls, ramps, stairs to concept design standards

Materials:

- Indicate all proposed materials and finishes to concept design standards.
- Indicate material finishes for all built structures such as walls, retaining walls and stairs to concept design standards.

Tree Pits and Soft Landscaping:

- Provide accurate locations and dimensions of all tree pits and garden beds including extent of structural soil or soil cells beneath pavements.
- Indicate all existing trees and vegetation to be retained and protected during construction.
- Indicate all above and below ground services on the DA drawings to ensure that adequate space has been provided for street trees.
- Provide indicative plant schedule including all proposed species, numbers and proposed installation sizes. Council may advise on tree species selection during assessment.
- Provide a maintenance and watering schedule for all new planting in accordance with the Landscape Works Specification.

Furniture, Fixings

- Indicate all existing furniture to be removed or relocated.
- Indicate locations of all proposed furniture and fixings located in the public domain.
- Provide an indicative furniture and fixings schedule of all furniture and fixings.

Building Encroachments:

- Excluding awnings, ensure that no built elements which relate to the private building development encroach into the public domain including steps, ramps, handrails, balustrades or Tactile Ground Surface Indicators (TGSIs).

Building Setbacks:

- Ensure that all pavement materials and finishes extend continuously into any building setbacks to ensure continuity of the streetscape.

Water Sensitive Urban Design (WSUD):

- Indicate locations and dimensions of proposed WSUD devices including finished surface levels and surrounding levels to ensure drainage has been fully coordinated.
- Indicate any below ground services and how the device will be incorporated into the existing storm-water drainage system to concept design standards.

Services, Pit Lids and Permanent Survey Marks:

- Indicate all existing pit lids and services to be retained.
- As far as is reasonable at DA stage, indicate all new pit lids and services and how any proposed landscape elements, particularity street tree locations, will be coordinated.

Drawing Requirements (DA):

Drawings	Required Information	Format	Scale
DA Plans	Outline all Landscape and Public Domain works. Provide existing and proposed levels at top of kerb, gutter line invert at regular intervals, as well as at drainage points, the property boundary, building line and building entries. Indicate existing footpaths levels at least 10m beyond the property boundary to illustrate how the works transition into the existing public domain. Clearly indicate all existing and proposed services as far as possible to help Council representatives understand how well the proposed works are being coordinated. Show all proposed and existing elements on the same plan where possible. Clearly indicate Ground Level building footprint, finished floor levels and locations of entries, exits, driveways, windows, building setbacks, awnings, columns, building overhangs. Clearly title each drawing with the correct name, drawing number, date and revision number and provide north points and scale bars on each drawing. Clearly indicate the extent of all proposed works.	PDF Copies	1:200
Cross Sections	Provide Cross Sections through the ground floor of the building, footpath, kerb and road carriage at approximately 10m intervals. Indicate all existing and proposed levels and show all built elements including tree pits, garden beds WSUD devices, fences, walls, stairs, ramps and street furniture. Provide cross sections at all building entries and exits.	PDF Copies	1:100
Longitudinal Sections	Provide Longitudinal Sections along each street frontage extending through the property boundary; indicate all existing and proposed levels at top of kerb. Show all built elements including tree pits, garden beds WSUD devices, fences, walls, stairs, ramps and street furniture. Provide cross sections at all building entries and exits.	PDF Copies	1:200

17. Construction Certificate (CC) or Subdivision Works Certificate

17.1 Requirements

Depending on the project, a set of Construction Certificate Plans (CC), or Subdivision Works Plans and technical specifications must be submitted for approval and incorporate all proposed landscape or public domain works. These plans must be certified by the principal certifying authority prior to the commencement of any construction works. The drawings and specifications must form a set of fully coordinated construction documentation which detail the works approved at the DA stage as well as any additional requirements made by Council as Conditions of Consent or by way of a Voluntary Planning Agreement (VPA).

17.2 When Required

Construction Certificate or Subdivision Works Plans must be submitted to and approved by the principal certifying authority (e.g Council, Private Certifier) prior to the commencement of any construction work on site and must include:

- Works outlined as a condition of consent under DA; or
- Works associated with a Voluntary Planning Agreement (VPA)

17.3 Design Considerations

Works approved at DA must be retained as part of the construction package. During the development of the Construction Drawings, full consideration needs to be given to the following elements:

Levels and Gradients:

- Must be generally in accordance with the approved DA drawings and any conditions of consent and must be fully coordinated with all other built works and the adjoining public domain.

Layout:

- Must be generally in accordance with the approved DA drawings and any conditions of consent and must be fully coordinated with all other built works.
- Detailed design and resolution of all built elements including street trees, furniture, services, lights, ramps, stairs and walls in compliance with Council standards.
- Construction detailing of all built elements to suit Council standards.

Materials:

- Must be generally in accordance with the materials and finishes approved on the DA drawings and any conditions of consent.
- Detailed resolution of all paving materials, finishes, sealant, set-out and paving patterns including coordination with all other built structures, furnishings and existing pavements.
- Detailed resolution and set-out of all built structures such as walls, stairs and ramps.

Tree Pits and Soft Landscaping:

- Provide accurate location and dimensions of all tree pits and garden beds including extent of structural soil or soil cells beneath pavements.
- Full resolution of all above and below ground services.
- Provide full plant schedule including all proposed species, numbers and proposed installation sizes.
- Indicate on the plans all existing trees and vegetation to be retained and protected.
- Provide a maintenance and watering schedule for all new landscape in accordance with the landscape works specification.

Furniture, Fixings

- Identify all existing furniture to be removed or relocated on the drawings.
- Detailed resolution of all proposed furniture and fixings located in the public domain.
- Full schedule of all furniture and fixings.

Building Encroachments:

- Full detailed resolution of the design to ensure that no built elements (excluding awnings) within the private property boundary encroach into the public domain including steps, ramps, handrails, balustrades or Tactile Ground Surface Indicators (TGSIs).

Building Setbacks:

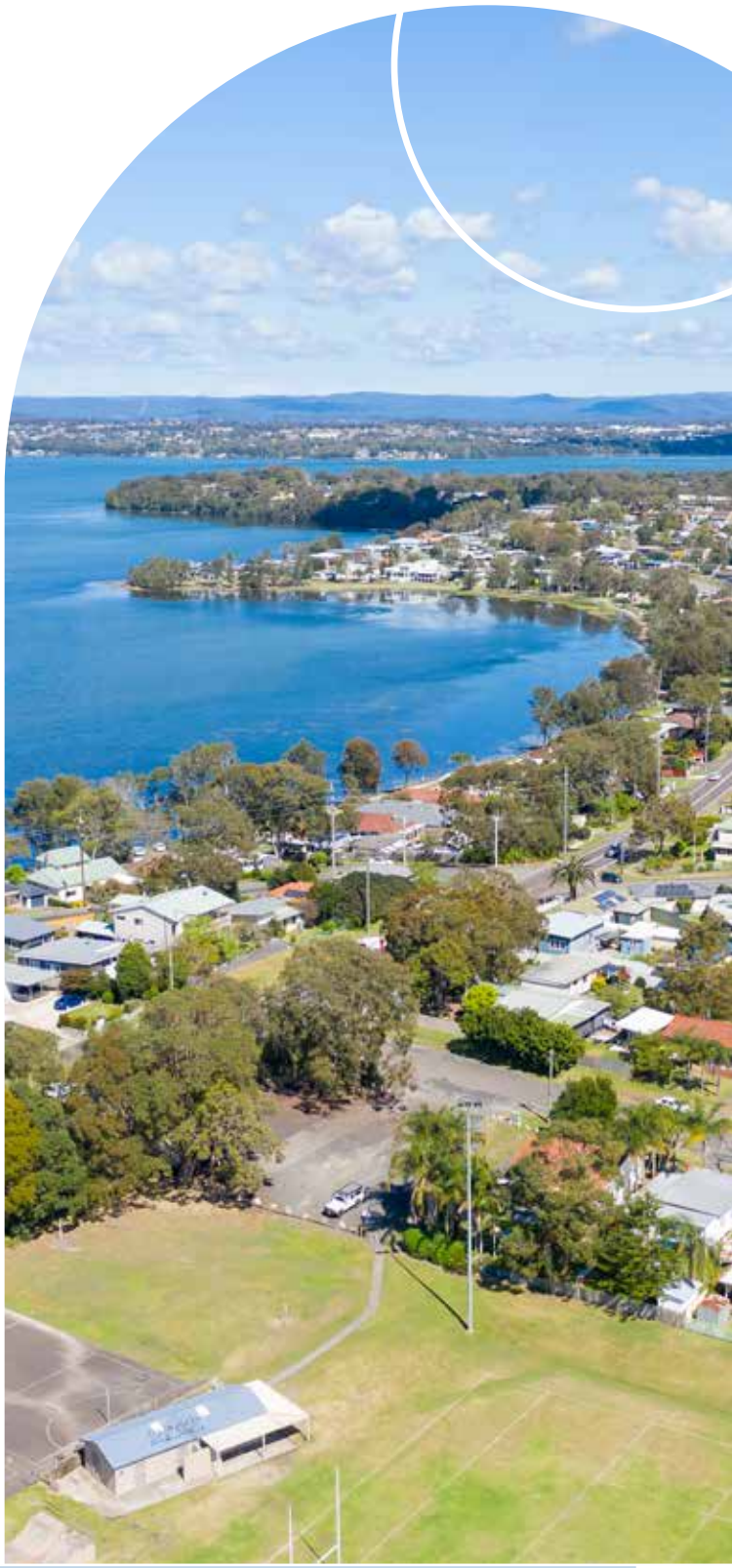
- Full detailed resolution of all pavement materials and finishes that extend continuously into any building setbacks to ensure continuity of the streetscape.

Water Sensitive Urban Design (WSUD):

- Must be generally in accordance with the materials and finishes approved on the DA drawings and any conditions of consent.
- Full detailed resolution of the locations and dimensions of proposed WSUD devices including finished surface levels and surrounding levels to ensure drainage has been fully coordinated.
- Indicate any below ground services and provide fully coordinated detailing on how the device will be incorporated into the existing storm-water drainage system.

Services, Pit Lids and Permanent Survey Marks:

- Ensure that the location and depth of all existing and proposed services are clearly marked on the drawings.
- Indicate locations and adjusted heights of existing service pit lids.
- Indicate locations and proposed heights of new service pit lids as well as specifying pit lid type and any infill materials.



Drawing Requirements (Construction or Subdivision Works):

Drawings	Required Information	Format	Min. Scale
CC Plans	Provide a set of Landscape or Public Domain Plans, Construction Details and Specifications for review and approval by Council. Provide levels for all existing and proposed works including paving, structures, service pits, tree pits, furniture etc. Provide setout plans for all built works. Clearly title each drawing with the correct name, drawing number, date and revision number and provide north points and scale bars on each drawing. Clearly indicate the extent of all proposed works.	PDF Copies	1:100
Cross Sections	Provide updated Cross Sections as per the DA submission that reflect any design changes and/ or conditions of consent. Indicate all existing and proposed levels and show all built elements including tree pits, garden beds WSUD devices, fences, walls, stairs, ramps and street furniture. Provide cross sections at all building entries and exits.	PDF Copies	1:100
Longitudinal Sections	Provide updated Longitudinal Sections as per the DA submission that reflect any design changes and/ or conditions of consent. Show all built elements including tree pits, garden beds WSUD devices, fences, walls, stairs, ramps and street furniture. Provide cross sections at all building entries and exits.	PDF Copies	1:200
Construction Details	Provide accurate, scaled Construction Details for all built elements that are appropriate to specific site conditions. If using Council's standard drawings please ensure these are applicable to the design and that site specific conditions have been addressed.	PDF Copies	1:20
Construction Specification	Provide a Landscape Construction Specification specific to the works that provide describes and outlines the requirements of any products or materials to be used; the components of any products of materials to be used; the capability and performance of any products or materials to be used and an outline of their intended use.	PDF Copies	

18. During Construction

A series of inspections will be required for any Public Domain projects on land owned or managed by Council, to ensure construction is being undertaken in a manner satisfactory to Council. Inspections may be required as follows:

- Inspection of site establishment prior to the commencement of any demolition or construction works to inspect site setup, site fencing, WHS requirements and tree protection measures.
- Inspection of excavation works for footings, drainage and pavements, tree pits etc.
- Inspection of sub-grade works including sub-grades, footings, reinforcing, formwork, concrete slabs, drainage and drainage pits, drainage connections, services and service protection, conduits, tree pits, structural soil, structural cells, irrigation etc.
- Inspection of surface works including paving, walls, stairs, setout of furniture and fixings etc.
- Inspection of trees and plants upon delivery to site and prior to installation. Trees to be installed within 24 hrs of delivery.

Additional inspections may be undertaken by Council throughout the duration of the works and will be arranged with the contractor.

Any defects identified by Council must be rectified by the construction company prior to the release of bond money held by Council.

19. Construction Compliance Process

During construction of a project, the process will generally run in the following order:

1. Subdivision, road and drainage inspections by Council; or
2. Public Domain Works inspections by Council.
3. Practical Completion Certificate issued (providing the works are compliant with the plans and approvals).
4. Payment of security deposits for maintenance/ defects and/or outstanding items in accordance with Councils requirements.
5. Compliance Certificate issued by Council for Public Domain Works; or
6. Compliance Certificate issued for Subdivision Works (Council or Private Certifier).
7. For subdivisions, subdivision certificate lodged and assessed by Council.
8. Subdivision certificate issued.
9. Maintenance inspection (and return of security deposits where relevant).

For Residential Development Works with CDC or DA consent:

1. Inspection and approval of construction compliance undertaken as above.
2. Compliance certificate issued.
3. Application for Occupation Certificate.
4. Occupation Certificate issued.

Budgewoi NSW

Appendix A:
Aims and Principles

A.1 Key Aims
A.2 Street Design Principles
A.3 Performance Indicators

A.1 Key Aims

The key aims of the Street Design Guideline are as follows:

Safer Streets for Everyone

Streets that are dominated by cars and vehicles can make people feel unsafe and discourage them from walking or cycling. People also need to feel safe from anti-social behaviour, unwanted attention, violence and intimidation.

The design of streets must consider all factors that increase safety in public spaces, and enable people to move freely and alone in their town or community.

Relevant Form and Function

The form and function of each street is dictated by its primary purpose. Some streets are predominately designed as movement corridors for transport, others have a much stronger civic or community function. Every street, however, will always need to cater for multiple activities, functions and types of movement.

Green and Sustainable

Cool, shaded streets adorned with a lush green canopy will greatly enhance the overall appeal of our streets. Mature street trees can reduce ambient temperatures and help mitigate the heat island effect. They can capture and store carbon dioxide and provide crucial habitat for urban wildlife.

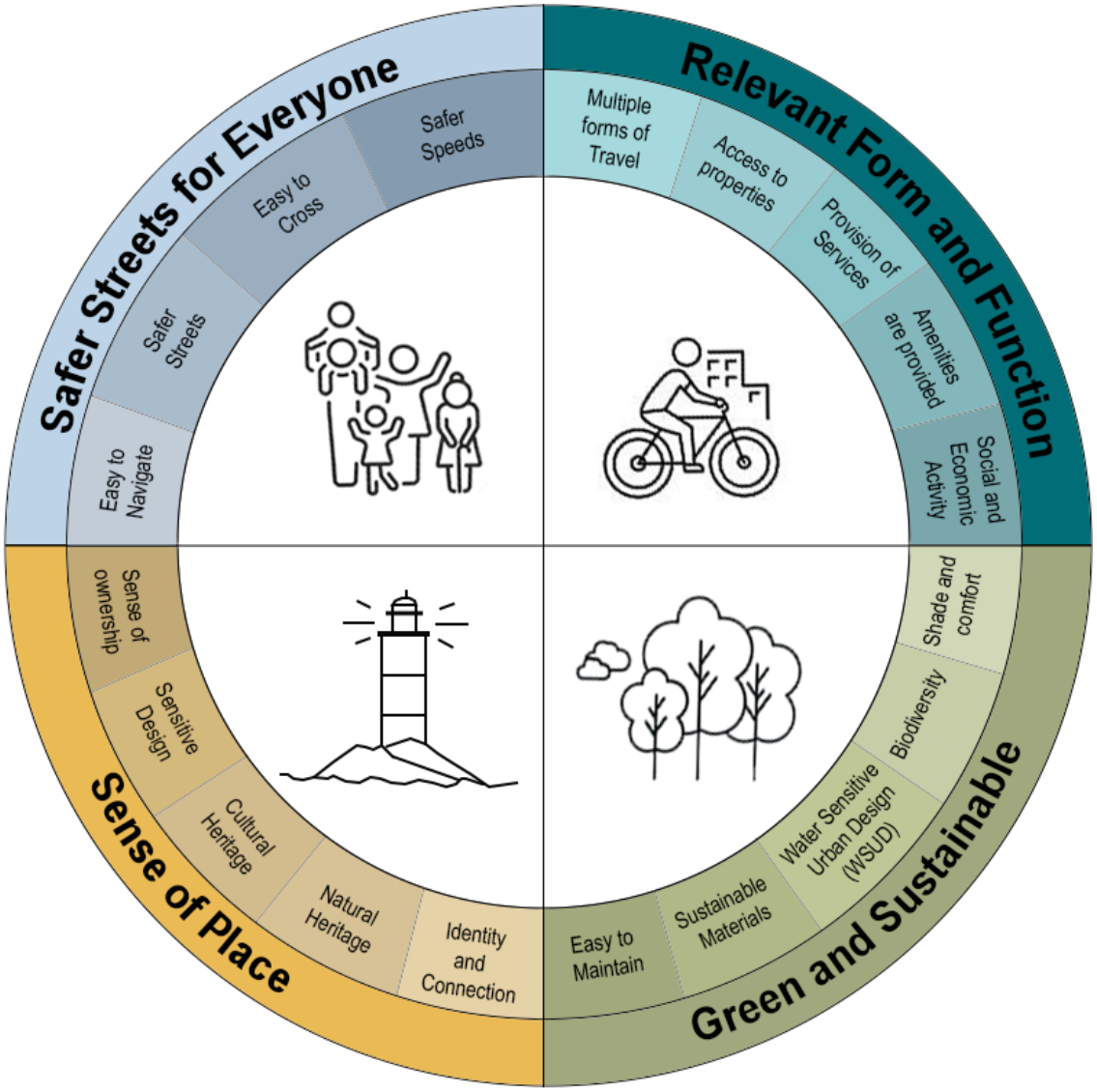
Streets must also be durable and easy to maintain. Poorly designed streets bring increased costs, and damaged assets that continually need replacement. Careful design of all elements within the streetscape can reduce these issues.

Sense of Place

Regardless of location, streets must be attractive, visually appealing and provide a strong sense of place. Through thoughtful selection of materials, planting, heritage interpretation and artwork, streets can cultivate a stronger sense of identity and connect more closely to the landscape and its history.

Well-designed streets that entice people to walk, linger, and spend time can also contribute to stimulating the local economy and attracting more tourism to the region.

Key Aims and Principles Diagram



A.2 Street Design Principles

Streets need to meet the needs of pedestrians, cyclists, public transport, and private vehicle users equally. The following principles have been developed to guide the design and delivery of new streets, or the revitalisation of existing streets:

A.2.1 Easy to Navigate

The streets of towns, suburbs and centres are to be easy to navigate. Towns, Suburbs and Streets that are easy to navigate reduce feelings of stress and disorientation.

A.2.2 Safer Streets

Designing safer streets, especially for women, girls and gender diverse people is crucial for fostering equality and inclusiveness. It includes improving perceptions of safety and creating environments that people can use without fear or harassment.

A.2.3 Easy to Cross

Designing streets to be easy to cross is crucial for pedestrian safety and accessibility and encourages walking. Large kerb radii, poorly located pram ramps and long pedestrian crossing distances can deter people from choosing to walk or cycle.

A.2.4 Safer Speeds

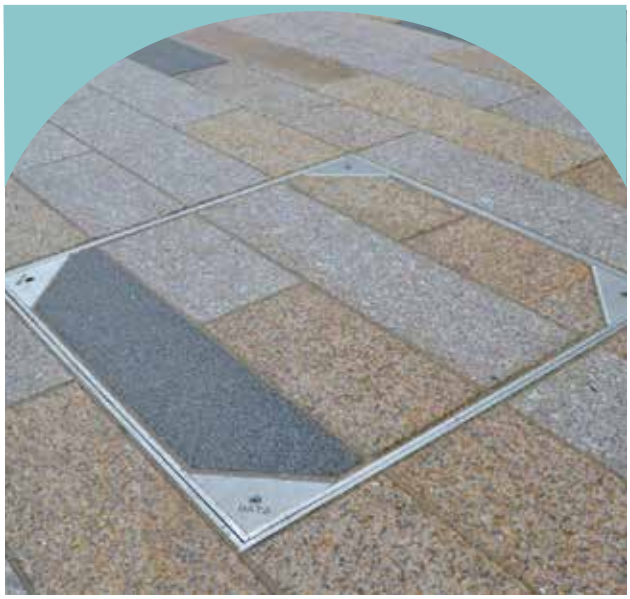
Reducing vehicle speeds through design can mean fewer pedestrian injuries and fatalities in our streets and neighbourhoods.

A.2.5 Multiple forms of Travel

A street purposefully designed for multiple forms of travel provides people with choice and allows people to walk, cycle or use public transport more easily.

A.2.6 Access to Properties

Streets provide essential access to individual properties, but must be done so in a way that does not hinder pedestrian movement or detract from the look and feel of the street.



A.2.7 Provision of Services

Streets carry vital services and utilities to homes and properties but must be designed holistically to ensure the character and quality of a street is not compromised.

A.2.8 Amenities are Provided

Ensuring that the street design provides necessary amenities and ensures accessibility and comfort for all users. Users are given the opportunity to rest, socialise or simply enjoy the surroundings.

A.2.9 Support Social and Economic Activity

Transforming a street into an inviting social space encourages community interaction and improves local business. Well designed streets that encourage people to stay longer can boost the local economy.

A.2.10 Provide Shade and Shelter

Providing shade and comfort is essential for creating pleasant and liveable urban environments.

A.2.11 Water Sensitive Urban Design

Water Sensitive Urban Design is a way to help minimise and slow down and remove pollutants from storm-water run-off by mimicking natural landscapes as closely as possible.

A.2.12 Biodiversity

Design streets to cater to changing environmental conditions and evolving needs, ensuring resilience in the face of climate change and urban development pressures. Select plants and materials more resilient to heat, bushfires, flooding, or drought tolerance.

A.2.13 Sustainable Materials

Where feasible, use locally sourced materials or recycled materials, or materials that can be adapted and re-used at the end of use.

A.2.14 Easy to Maintain

Creating streets that are easy to maintain is essential for long-term sustainability and cost-effectiveness. Maintenance issues must be considered at the planning and design stage to avoid future issues.

A.2.15 Identity and Connection

A strong sense of identity and connection among users is fostered when the design reflects the local culture, history, stories and social value. A seamless blend is to be achieved between the new design/ development and the established character of the area.

A.2.16 Protect, Retain and Conserve Natural Heritage

Creating streets and public spaces that respond to the natural heritage and landscape character of a place is a first principle of good urban planning and design.

A.2.17 Protect, Retain and Conserve Cultural Heritage

Creating streets and public spaces that reflect and respond to local cultural heritage is of equal importance.

A.2.18 Sensitive Design

The use of furniture, fittings, and materials in the design must be sensitive to the character of the place, respecting local architecture and design aesthetics.

A.2.19 Sense of Ownership

A sense of ownership and shared responsibility among the community for the street contributes to a more vibrant and cared-for public space. Local participation builds a sense of ownership and positively contributes to outcomes. Educational campaigns can help instill a sense of responsibility and pride among community members.

George Street Sydney

A.3 Performance Indicators

Key Aim: Safer Streets for Everyone

Design Principle	Design Considerations	Performance Indicators
1. Streets are easy to navigate: The streets of towns, suburbs and centres are to be easy to navigate. Towns, Suburbs and Streets that are easy to navigate reduce feelings of stress and disorientation.	Both passive and active wayfinding elements are to be incorporated into street design. Passive wayfinding involves designing in-built cues that provide intuitive information, logical pathways and predicable destination locations. Passive wayfinding could be achieved through materials, colours, landscaping, lighting, for example. Active wayfinding strategies include elements such as signage, maps or directories. Well-designed and visible signage provides clear information about directions, destinations, and key points of interest. Signage is consistent in appearance, aiding users to navigate without confusion. A hierarchical system is used for signage, indicating primary, secondary, and tertiary routes, helpings users understand the importance and order of different streets or paths. Streets are designed with a logical and intuitive layout. Straightforward intersections, clear sightlines, and a grid pattern can contribute to ease of navigation. Distinctive pavement patterns, colours, and/or textures are used to guide pedestrians along specific routes. Information centres or kiosks are provided, where appropriate, so users can seek assistance, obtain maps, and get information about the area.	The Streets are easy to navigate. Adequate street signage is provided to aid navigation.
2. Streets are designed to be safe: Designing safer streets, especially for women, girls and gender diverse people is crucial for fostering equality and inclusivity. It includes improving perceptions of safety and creating environments that people can use without fear or harassment.	Streets and public spaces are designed to encourage users and naturally activate the public space. Adequate lighting, especially in secluded areas, ensures visibility and deters anti-social behaviour. Clear sight-lines and unobstructed pathways enhance personal security. Opportunities for concealment or entrapment are minimised through design, re-development and maintenance regimes. Civic Spaces are designed to deliver a wide range of facilities and functions. Streets are designed with durable materials and landscape species that have a long life and are low maintenance to ensure safety and prolong use. Accessible and well-maintained public transport or ride share infrastructure is provided to promote convenience and safety.	Pedestrians, cyclists and public transport users feel safe using the street day and night. The design empowers women and gender diverse people to use the space without fear. The design, materials and landscape contribute positively to the area, encouraging usage.

Design Principle	Design Considerations	Performance Indicators
3. Streets are easy to cross: Designing streets to be easy to cross is crucial for pedestrian safety and accessibility and encourages walking. Large kerb radii, poorly located pram ramps and long pedestrian crossing distances can deter people from choosing to walk or cycle.	Well-designed crossings are designed with clear markings and signage. Traffic signals that incorporate pedestrian movements are to have longer crossing times where possible and audible cues to benefit people with sensory impairments or disabilities. Pedestrian islands are to be provided in the middle of wide roads to provide a safe haven for crossing in stages. Continuous footpaths and well-located pram ramps are provided to ensure seamless movement for people with mobility aids or those with strollers. Painted thresholds are provided at intersections to reinforce pedestrian priority (low complexity solution) Raised thresholds are provided at intersections to reinforce pedestrian priority (medium complexity solution) Mid-block street closures considered in highly populated areas to restrict movement for some transport modes and prevent 'rat-runs'.	The infrastructure provided is pedestrian friendly and inclusive. The traffic signals provide enough time for pedestrians with sensory impairments or disabilities to cross. The footpaths are wide enough for people to walk comfortably. Painted and raised thresholds are provided at intersections to reinforce pedestrian priority.
4. Safer Speeds: Reducing vehicle speeds through design can mean fewer pedestrian injuries and fatalities in our streets and neighbourhoods.	NSW Government's Safe System Approach is to be used when considering road and street design. Pedestrian and cycling infrastructure is prioritised in accordance with NSW Government's Movement and Place Guidelines. Vehicle speeds are to be lowered through traffic calming measures. Avoid designing long, straight stretches of road that encourage speeding. Trees and landscaping are used to visually narrow the perceived road corridor and help lower vehicle speeds.	Vehicle speeds are reduced through design. Pedestrians and cyclists are prioritised.

Key Aim: Relevant Form and Function

Design Principle	Design Considerations	Performance Indicators
1. Multiple forms of travel: A street purposefully designed for multiple forms of travel allows people to walk, cycle or use public transport more easily.	Adequate infrastructure must be provided to ensure walking and cycling become safe natural, viable forms of travel. The design and development of streets (especially as part of new subdivision) provide adequate connections to the broader public transport network. The broader network of footpaths and cycle lanes are considered when developing subdivisions or new housing areas. Future forms of transport and micro-mobility requirements are considered when planning and designing streets. Wider footpaths are provided to allow better movement and reduce the feeling of congestion.	People can use the street for multiple activities. Walking and cycling are safe, viable forms of travel. The street is adaptable for numerous different uses.
2. Access Provided to Properties: Provide safe equitable access to individual properties whilst maintaining the street as a public right of way.	Provide fair and equitable access to all buildings at the property boundary, avoiding an over-reliance on steps and ramps within the property boundary. Provide continuous footpaths treatments across driveways to indicate pedestrian priority and ensure the look and feel of the street contributes positively to the character of the area.	Safe, equitable access is provided to every property. The street feels like a public space first and foremost.
3. Provision of Services: Streets carry vital services and utilities to homes and properties but must be designed holistically to ensure the character and quality of a street.	When planning and designing streets, services and utilities are coordinated to allow adequate room for all other elements such footpaths, bike lanes and street trees. The location and depth of services are planned to ensure street trees are not omitted in the construction stage due to late or poor planning decisions. In some instances where space is limited, trade-offs can be made such as placing major utilities beneath vehicle lanes so that walking and cycling is not disrupted, and street trees are not lost for maintenance works.	Services are located in thoughtful, discreet locations that do not detract from the look and feel of the street.

Design Principle	Design Considerations	Performance Indicators
4. Amenities are provided: Ensuring that the street design provides necessary amenities ensures accessibility and comfort for all users. Users are given the opportunity to rest, socialise or simply enjoy the surroundings.	Provide benches, seating arrangements or other comfortable spaces at regular intervals. Consider providing smart poles and smart furniture in specific urban centres, allowing pedestrians to stay connected and engage in activities like remote work or social media while on the go. Introducing interactive elements like touch-sensitive screens, sound installations, or other sensory experiences that engage pedestrians as they move through the space in specific urban centres. Installing information kiosks, community boards or other points where people can gather, share information and engage with community events or announcements in specific urban centres. Design the space with flexibility in mind, allowing for the adaptation of the area for different purposes or events.	The design provides essential amenities for all users. Street furniture is strategically placed to offer rest and respite for pedestrians. The street design provides opportunities for pedestrians to take a break, relax and observe their surroundings.
5. Support social and economic activity: Transforming a street into an inviting social space encourages community interaction and improves local business. Integrating plants and trees into street design contributes to a more pleasant atmosphere, attracting people to spend time in the area. Proper illumination enhances the night-time appeal of the space and extends its usability.	Design streets with a human scale in mind to avoid dominance by cars or buildings and encourage social interaction and economic activity. Greenery and landscaping is integrated to create a visually appealing and calming environment. Thoughtfully designed lighting, including ambient and accent lighting is implemented. Streets within centres are designed to encourage outdoor dining and trading in alignment with Council's policies and specifications.	The street feels social and inviting. The street design is at a human scale.

Key Aim: Green and Sustainable

Design Principle	Design Considerations	Performance Indicators
1. Provide Shade and Reduce Heat Providing shade and comfort is essential for creating pleasant and liveable urban environments.	Ample tree canopy and green infrastructure is provided along streets to provide natural shade, reducing the impact of harsh sun rays and lowering ambient temperatures. Trees are planted in the verge in accordance with the Guidelines. Appropriate tree species are used in tree planting to help mitigate the heat island effect. Where appropriate, incorporate street blisters or locate trees in parking lanes to maximise canopy and narrow the perceived road corridor. Where appropriate, use trees in medians to maximise canopy and support biodiversity. Light-coloured or porous materials is used for pavement to minimise heat absorption and increase comfort.	The street provides enough shade and comfort during the summer months. The street trees are healthy and have adequate space to grow.
2. Biodiversity: Green streets can increase biodiversity across the region and help support a range of native wildlife, particularly in urban areas.	Streets are generally hostile places for successful plant growth. Create biodiverse streets by first analysing the site and understanding the factors suitable for plant growth e.g. soil conditions, compaction, permeability, contaminants, soil volume, existing services or available maintenance resources. Provide a broad mix of predominantly native plants, avoiding mono-culture landscapes. Consider low impact lighting solutions.	There is a measurable increase in native wildlife. Street trees can reach a healthy mature age without failure, removal or intervention due to poor planting or selection choices.
3. Deliver Water Sensitive Urban Design (WSUD): Water Sensitive Urban Design is a way to help minimise and slow down storm-water run-off by mimicking natural landscapes as closely as possible	Where suited, incorporate design elements such as rain gardens to help minimise and reduce storm water run-off. Connect water systems into larger constructed wetlands to help reduce and cleanse run-off. Where possible, design natural drainage swales and channels rather than artificial channels.	Landscaping has been used to help minimise surface run-off. The street does not flood whenever it rains.

Design Principle	Design Considerations	Performance Indicators
4. Sustainable Materials: Promote sustainability goals across the region by selecting materials with recycled or re-usable elements for Council projects	Where suitable, use re-used or recycled materials when selected street elements such as street furniture. Use locally made products and materials where available. Select high performing products with longer lifespans to minimise waste or replacement costs.	Measurable increase in the use of recycled or sustainable materials and products.
5. Easy to Maintain: Creating streets that are easy to maintain is essential for long-term sustainability and cost-effectiveness. Maintenance issues must be considered at the planning and design stage to avoid future issues.	Durable and low-maintenance materials for pavements and street furniture must be selected to reduce the need for frequent repairs and replacements. Adequate drainage systems must be designed and implemented to prevent water damage and erosion. The design must avoid problematic features such as narrow strips of turf, or poorly located or selected trees and landscaping species to reduce the complexity of maintenance tasks.	The Street is well-maintained. There are no ongoing maintenance difficulties.

Key Aim: Sense of Place

Design Principle	Design Considerations	Performance Indicators
1. Identity and connection: A strong sense of identity and connection among users is fostered when the design reflects the local culture, history, stories and social value. What does the place mean to people? A seamless blend is to achieved between the new design/ development and the established character of the area.	References to the area's history are integrated into the design, whether through plaques, monuments, or interactive installations that tell stories about the community's past. Locally significant naming, including aboriginal naming, for streets, squares, or landmarks is used. Clear and culturally sensitive wayfinding signage contributes to a sense of belonging and ease of navigation. Educational elements are provided that inform users about the local culture, history, and significance of the area. Interpretive signage or interactive displays can contribute to this. Design elements of the street design in keeping with the existing local architecture.	The experience provided by the street design is unique to the place. The street captivates the attention of the user. The street fosters a strong sense of identity and connection among the users.

Design Principle	Design Considerations	Performance Indicators
2. Protect, retain and conserve Natural Heritage and Landscape Character: Creating streets and public spaces that respond to the natural heritage and landscape character of a place is a first principle of good urban planning and design.	Existing natural heritage or cultural landscapes are protected, retained and conserved in accordance with the Heritage Act 1977, National Parks and Wildlife Act 1974 and Council's LEP. Appropriately qualified and experienced design specialists are used to ensure streets are planned and designed in ways sensitive to the natural heritage and the existing landscape character. Existing natural elements such as trees, rock formation, creeks and streams are protected and retained as part of the design. Views and sight-lines are protected to and from important landscape elements such as hills or valleys. The existing landscape, including distant views are, incorporated into the design ie 'Borrow the landscape'. Planting is used to reflect the local character and place. For larger developments, a Landscape Character and Visual Impact Assessment is provided and informs the design and helps determine the overall impact of a project on an area's character and sense of place.	The natural heritage and landscape character has been protected and reflected within the design. The streets and public spaces have connection to history or the wider landscape. The street feels like it belongs to the place, rather than feeling like it could be 'anywhere'.
3. Protect, retain and conserve Aboriginal Cultural Heritage: Plan, design and deliver streets and public spaces in a way the protects, conserves or celebrates local aboriginal culture and heritage.	Existing aboriginal heritage or cultural items are protected, retained and conserved in accordance with the Heritage Act 1977, National Parks and Wildlife Act 1974 and Council's LEP. Appropriately qualified and experienced specialists are used to advise on and understand any traditions, beliefs, customs, values and objects that represent the living history of Aboriginal communities of a particular area or place. Aboriginal Heritage is interpreted and celebrated using place naming, signage, public art, footpath inlays, murals, timelines, trails and walks, bespoke furniture, apps or smart technology to bring another layer or interest to any street design project.	Local aboriginal culture and heritage is protected, reflected and celebrated through design.

Design Principle	Design Considerations	Performance Indicators
4. Protect, retain and conserve Non-Aboriginal Heritage: Plan, design and deliver streets and public spaces in a way the protects, conserves or celebrates local non-aboriginal culture and heritage.	Existing non-aboriginal heritage or cultural items are protected, retained or conserved in accordance with the Heritage Act 1977, National Parks and Wildlife Act 1974 and Council's LEP. Appropriately qualified and experienced specialists are used to advise on and understand the layers of European (or other) history and culture including any significant buildings, churches, homes, parks, gardens, memorials, burial sites, walls, tree plantings, bridges, fences etc. Non-aboriginal heritage is interpreted and celebrated using signage, public art, footpath inlays, murals, timelines, trails and walks, bespoke furniture, apps or smart technology to bring another layer or interest to any street design project.	Local non-aboriginal heritage and culture is protected, reflected and celebrated though design.
5. Sensitive Design - furniture, fittings and materials: The use of furniture, fittings, and materials in the design must be sensitive to the character of the place, respecting local architecture and design aesthetics.	Where schedules are not provided or a specific area warrants a bespoke approach, the following design considerations apply. Material selection that is locally sourced or reflective of the region's natural resources will support local industries and integrate with the design with the surrounding environment. Cultural aesthetics and preferences are to be considered when choosing furniture and fittings, for example colours, patterns, and styles that resonate with the local culture. Involving local artisans or craftsmen in the creation of furniture and fittings supports the local economy but also adds a unique touch to the design. A consistent design language is to be maintained throughout the street, ensuring that furniture, fittings, and materials contribute to a cohesive and aesthetically pleasing overall environment.	The furniture, fittings and materials used in the design is sensitive to the character of the place.
6. A Sense of ownership and shared responsibility is achieved: A sense of ownership and shared responsibility among the community for the street contributes to a more vibrant and cared-for public space. Educational campaigns can help instill a sense of responsibility and pride among community members.	Where possible, the local community is to be involved in the design process to ensure the street reflects their aspirations, values, and unique characteristics. Establish community-driven maintenance programs where residents take part in keeping the street clean, green, and well-maintained. Encourage community gardening or tree planting projects along the street. Raise awareness about the importance of a clean and safe public space.	The community feels a sense of ownership and shared responsibility of the street.

Appendix B: Street Design

B.1 Street Zones

The Guideline identifies the different zones of both residential and urban streets. Each zone serves a different purpose and function and must be arranged to ensure the best street experience possible. Not all streets will include every zone, but every street will include at least two of these zones.

For industrial streets, designs will be the same as the residential street zones.

B.1.1 Residential Street Zones

Boundary Strip

A minimum 0.6m wide boundary strip must be provided to accommodate electrical service lines, light-poles and/or electrical transformer boxes and provide a buffer between the footpath and property boundary.

If this strip is located against a built edge such as a fence or wall, it must be either:

a) Fully turfed; or

b) Landscaped with native species in situations where maintenance can be undertaken by the resident, occupier or property owner. Plants must not be above 700mm in height and must not obstruct Council footpaths, cycleways or shared paths (refer p.120).

If the boundary strip is open (i.e., not located against a fence or built edge at the time of planting) then it can be turfed.

On corner lots along any secondary boundary fence (i.e. not the main frontage):

a) where there is a footpath or shared path installed, then the boundary strip must be either turfed or landscaped as above.

b) If there is no footpath or shared path, then the verge can be fully turfed.

Footpath/ Shared Path

Footpaths and shared paths must:

a) achieve the minimum specified width as measured from the edge of the boundary strip. For:

   i) footpaths the minimum width is 1.5m (ideally 1.8m)

   ii) shared paths the minimum width is 2.5m or in accordance with the Civil works Specification (whichever is the greater).

b) Provide a paved, unobstructed and accessible path of travel for the entire length of the street.

c) Must be clear of furniture, light poles, landscaping that obstructs cycle and pedestrian movement, or waste collection, with a suitable crossfall for drainage.

d) Must be well-lit and well shaded.

e) Where possible, provide a continuous treatment to reinforce pedestrian priority at driveways.

f) Be designed in accordance with the Civil Works Specification.

Underground Utilities Zone

The underground services (or utilities) zone is provided to accommodate underground services such as communications, power, water and sewer mains and must be a maximum of 2.7m wide measured from the property boundary. This zone sits beneath the Boundary Strip, the Footpath or Shared Path (where provided) and part of the Landscape and Furnishings Zone and must remain clear of street tree planting.

Depending on the street and service locations, the services zone may be required on both sides of the road, or only partially on one side, in which case more space is available for deep soil.

Landscape and Furnishings Zone

The landscape and furnishings zone must be wide enough to provide a 1.5m minimum width of deep soil measured from the edge of the Services Zone to the back or kerb. The zone is specifically measured to accommodate street tree planting outside of the services zone. The zone can be:

a) Fully turfed from edge of footpath/ shared path to back of kerb;

b) Landscaped provided:

   i) Planting can be maintained by the resident, occupier or property owner.

   ii) plants do not spread across Council footpaths or obstruct sightlines (refer p. 120)

or

c) Where there is no footpath/shared path, then it can be fully turfed from kerb to boundary.

Trees must be planted in accordance with the Landscape Works Specification.

For all development including residential subdivision, tree planting must occur at the following minimum rates:

a) One tree per lot where lot width is 15m or less, or

b) Two trees per 15m of frontage where lot width is greater than 15m.

Variations may be permitted where clearance distances cannot be achieved (refer Tree Placement p.110).

The landscape and furnishings zone must also accommodate bus stops, where required, in accordance with the Civil Works Specifications and, in certain areas, street furniture.

A width of 300mm is required to allow for pavement support behind the kerb (verge side) in accordance with the Civil Works Specifications. The 1.5m wide deep soil zone must be exclusive of this width.

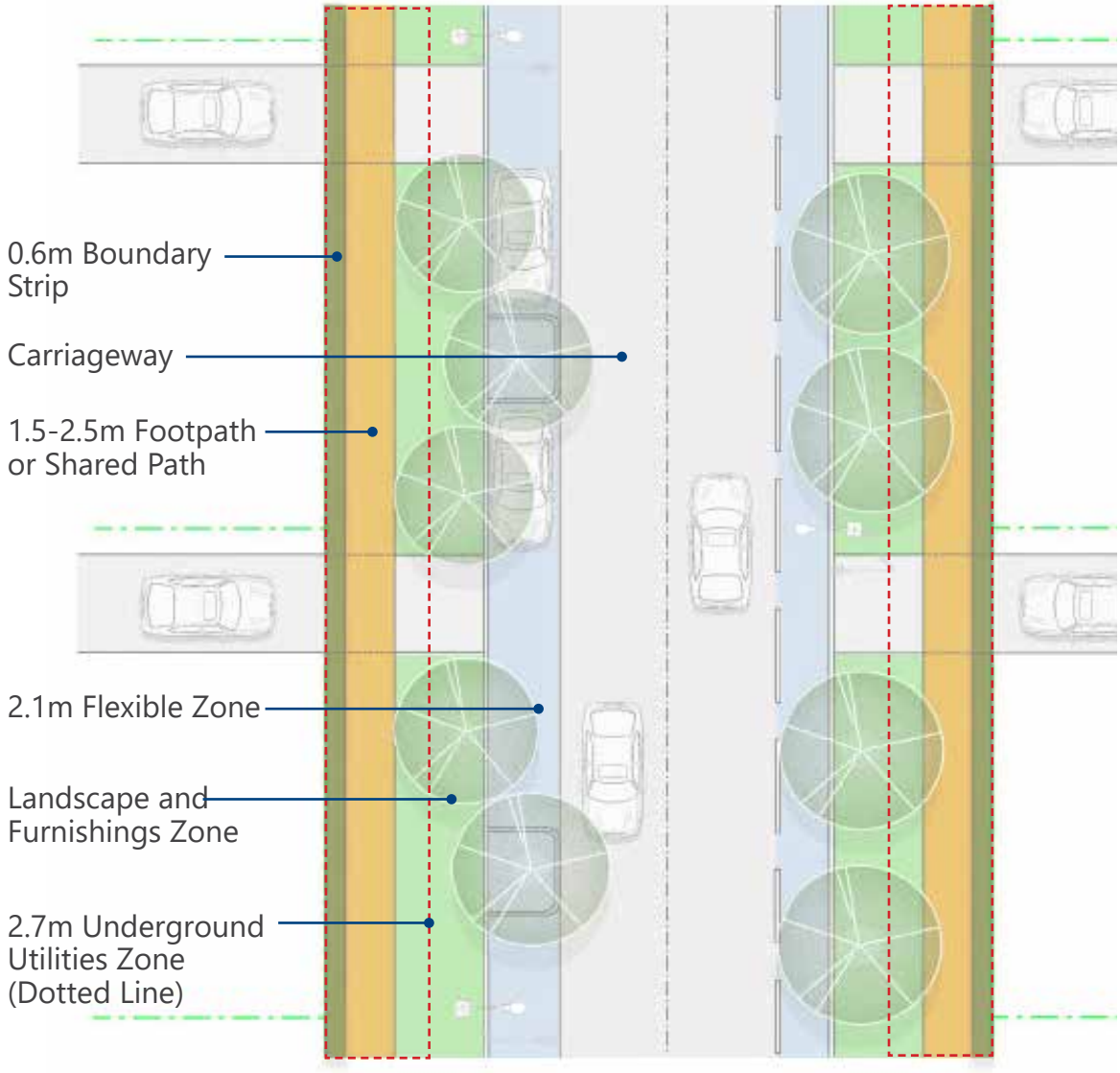
Flexible Zone

The flexible zone is defined as the 2.1-2.5m wide lane within the carriageway typically provided for on-street parking. This space can accommodate street trees planted in blisters or water sensitive urban design (WSUD) systems as part of a broader urban design approach. Any street tree planting within the carriageway must be done in accordance with the Civil Works Specifications and/or any Austroads safety standards.

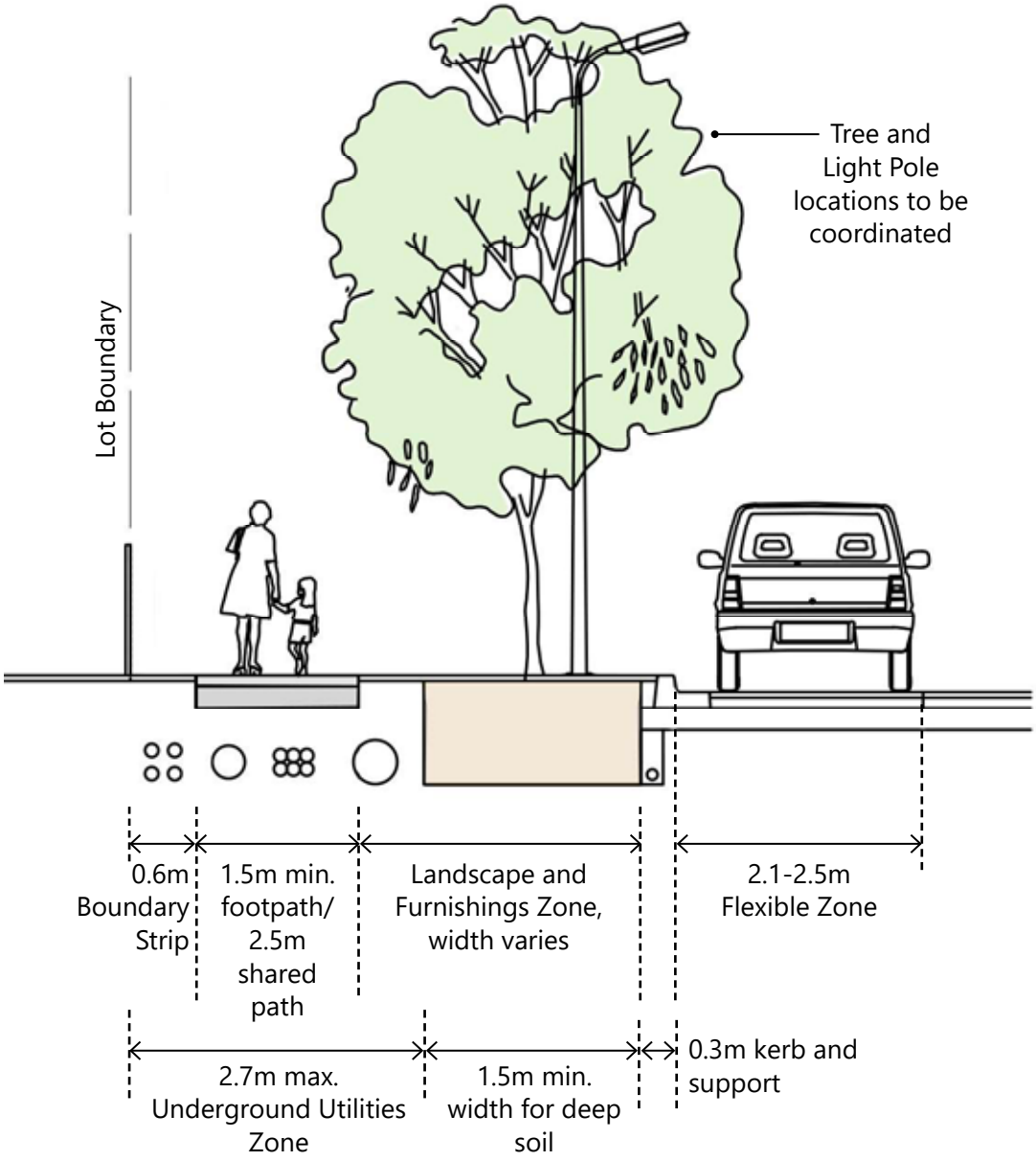
Well-designed flexible zones provide additional space for green infrastructure and help naturally calm and slow down traffic speeds. In some instances, flexible zones can also be used for the provision of on-street cycling facilities.

Carriageway

Refer Civil Works Specifications for guidance.



Typical Residential Street Zones Plan



Typical Residential Street Zones Section

Appin Valley

B.1.2 Urban Streets Zones

Pedestrian Zone

The pedestrian zone can vary in width depending on the street and location. This zone must provide an unobstructed, accessible path of travel with a minimum width of 2.0m in all urban centre streets.

The minimum 2.0m unobstructed width must be clear of furniture, light poles, above ground services, landscaping, waste bins and signage. The pedestrian zone must be well lit for safety purposes but have a balanced provision of shade and shelter.

Accessible entry to buildings, that are free of trips, steps and hazards, must be provided. Where possible, a 'shoreline' for visually impaired people using canes is to be provided adjacent the property boundary (Note: in some instances, electrical pillar boxes are located adjacent the property boundary. However, the minimum unobstructed width of 2.0m must still be achieved.

Paved surfaces must fall away from the building for drainage purposes.

Underground Utilities Zone

For existing Urban Streets there may be significant variations in where services have been located over time. These assets have historically been owned and installed by different entities, using different alignments and depths. In short, the service zone may cover the full width of any existing footpath from building edge to back of kerb in any given urban environment.

Retrofitting of these streets, in particular the installation of new street trees may require additional coordination and cost. Any proponent undertaking design work must take this into account early in the development of a project to ensure that any works (particularity street trees) proposed at DA stage can be achieved.

Landscape and Furnishings Zone

The designated area allocated for street tree planting, outdoor furniture, light poles, bins, above ground services and bus stops. It is crucial to ensure that these elements do not encroach upon the designated pedestrian zone. Street trees must be strategically placed to provide as much shade as possible depending on the street whilst allowing for appropriate light spill from street-lights.

Suitable tree species and planting methods for the specific location must be considered. The location of tree planting, which is encouraged, must ensure sightlines to any roads is not obstructed (e.g. on intersections) and sufficient separation is provided to driveways, poles, the back of kerb, bus stops and between other trees to provide sufficient space for growth. (Refer to Tree Placement p.110).

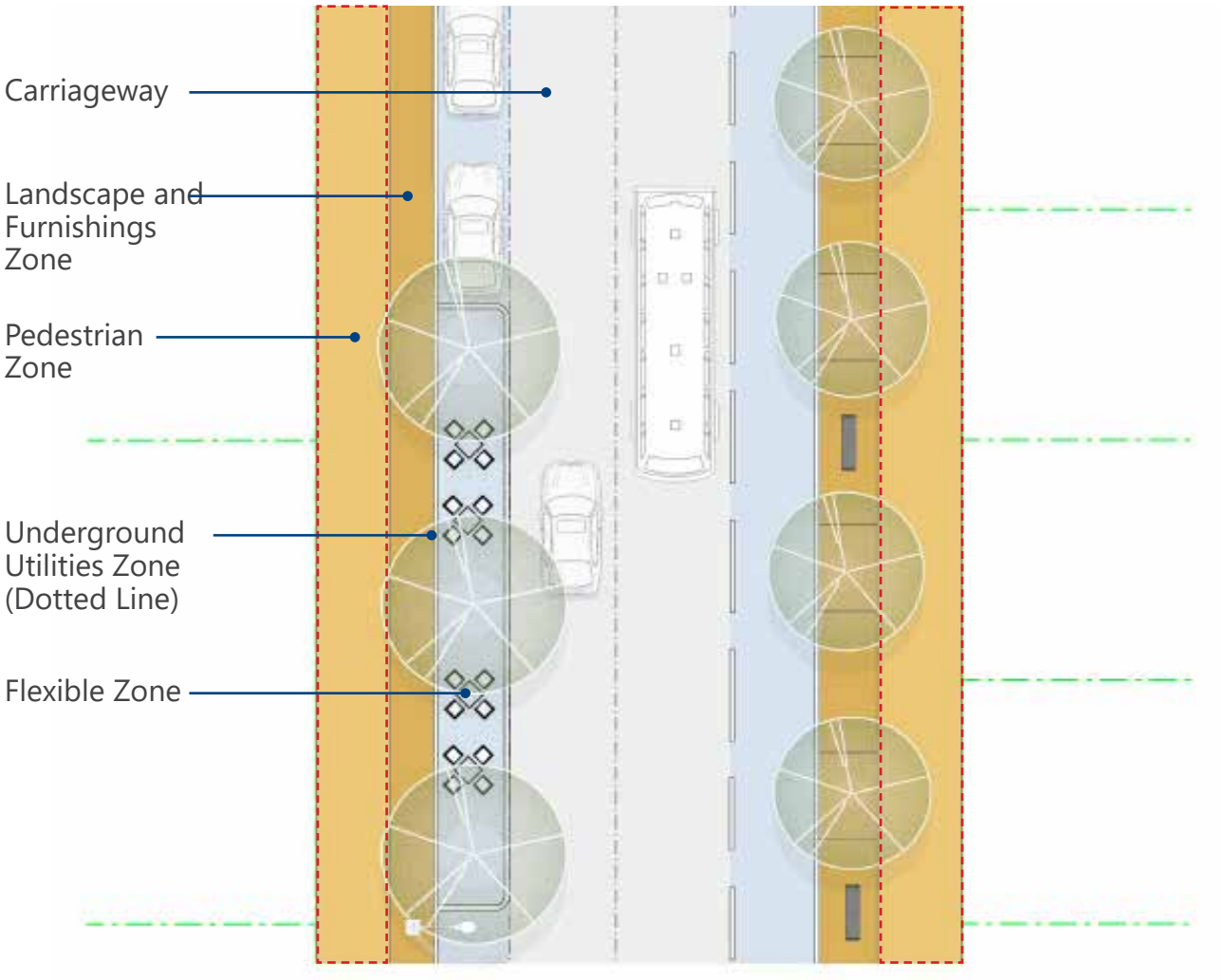
Consistency and coordination are key when implementing any planting or furnishings, aiming to establish a cohesive and uninterrupted theme throughout the street whilst considering locations of services.

Flexible Zone

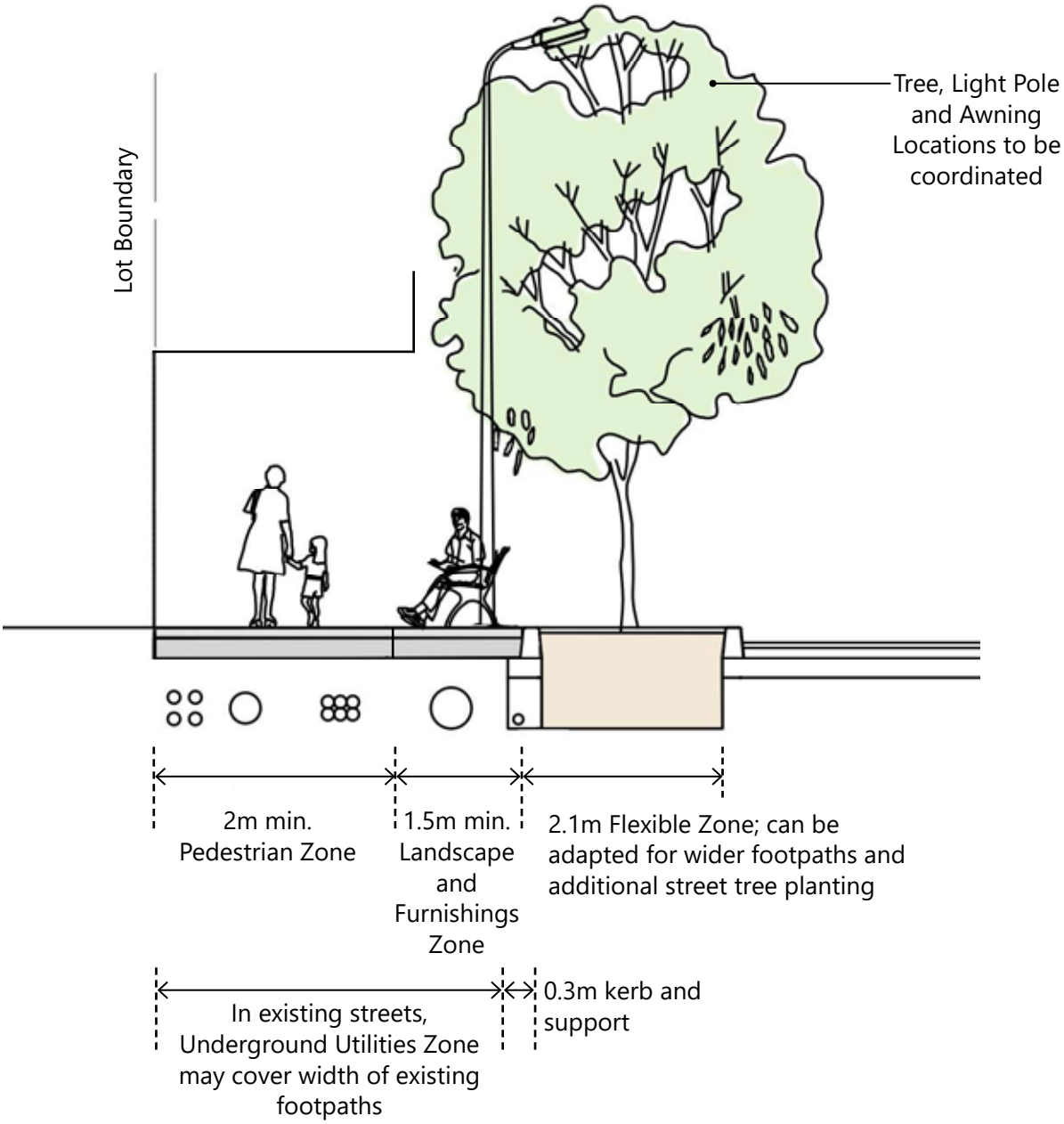
The flexible zone is defined as the space between the kerb and the line of moving traffic. Historically used for on-street parking, this space can be designed or modified over time to accommodate wider footpaths, outdoor dining , parklets, bike lanes, street tree planting, water sensitive urban design systems or parklets.

Carriageway

This area accommodates the smooth flow of motor vehicles, public transportation, and the transportation of goods. During less busy periods, a portion of this space can be utilised for parking and loading purposes. Occasionally, vehicle access may be limited. For example, associated with road closure for special events.



Urban Street Zones Diagram



Typical Urban Street Zones Section

Fremantle

B.2 Street Types

The Street Types proposed in this Design Manual attempt to build on from Street Types identified in Council's DCP, and provide guidance on how to design better streets for the future. It is important to note however that individual subdivision plans or town centres masterplans must take a place-based design approach.

Design recommendations are provided for each street type with ideas on how to stage the process for existing streets, or how to design new streets. Residential streets apply to areas of predominantly low density housing comprising detached dwellings and dual occupancy development, no greater than 2 storeys. Urban streets apply to areas of medium to high density residential development, and/or town centres and commercial areas.

Residential Streets:

- **Access Lanes** are generally used for small lot housing and have very limited through traffic. The maximum capacity for these laneways is 100 vehicles per day and are currently designed for a maximum speed of 30km/h although consideration should be given to 10km/h shared zones.
- **Access Streets** are minor streets that have limited through traffic. The capacity of these streets is up to 500 vehicles per day and are currently designed for a maximum speed of 30km/h.
- **Local Streets** can carry up to 2000 vehicles per day and are currently designed for maximum street speed of 40km/h.
- **Collector Streets** are linked to major roads. The capacity of these streets is between 2000 and 5000 vehicles per day. They are currently designed for a maximum speed of 50km/h.
- **Distributor Roads** are major roads that are designed for considerable traffic loads, generally greater than 5000 vehicles per day. These roads are generally used to facilitate access to major facilities such as shops and schools. They are generally designed for a maximum speed of 50km/h.

Urban Centre Streets:

- **Laneways** are generally located at the rear of commercial buildings and historically have been used for deliveries and waste collection. Existing laneways can be revitilised to become active pedestrian zones for retail with consideration given to 10km/h speed limits.
- **Neighbourhood Streets** are generally located in urban areas with housing, apartments or town housing and should be quiet, shady and safe for residents with a maximum speed of 40km/h.
- **Collector Streets** are typically major roads through or around town centres catering for between 2000-5000 vehicles per day with a typical speed limit of 60km/h.
- **Connecting Streets** generally cater for mixed business use and often connect into the high street. Similar to collector streets, these streets cater for high traffic volumes and current speed limits vary from centre to centre with a maximum of 50km/h.
- **Main Streets** generally located through the centre of a town or commonly along one side of a major road, these streets form the heart of a town or local centre and cater for the majority of business, retail, cafe's and restaurants as well as high volumes of traffic. Current speeds are typically 40km/h but consideration should be given to 25-30km/h zones in major pedestrian areas.
- **Civic Spaces** can be identified in any town or neighbourhood centre and are places of social, cultural or historical significance. Civic Spaces must be designed with a focus on the pedestrian experience with a higher focus on materials, lighting, public art and heritage interpretation etc. Vehicle movement should be limited in these areas. Civic Spaces should generally be designed as 10km/h shared zones, or fully pedestrianised.

Industrial Areas:

- **Industrial Streets** generally located in areas zoned for industrial use, these streets are generally designed with a 50km/h speed limit and cater for high traffic volumes and heavy vehicle movement. Facilities for pedestrians and cyclists are rarely accounted for in these zones but should be given due consideration. It is expected that the outcomes for industrial streets would be similar to Collector Streets (as defined under residential streets), including the incorporation of street trees and soft landscaping.

Hornsby, NSW

B.2.1 Residential Streets:

Residential Streets include:

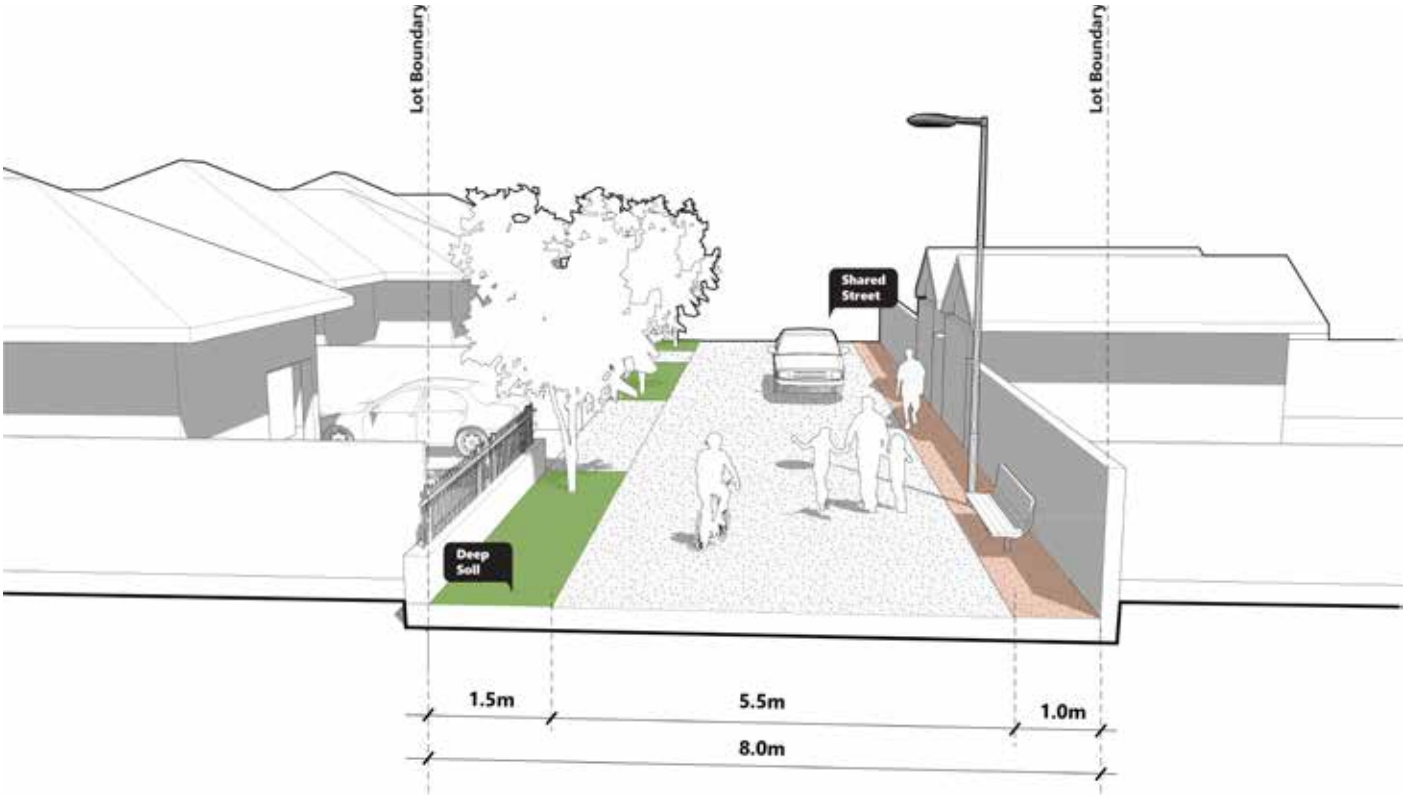
- Access Lanes
- Access Streets
- Local Streets
- Collector Streets
- Distributor Streets

Vision:

- The street environment must be thoughtfully designed to enhance the local neighbourhood and encourage people to preference walking and cycling.
- Properties are to be orientated towards the street but wherever possible rear lane access is provided to avoid driveway crossovers at the front.
- The streetscapes are carefully designed to accommodate successful tree planting to provide future canopy and shade.
- Streets are easy to cross mid-block, and intersections are designed to minimise crossing times.
- The street gives priority to pedestrians, cyclists, and public transport users, promoting sustainable and active modes of transportation.
- For freight and servicing vehicles, appropriate sizes are considered to ensure they can manoeuvre effectively within the context of the neighbourhood without causing disruptions.
- Street design and driving environments are geared towards encouraging low to moderate speeds and keeping vehicle volumes in check. A speed limit of ≤ 50 km/h is enforced to ensure safety.

Rouse Hill NSW

B.2.1.1 Access Lanes



Overview

- Typical Road Reserve of 8m.
- General use for small lot housing to access rear of properties.
- Typically for narrow lots, semi-detached housing or townhouses.
- Used for access to garages and for garbage collection.
- No provision of parking.
- Limited vehicle capacity per day.
- Shared Zone with flush kerbs and variable paving environment to differentiate form a local street.
- Limited speed zone.

Common Problems

- Often designed wider than necessary (15m street reserve), with mix of properties both fronting and backing onto laneway creating a confused purpose.
- On-street parking often encouraged by the design which creates maneuverability issues for service vehicles.
- Raised or roll-kerbs sometimes used which indicate vehicle priority over pedestrians.
- Bin storage poorly considered, resulting in bins being kept in laneway permanently.
- Long, unbroken laneways create perceived safety issues with lack of escape routes.
- Poor materials and lack of landscaping detract from the look and feel of the laneway and again create perceived safety issues.
- Often poorly lit.
- Often dominated by rear fence-lines with no passive surveillance.
- Narrow strips of turf provided along rear fence-lines which create ongoing maintenance issues.
- Adequate turning space for service vehicles not always provided.

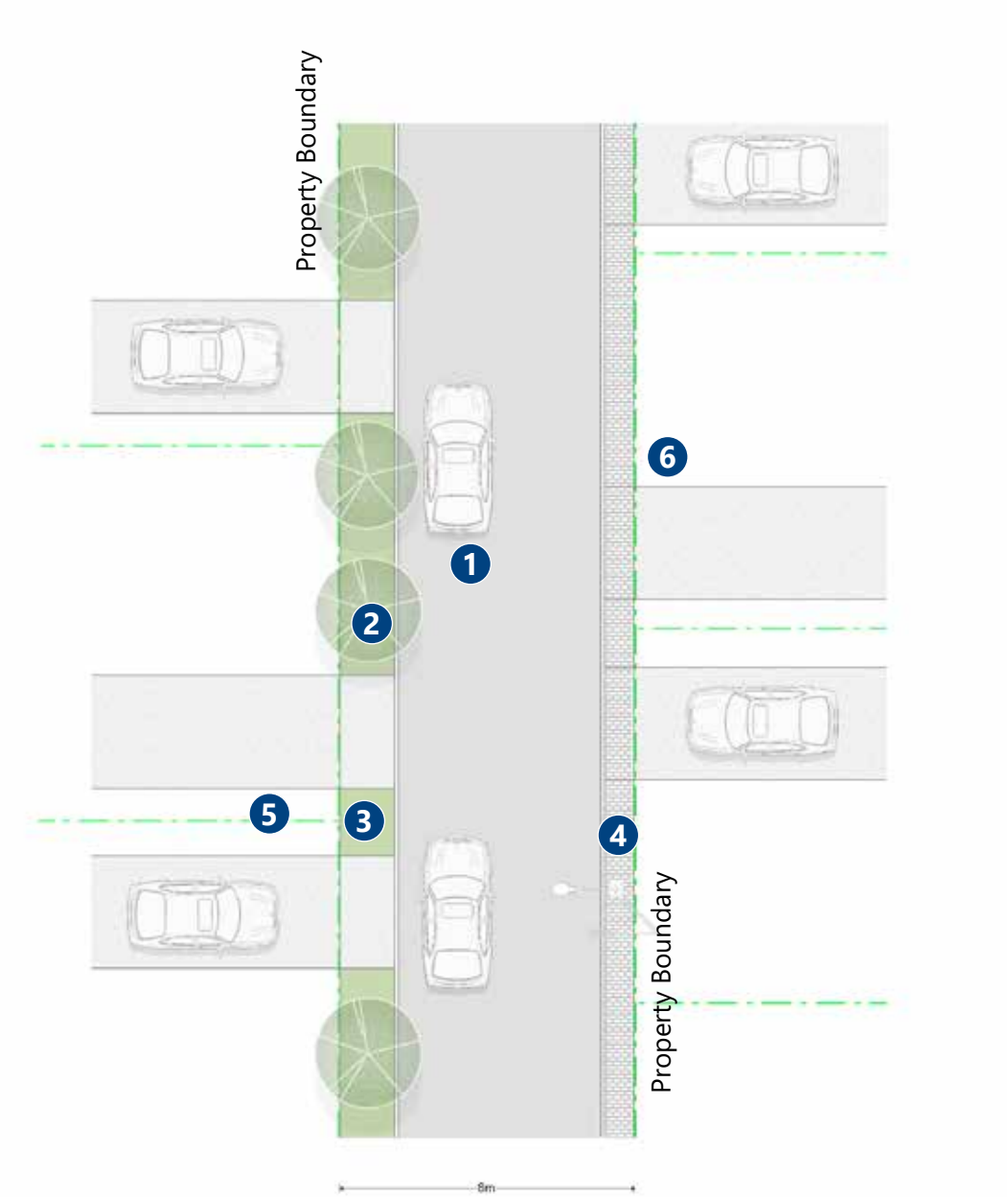
Examples:

This laneway off Buckley Avenue, Fairwater has been designed to create an attractive, welcoming entry point that feels safe. The corner house has been turned to address the laneway which helps provide for passive surveillance. Masterplanned communities can achieve these outcomes more easily than traditional subdivisions.

This laneway at Riviera Glade in the same suburb of Fairwater has also been designed with houses facing onto the public space which creates a much safer, more welcoming pedestrian experience. The laneway is well landscaped with trees and vegetation that will provide shade, and different paving materials have been used to help indicate that this is a low speed shared zone.

Recommendations

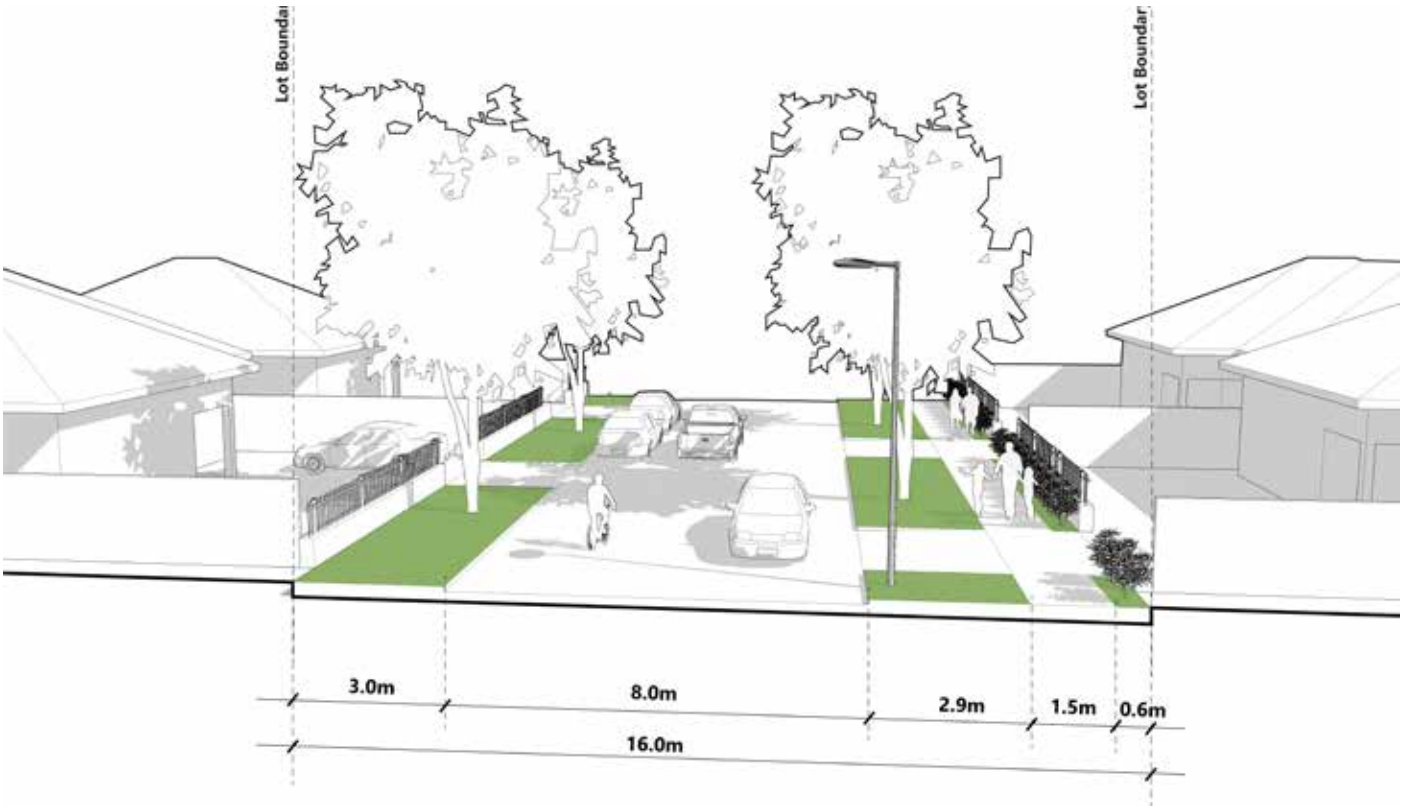
- Create 10km/h shared zones to avoid requirements for separation of vehicles and pedestrians.
- Design to allow for passive surveillance from properties; long stretches of blank walls or rear fence-lines must be avoided.
- Design lot layouts to allow corner houses to address the laneway entry and create greater passive surveillance using non-service room windows, decks, balconies etc.
- Consider change of material such as coloured concrete to emphasise shared zone.
- Where maintenance can be undertaken by the resident, occupier or property owner, consider landscaping to increase visual appeal of laneway.
- Ensure each property has a designated space for bin storage on collection day.
- No permanent parking in laneways.



Access Lane - Typical Layout Option 1

1. Shared vehicle/pedestrian zone; material choice can highlight pedestrian priority
2. Provide adequate space and soil volume for street tree planting and shade
3. Provide soft landscaping in places where property owners can maintain
4. Provide street lighting and consider crime prevention through environmental design (CPTED)
5. Where subdivision and housing development occurs concurrently, locate driveways side by side if possible
6. Ensure Bins can be stored within property boundary

B.2.1.2 Access Streets



Overview

- Typical Road Reserve of 16m.
- General use for residential housing with limited or no through access.
- Typically designed for a maximum speed of 30km/hour.
- Provision for some on-street parking.
- Limited vehicle capacity per day.
- Footpath must be provided on at least one side of street.
- Street trees must be provide on at least one side of street.

Common Problems:

- Verge widths often designed too narrow with limited space for footpaths or street trees.
- Roll-kerbs encourage illegal parking on verge.
- Often inadequate verge space for footpaths.
- Often inadequate verge space for street trees.
- Large kerb radii encourage faster vehicle turning and create longer pedestrian crossing which discourages walking.
- Small strips of turf in public verges creating maintenance issues.
- Side fences facing road detracts from street, creates perceived lack of surveillance.
- Narrow streets create issues for service vehicles and garbage trucks.
- Streets with narrow lots and driveways limits amount of on-street parking.
- Mixed variety of coloured driveway materials creates an inconsistent look and feel to the street.
- New trees removed or damage during house construction.

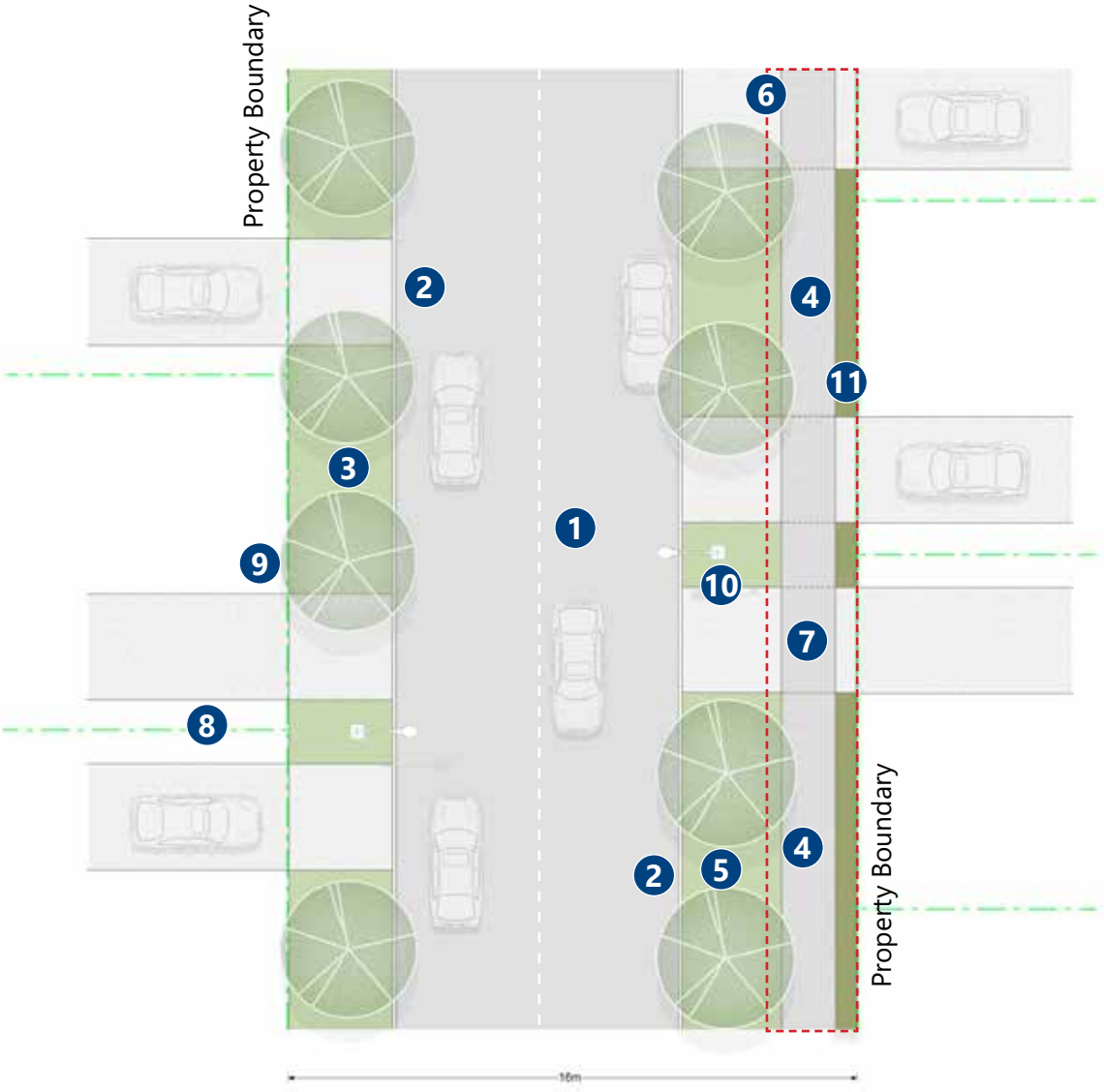
Examples:

Bristol St in Thornton Park, Penrith demonstrates an attractive minor local street with connecting footpaths on both sides of the street. A defined edge between public and private space has been created along the property boundaries and street trees will provide shade over time. The corner house addresses the street created a more welcoming feel.

Cicada Street at The Ponds development, Western Sydney demonstrates an attractive, walkable street with footpaths on both sides. Street tree planting will provide shade over time, and additional trees have been planted into the carriageway to provide additional green infrastructure and help create a less monotonous streetscape experience. A more narrow carriageway would create a more human scale to the street here.

Recommendations

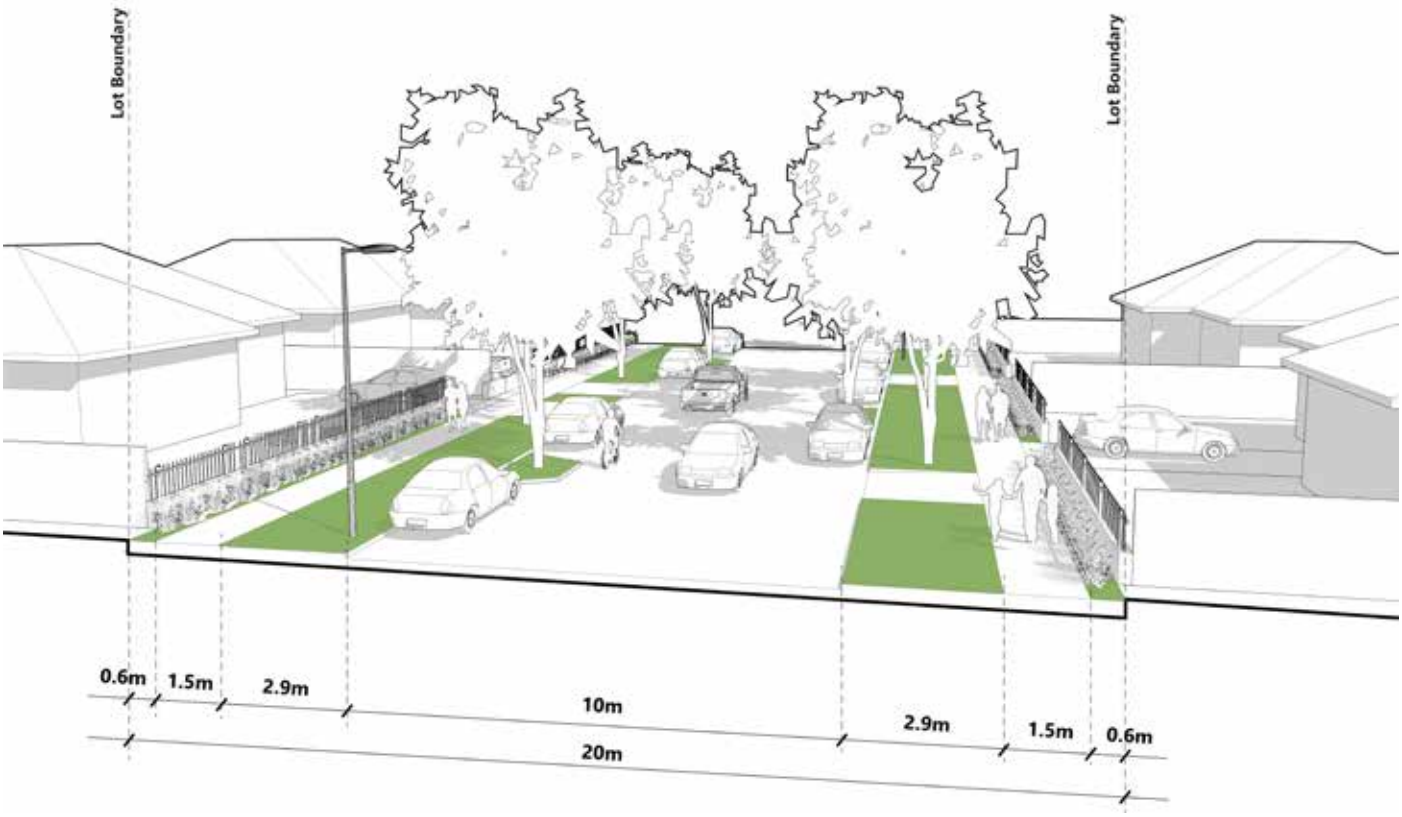
- Provide footpaths minimum 1.5m wide on both sides of the streets.
- Provide min. 1.5m deep soil zone on at least one side for street trees.
- Use continuous footpath treatments across driveways to give pedestrian priority.
- Use painted thresholds or raised thresholds at road intersections to slow traffic and encourage walking.
- On-Street parking can be provided with within the carriageway.
- Trees can be planted in parking lane to slow traffic speed and increase green infrastructure.
- Consider landscaping in verges subject to agreement with Council.



Access Street - Typical Layout Option 1

1. 2-Way low speed street
2. Flexible Zone can incorporate tree planting and/or WSUD devices
3. 3m wide verge for street tree planting
4. Min. 1.5m wide footpath to at least one side
5. Min. 1.5m deep soil zone
6. 2.7m max. Service Zone (shown dashed)
7. Use a continuous treatment across driveways to ensure pedestrian priority
8. Where subdivision and housing development occurs concurrently, locate driveways side by side
9. Bin storage within property boundary
10. Street Lighting
11. 0.6m boundary strip

B.2.1.3 Local Streets



Overview

- Typical Street Reserve 19-20m.
- General use for residential housing connecting to other local streets or collector streets.
- Typically designed for a maximum speed of 40km/hour and can carry up to 2000 vehicles per day.
- Sometimes used for bus routes depending on location.
- Provision for on-street parking, but road widths often vary depending on lot yield and urban form.
- Footpaths must be provided on both sides, and cycle lanes given consideration depending on location and network connections.
- Street trees must be provided on both sides of street.

Common Problems:

- Often have excessively wide carriageways, which encourages higher traffic speeds and reduces pedestrian safety.
- Often have narrow verge widths with inadequate space for street trees, or trees are removed because of damage to services or assets.
- Footpaths often missing from one or both sides which discourages walking for families and children.
- Large kerb radii encourage faster vehicle turning and create longer pedestrian crossing which discourages walking.
- Wider streets become harder to cross.
- Above ground power cables limit tree planting opportunities.
- Narrow strips of turf or landscaped areas create ongoing maintenance issues.
- Shade or mature tree coverage is often inadequate which discourages walking in summer months

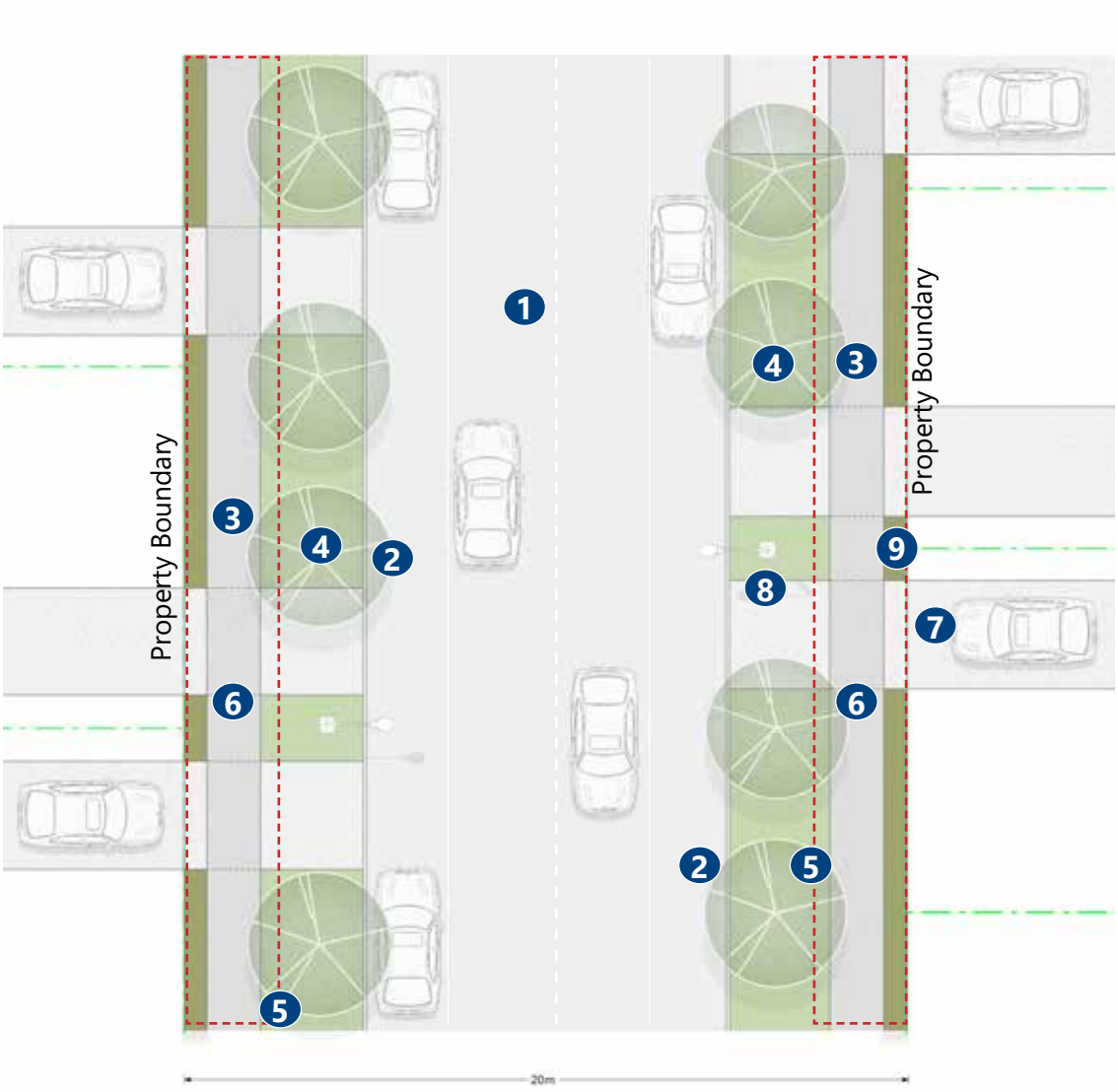
Examples:

Hudson St. in Thornton Park, Penrith overlooks an urban park. Footpaths have been provided on both sides, and a well defined edge to the property boundaries. Small setbacks ensure the street feels safe and well overlooked and adequate street tree planting provides essential green infrastructure.

Buckley Avenue, Fairwater demonstrates a well designed local street. Footpaths are provided on both sides, property boundaries are neat and well defined, street trees have been incorporated outside each property and the street is well lit. The street has a safe, friendly feel and will look green and well shaded in time. Wider verges would allow for larger tree planting in these examples.

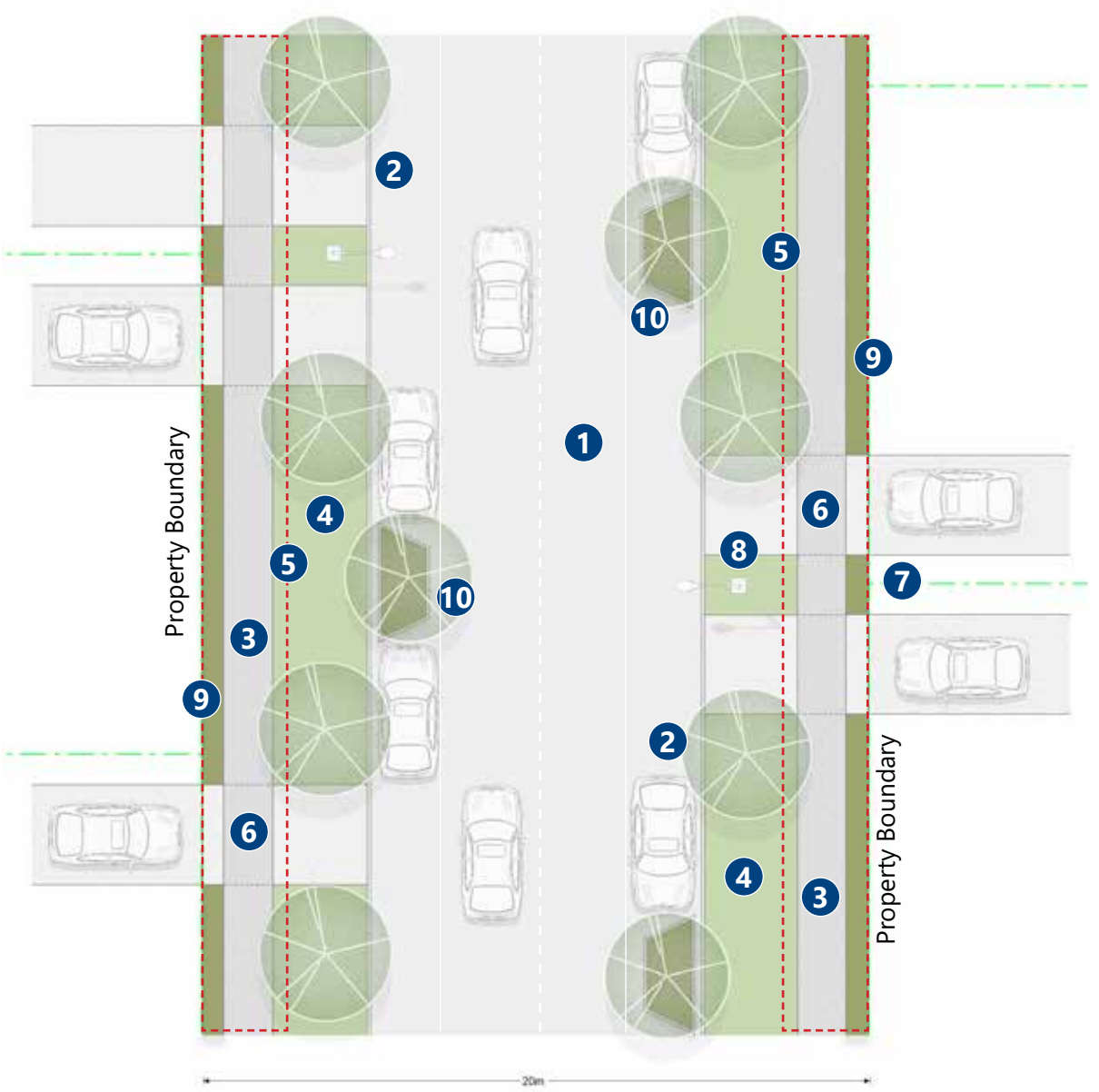
Recommendations

- Provide minimum 1.5m footpaths on both sides of street.
- Provide a 2.7m Service Zone from boundary
- Provide min. 1.5m Deep Soil zone outside of Service Zone.
- Allow 0.3m for kerb construction.
- Provide street trees to both sides of street.
- Where possible, provide trees in flexible zone to provide additional green infrastructure and slower traffic speeds.
- Provide painted or raised thresholds at intersections to improve pedestrian movement.
- Consider landscaping in verges subject to agreement with Council.



Local Street - Typical Layout Option 1

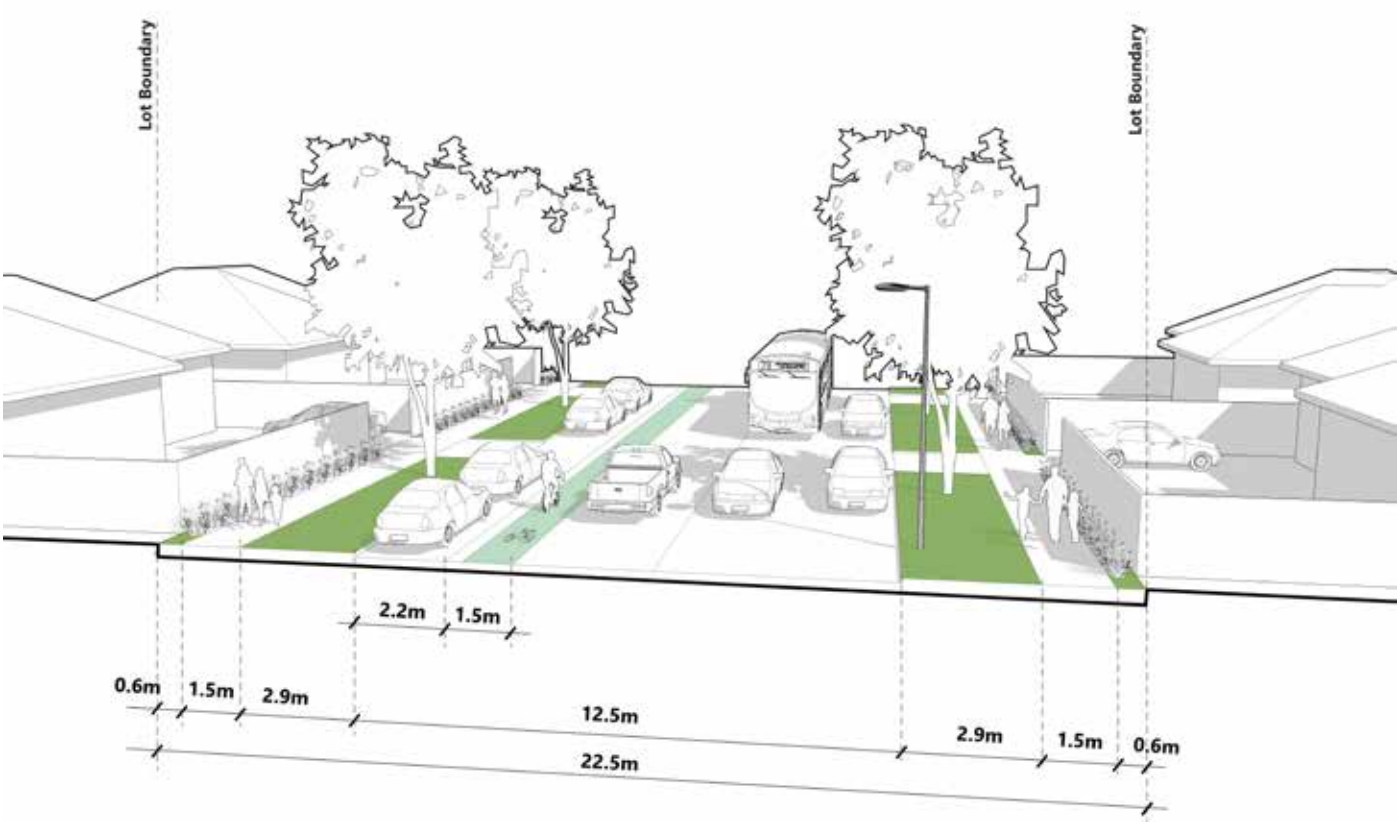
1. 2-Way low speed street
2. Flexible zone
3. Min. 1.5m wide footpath to both sides of street
4. Min. 1.5m deep soil zone both sides
5. 2.7m max. service zone (shown dashed)
6. Use a continuous treatment across driveways to ensure pedestrian priority
7. Ensure bins can be stored within property boundary
8. Street lighting
9. 0.6m boundary strip



Local Street - Typical Layout Option 2

1. 2-Way low speed street
2. On-street parking to both side; create blisters for street trees/ driveway and help slow traffic
3. Min. 1.5m wide footpath one side of street
4. Min. 1.5m deep soil zone both sides
5. 2.7m max. Service zone (shown dashed)
6. Use a continuous treatment across driveways to ensure pedestrian priority
7. Ensure bins can be stored within property
8. Street lighting
9. 0.6m boundary strip
10. Install blisters, tree planting or where suitable WSUD devices within flexible zone to increase tree canopy, encourage slower speeds and improve look of street

B.2.1.4 Collector Streets



Overview

- Typical Road Reserve 22.5m.
- Used for residential housing but provides links from Local Streets to major roads.
- Typically designed for a maximum speed of 50km/hour and can carry between 2000-5000 vehicles per day.
- Commonly used for local bus routes.
- Provision for on-street parking.
- Footpaths must be provided on both sides, and cycle lanes provided to connect to wider cycle networks.
- Street trees must be provided on both sides of street; feature planting at intersections should be considered.
- In some areas Collector Streets can transition into suburban centres; public domain can be fully paved in these circumstances, but tree coverage must continue.

Common Problems:

- Footpaths often limited to one side only, which deters waking or creates extra road crossing a necessity.
- Can have a perception of being too wide (in areas where on-street parking demand is low) which leads to higher traffic speeds.
- Often lack cycle lanes which deters use of alternative transport.
- Large kerb radii encourage faster vehicle turning and create longer pedestrian crossing which discourages walking.
- Roundabouts commonly used, even at minor junctions, which become problematic for pedestrian movement.
- Collector Streets are often perceived as being unsafe for children when lacking footpaths or appropriate crossing points.
- Over-head power cables can limit tree panting opportunity.
- Narrow strips of turf or landscaped areas create ongoing maintenance issues.

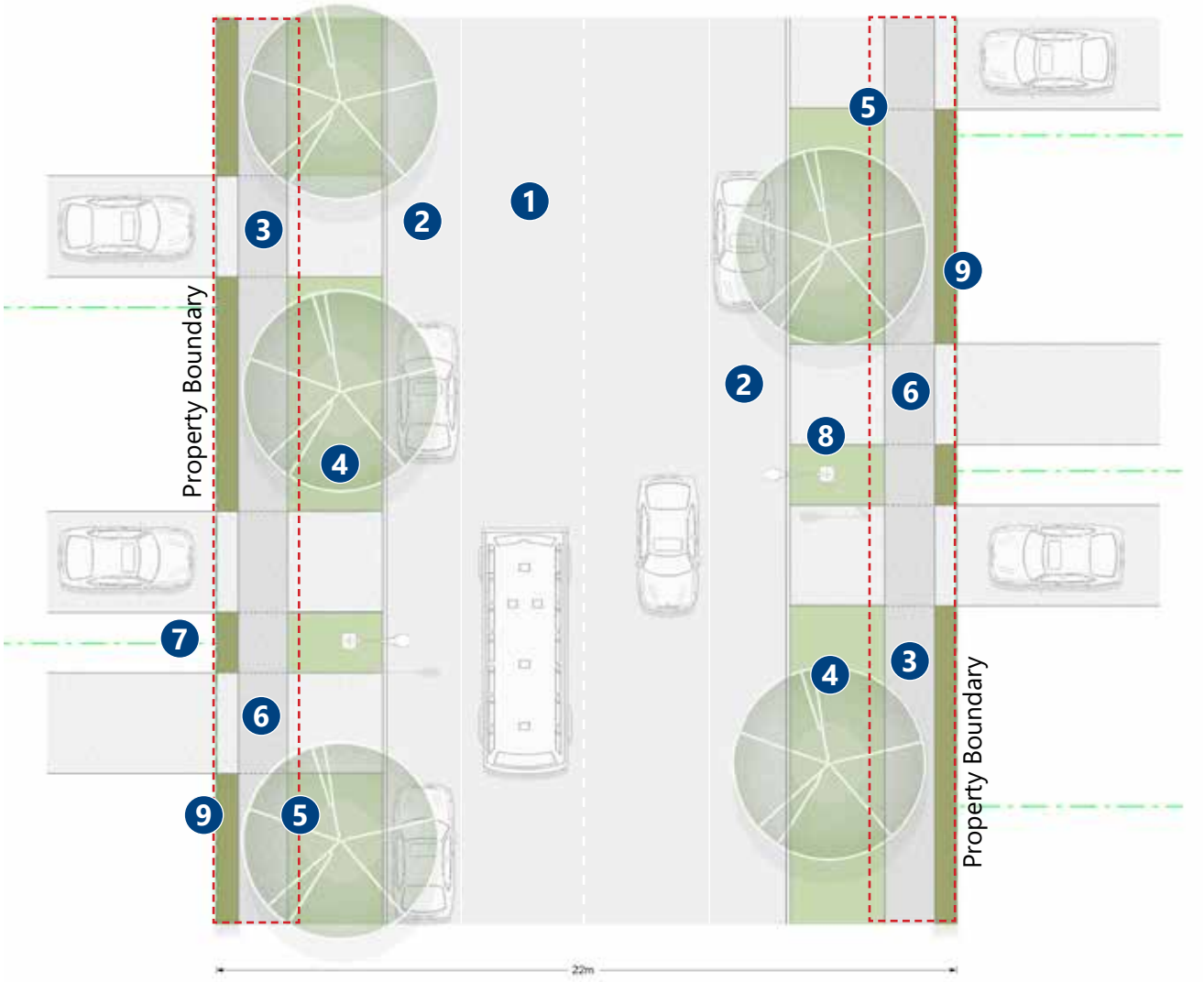
Examples:

Fairwater Road, Fairwater represents an attractive collector road, with ample street tree planting, footpaths on each side of the road, well defined property boundaries and street lighting. Street Parking is provided on both sides of the road in this example, but some of this space could be used more effectively for green infrastructure or WSUD devices. Cycling is provided for on the road, but dedicated, well-defined cycle lanes would provide safer options for cyclists.

Lord Sheffield Crescent, Thornton Park also demonstrates a well designed collector street. Footpaths have been provided on both sides of the street, and well planted street trees provide shade and greenery to the neighbourhood. The properties have well defined boundaries, and the small setbacks mean that houses overlook the street and provide good surveillance. The street is well lit, well landscaped and creates a strong sense of place. Wider verges would again allow for larger tree planting opportunities.

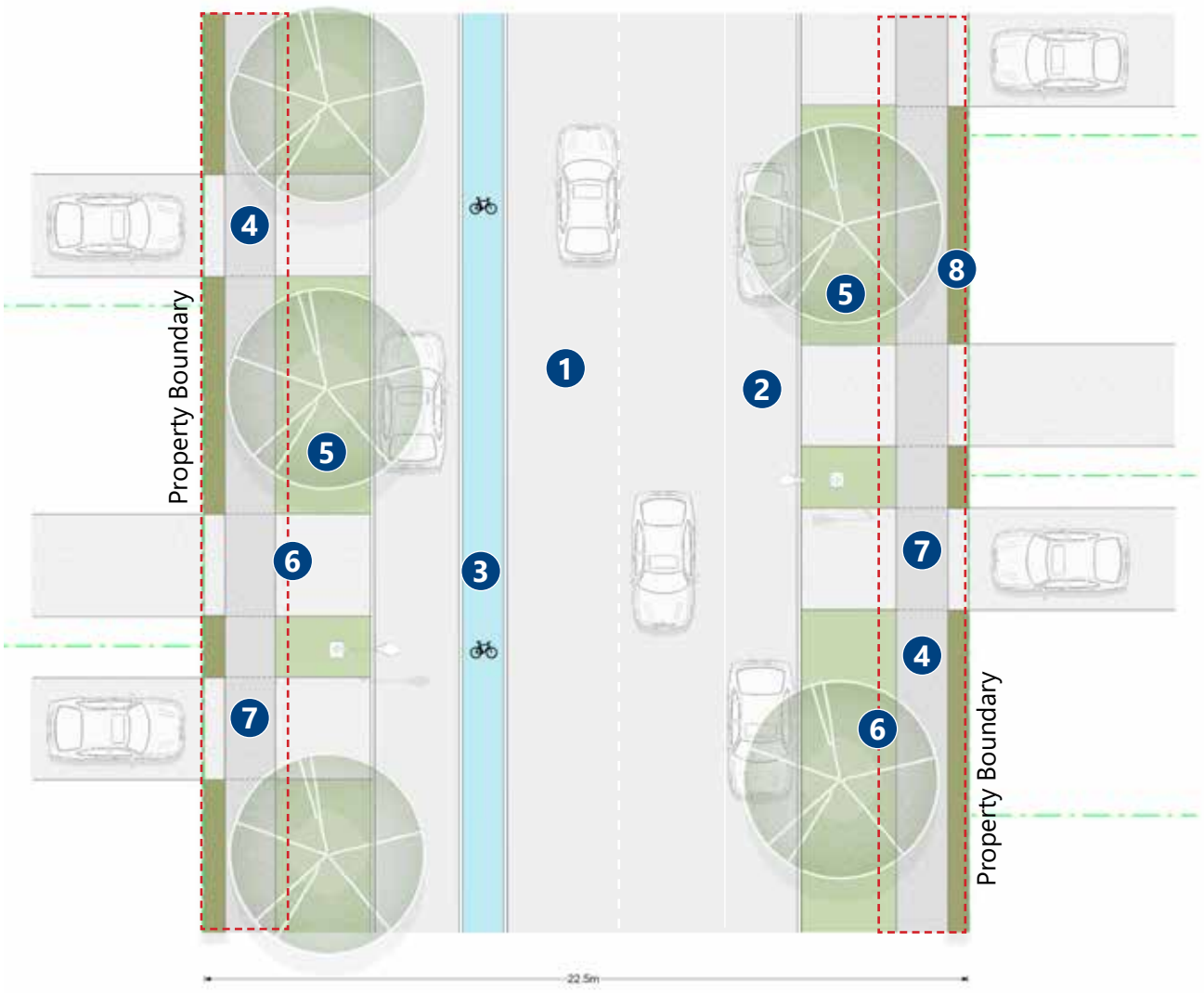
Recommendations

- Provide 1.5-2m footpaths on both side of street.
- Provide 2.7m of space from boundary for underground services.
- Provide min. 1.5m deep soil zone (free of underground services) for provision of street tree planting between footpath and back of kerb.
- Provide separated cycle lanes depending on broader network connections and predicted user volumes.
- Provide trees in the parking lane to provide additional green infrastructure and narrow the perceived transport corridor.
- Provide trees in medians to provide additional shade and green cover.
- Use painted or raised thresholds at intersections to improve the pedestrian environment.
- Feature planting at intersections can be considered subject to agreement with Council.



Collector Street - Typical Layout Option 1

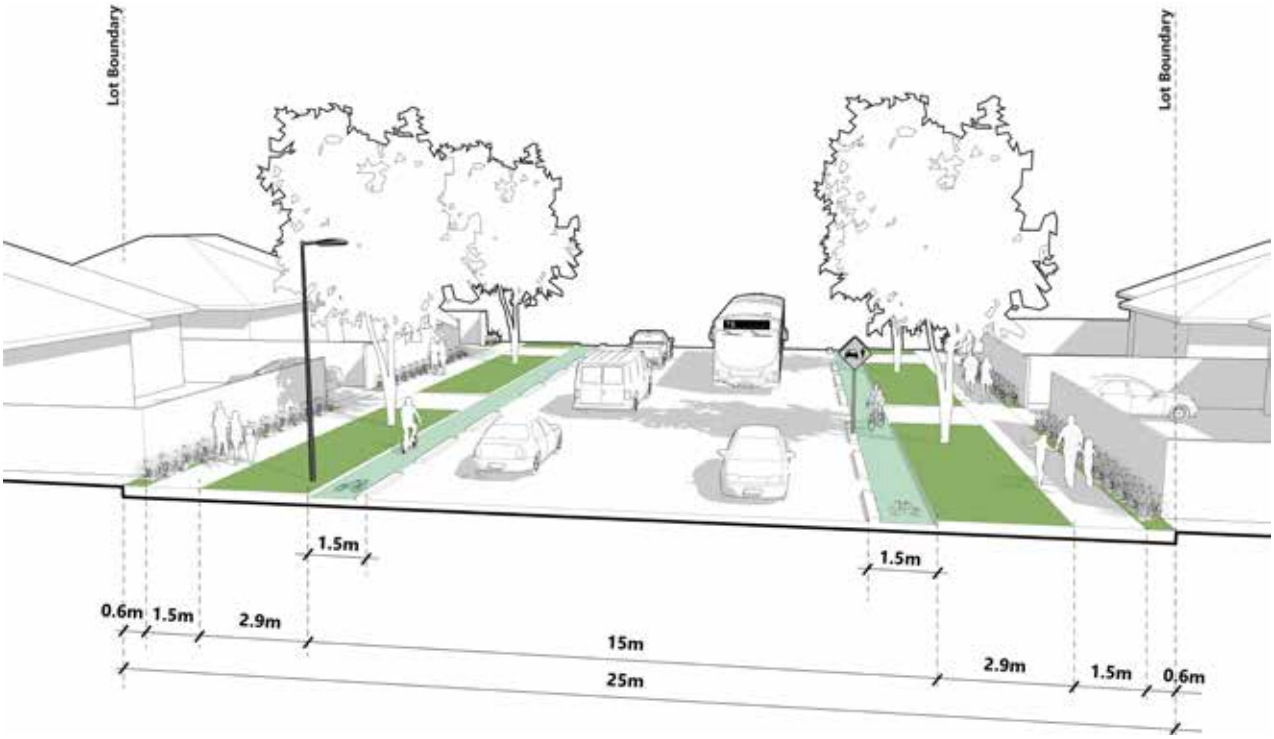
1. 2-way street, on-street parking
2. Flexible zone
3. Min. 1.5m wide footpath both sides
4. 1.5-2m deep soil zone both sides
5. 2.7m max. Service zone (shown dashed)
6. Use a continuous treatment across driveways to ensure pedestrian priority
7. Ensure bins can be stored within property boundary
8. Street Lighting
9. 0.6m boundary strip



Collector Street - Typical Layout Option 2

1. 2-way street, on-street parking
2. Flexible zone
3. Painted bike lane
4. Min. 1.5m wide footpath both sides
5. 1.5-2m deep soil zone both sides
6. 2.7m max. Service zone (shown dashed)
7. Use a continuous treatment across driveways to ensure pedestrian priority
8. 0.6m boundary strip

B.2.1.5 Distributor Streets



Overview

- Can be state government owned roads
- Typical Road Reserve 25m
- Used as main district transport connections routes
- Use varies across lengths – often pass-through suburban centres and double up as main streets
- Typically designed for a maximum speed of 50km/hour + and can carry between 2000-5000 vehicles per day.
- Commonly used for local bus routes.
- Provision for on-street parking in some areas
- Footpaths must be provided on both sides, and cycle lanes provided to connect to wider cycle networks.
- Street trees must be provided on both sides of street, with double rows or additional feature plantings provided at key intersections.
- Some areas Distributor Streets can transition into suburban centres; public domain can be fully paved in these circumstances, but tree coverage must continue.

Common Problems:

- Fast moving noisy traffic, difficult to cross
- Can have a perception of being too wide (in areas where on-street parking demand is low) which leads to higher traffic speeds.
- Often lack cycle lanes which deters use of alternative transport.
- Large kerb radii encourage faster vehicle turning and create longer pedestrian crossing which discourages walking.
- Distributor Streets are often perceived as being unsafe for children when lacking footpaths or appropriate crossing points.
- Lack of streets trees and shade.
- Lack of landscaping or character.
- Narrow strips of turf or landscaped areas create ongoing maintenance issues.
- Shade or mature tree coverage is often inadequate which discourages walking in summer months.

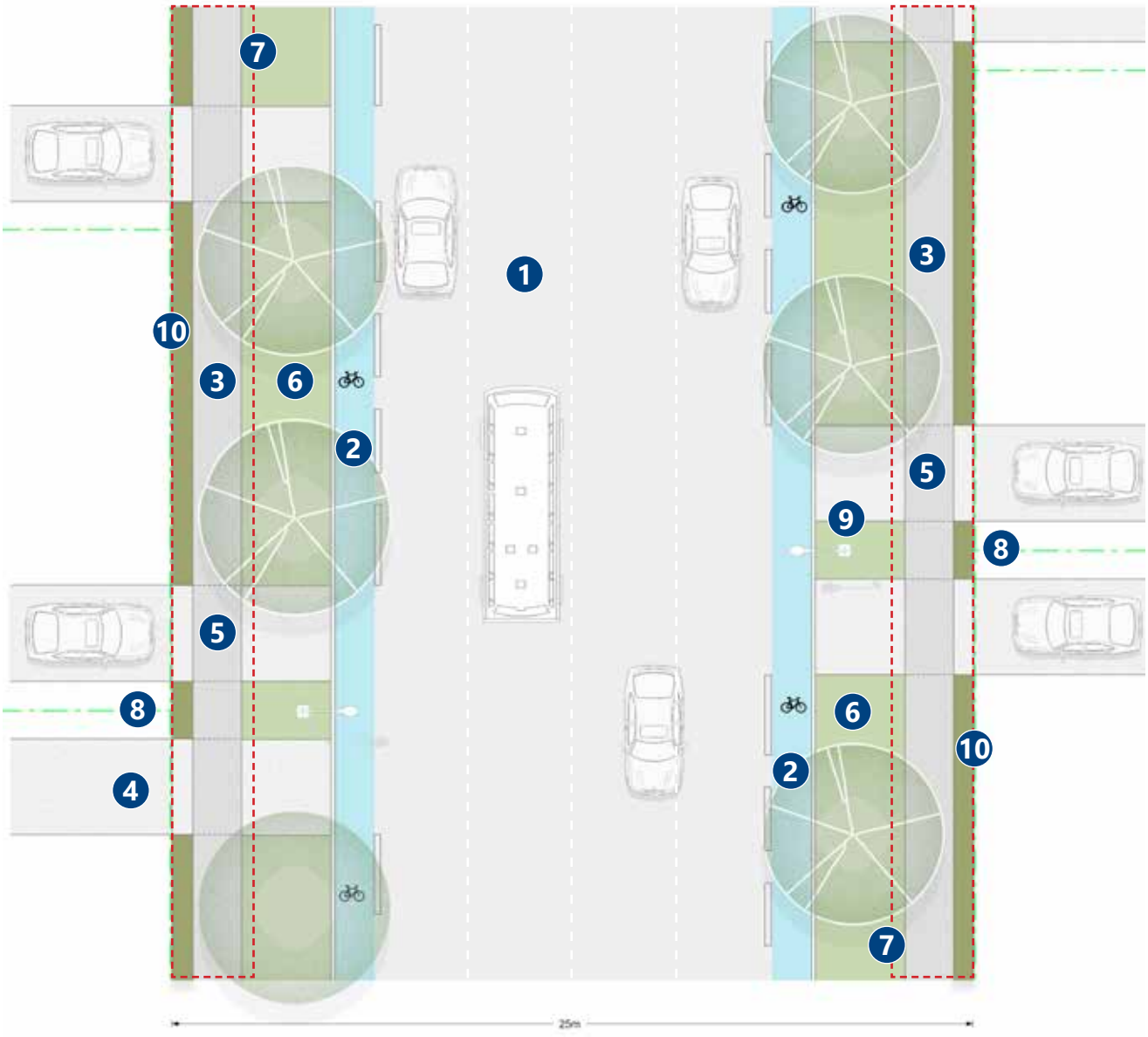
Examples:

Peats Ferry Road (Pacific Highway) Hornsby is a major distributor road running through the main town. This highway was recently upgraded by Hornsby Shire Council to increase landscape and tree coverage, provide for better pedestrian movement and to reduce traffic speeds using design interventions rather than reducing speed limits.

Peats Ferry Road (Pacific Highway) through Hornsby West-Side. This section of road has recently been upgraded to include tree planting using structural soil cells to increase canopy cover, and improve the general look and amenity of the area. Traffic speeds are reduced through implementation of trees rather than reducing speed limits.

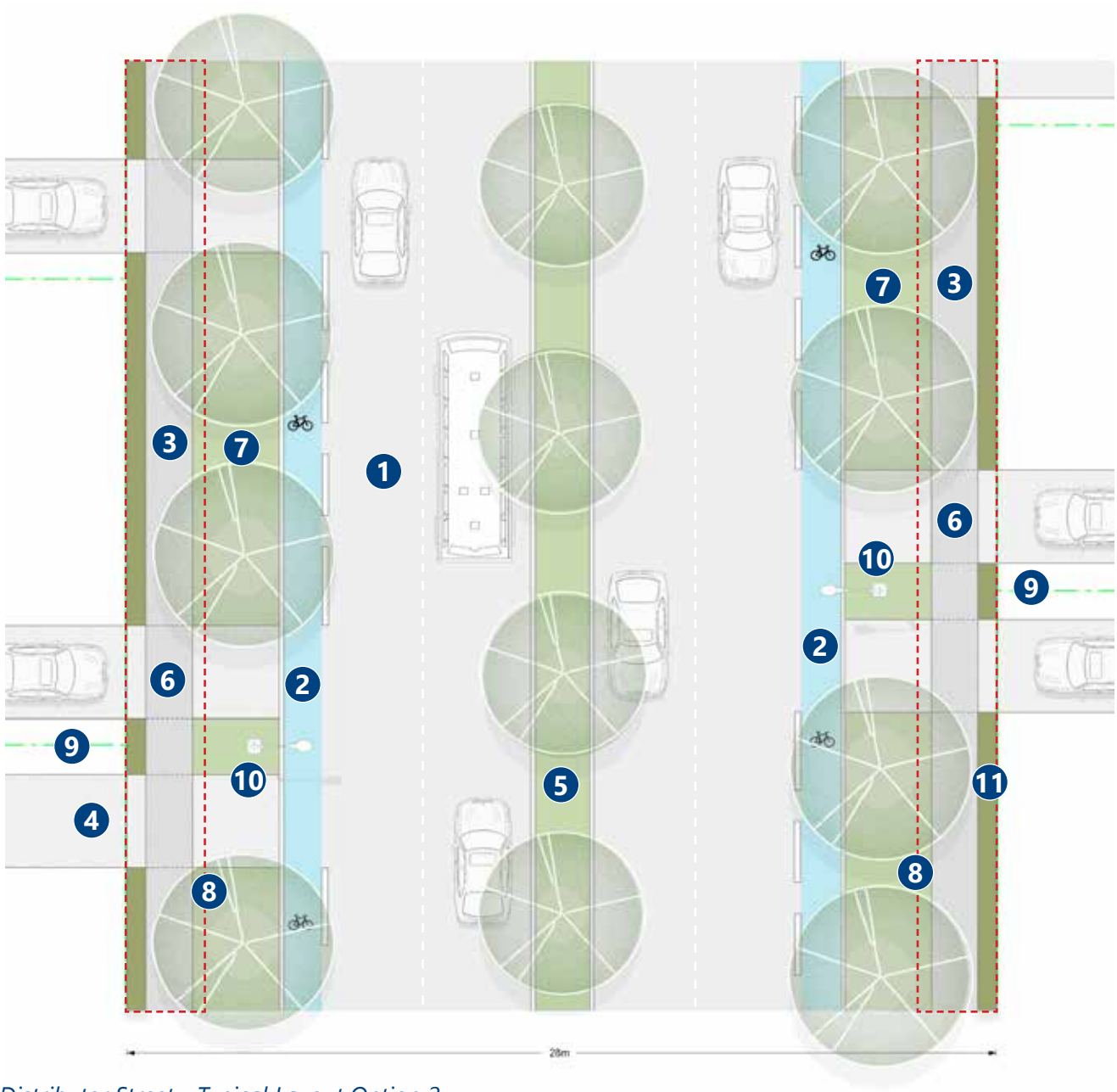
Recommendations

- Provide min. 1.5m footpaths on both side of street.
- Provide 2.7m of space from boundary for underground services.
- Provide min. 1.5m deep soil zone (free of underground services) for provision of street tree planting between footpath and back of
- Provide segregated bike lanes
- In agreement with Council, provide additional planting and landscaping at gateway points or when distributor streets act as main streets through local centres
- Feature planting in median strips can be considered subject to agreement with Council.



Distributor Street - Typical Layout Option 1

1. 2-Way Street, on-street parking may vary depending on location
2. Segregated bike lanes both sides
3. Footpaths or shared paths both sides
4. Driveways on distributor roads require careful design consideration and coordination with footpaths/ bike lanes etc.
5. Use a continuous treatment across driveways to ensure pedestrian priority
6. 2m deep soil zone both sides
7. 2.7m max. service zone (shown dashed)
8. Ensure bins can be stored within property boundary
9. Street Lighting
10. 0.6m boundary strip



Distributor Street - Typical Layout Option 2

1. 2-Way Street, on-street parking may vary depending on location
2. Segregated bike lanes both sides
3. Footpaths or shared paths both sides
4. Driveways on distributor roads require careful design consideration and coordination with footpaths/ bike lanes etc
5. Planted median strips at gateway entries to main centres
6. Use a continuous treatment across driveways to ensure pedestrian priority
7. 2m min. deep soil zone both sides
8. 2.7m max. service zone (shown dashed
9. Ensure bins can be stored within property boundary
10. Street Lighting
11. 0.6m boundary strip

B.2.2 Urban Centre Streets:

Urban Centre Streets include:

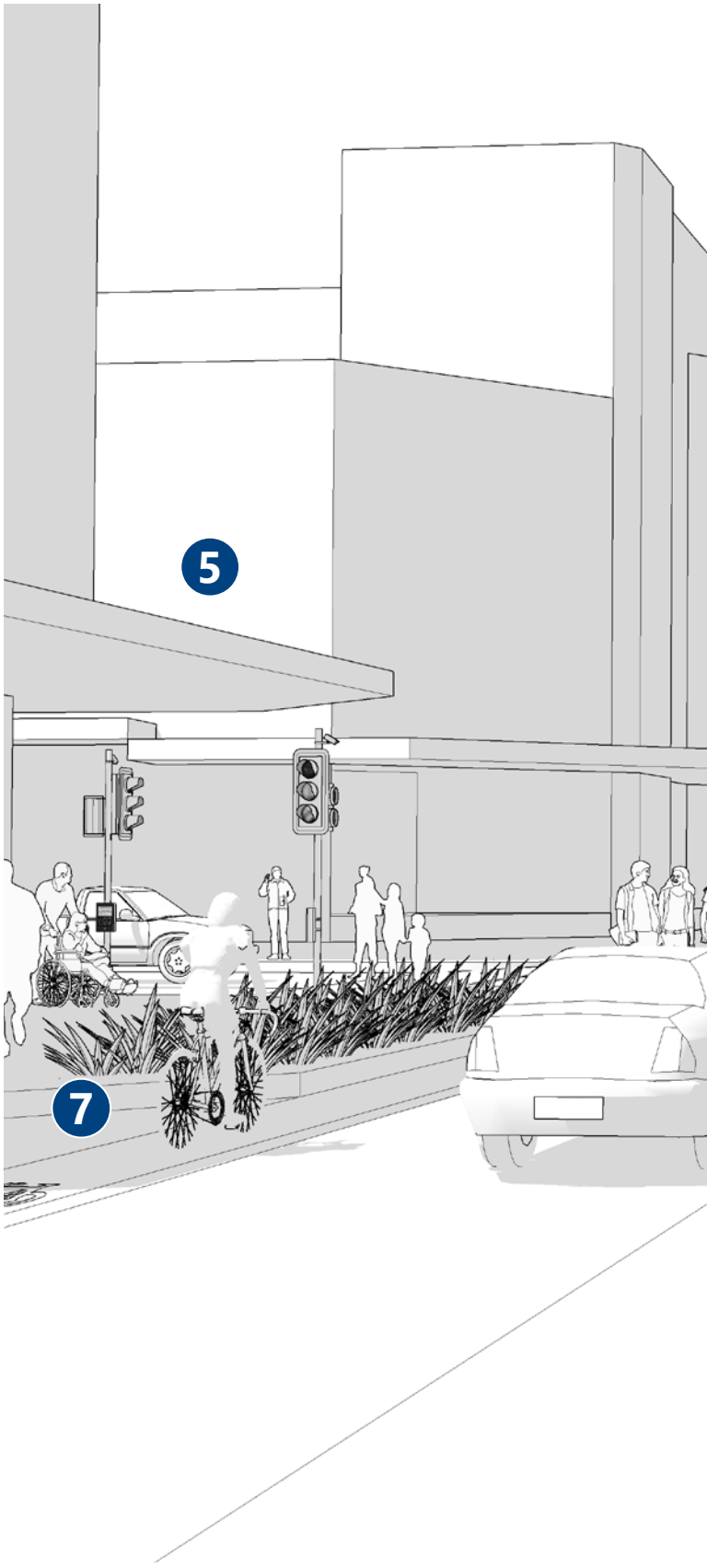
- Main Streets
- Connector Streets
- Urban Collector Streets
- Civic Spaces
- Neighbourhood Streets
- Urban Laneways

Vision:

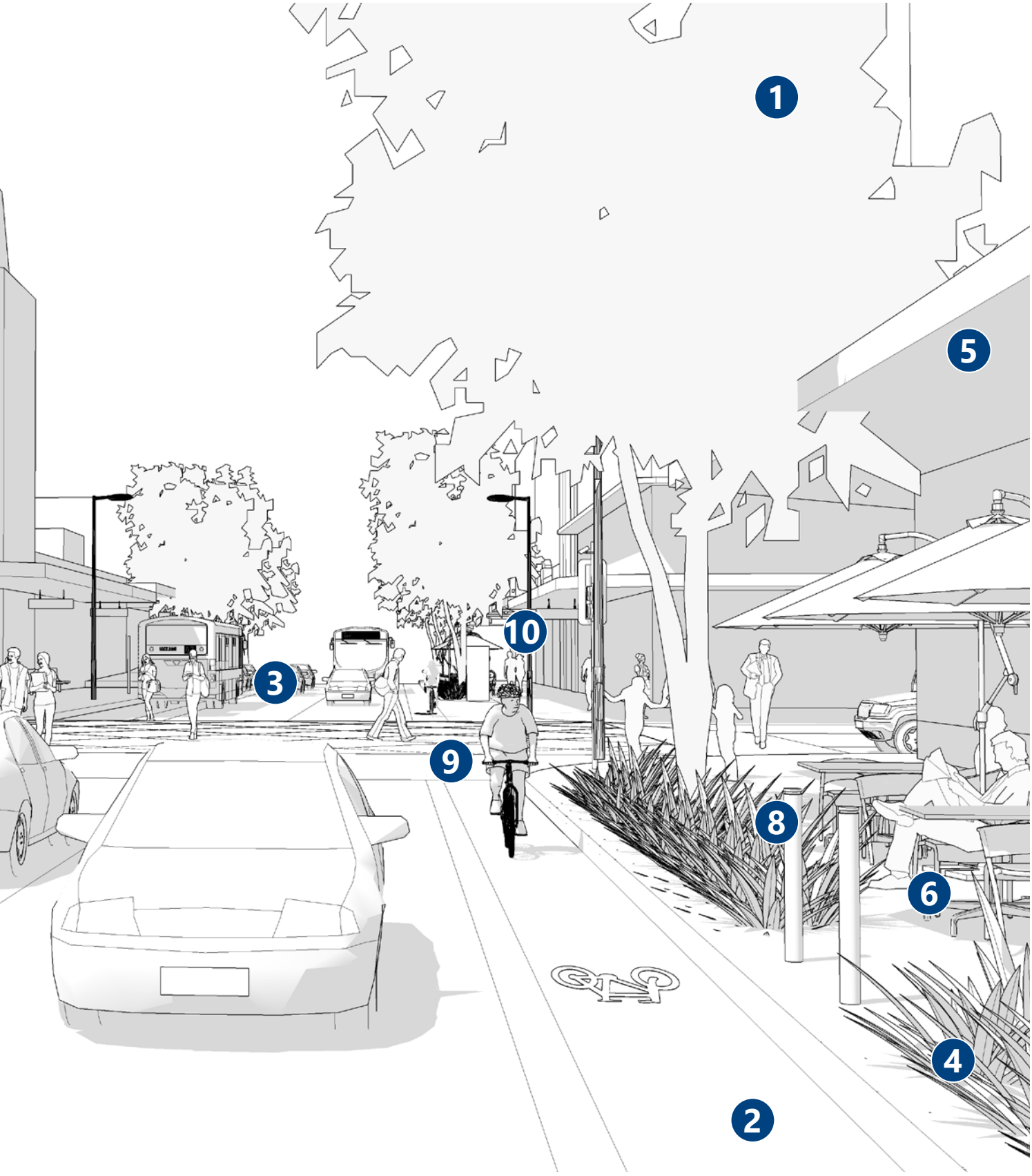
- Urban Streets form the heart of our towns and local centres and must be safe, vibrant and healthy.
- Streets should be activated with shop fronts to encourage commercial enterprise and business.
- The streetscapes are carefully designed to accommodate successful tree planting to provide future canopy and shade.
- Streets are easy to cross mid-block, and intersections are designed to minimise crossing times.
- The street gives priority to pedestrians, cyclists, and public transport users, promoting sustainable and active modes of transportation.
- Urban Streets provide a variety of roles and functions.
- Urban Streets must have a strong sense of character and identity, and reflect local heritage and culture through artworks and interpretation.

Rouse Hill Town Centre, NSW

B.2.2.1
Main Streets



1. Suitably sized and located street trees - refer materials schedules and street tree plans for town centres
2. Painted or fully segregated cycleways
3. On-street parking
4. Low level planting or WSUD systems
5. Continuous awnings where applicable
6. Outdoor dining opportunities on footpath
7. Well coordinated and consistent paving materials - refer materials schedules for town centres
8. Street furniture, Street lamps, bollards and bins - refer materials schedules for town centres
9. Raised-to-kerb pedestrian crossings at key street intersections
10. Way-finding information - location maps, heritage interpretations (where applicable) and signage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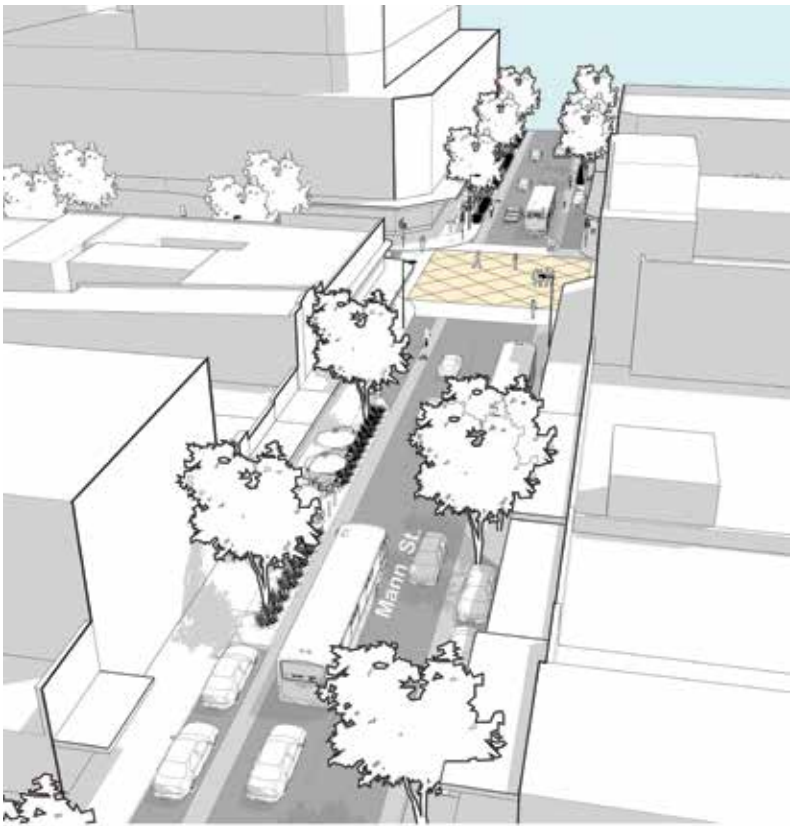
Main Streets



Overview

Main Streets are the principal street of urban centres that typically facilitate the most amount business, activation and movement.

Main Streets should promote multi-modal transportation including buses and cyclists. Wider footpaths are provided on either side of the street for greater pedestrian movements and activation.

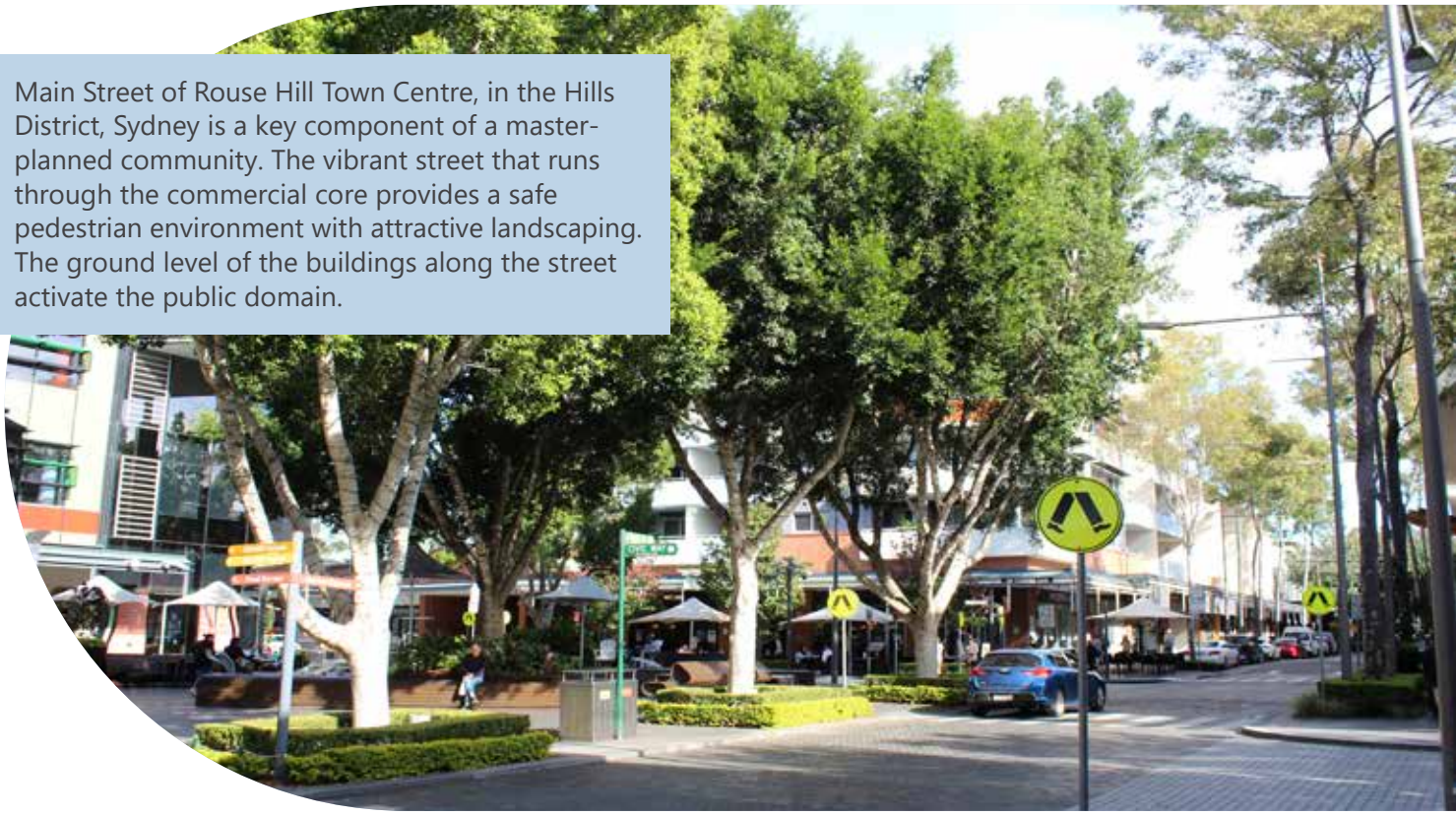
The continuous building awnings provide shade and protection from weather. Flexible zones can be identified in key strategic locations in the form of widened footpaths. The space can be used for outdoor dining, landscape, public art, street furniture etc.

The maximum speed of the street should be 40km/h, with consideration given to 30km/h areas and even shared pedestrian zones in situations where vehicles may be redirected.

Recommendations

- Where space allows, re-retrofit Main Streets to include painted or segregated cycle lanes within the carriageway.
- Provide 3m (min.) footpaths either side of the street. Refer paving patterns and material specifications.
- Provide street trees and on-street parking as well as flexible footpath zones for outdoor dining/street furniture/ landscaping on both sides of the street.
- Provide way-finding, heritage interpretation elements.
- Consider WSUD best practice mechanisms in the landscape zones with low-level planter beds.
- Provide safe pedestrian crossings by employing signs, signals, kerb-cuts and raised-to-kerb, tabletop crossings where identified.

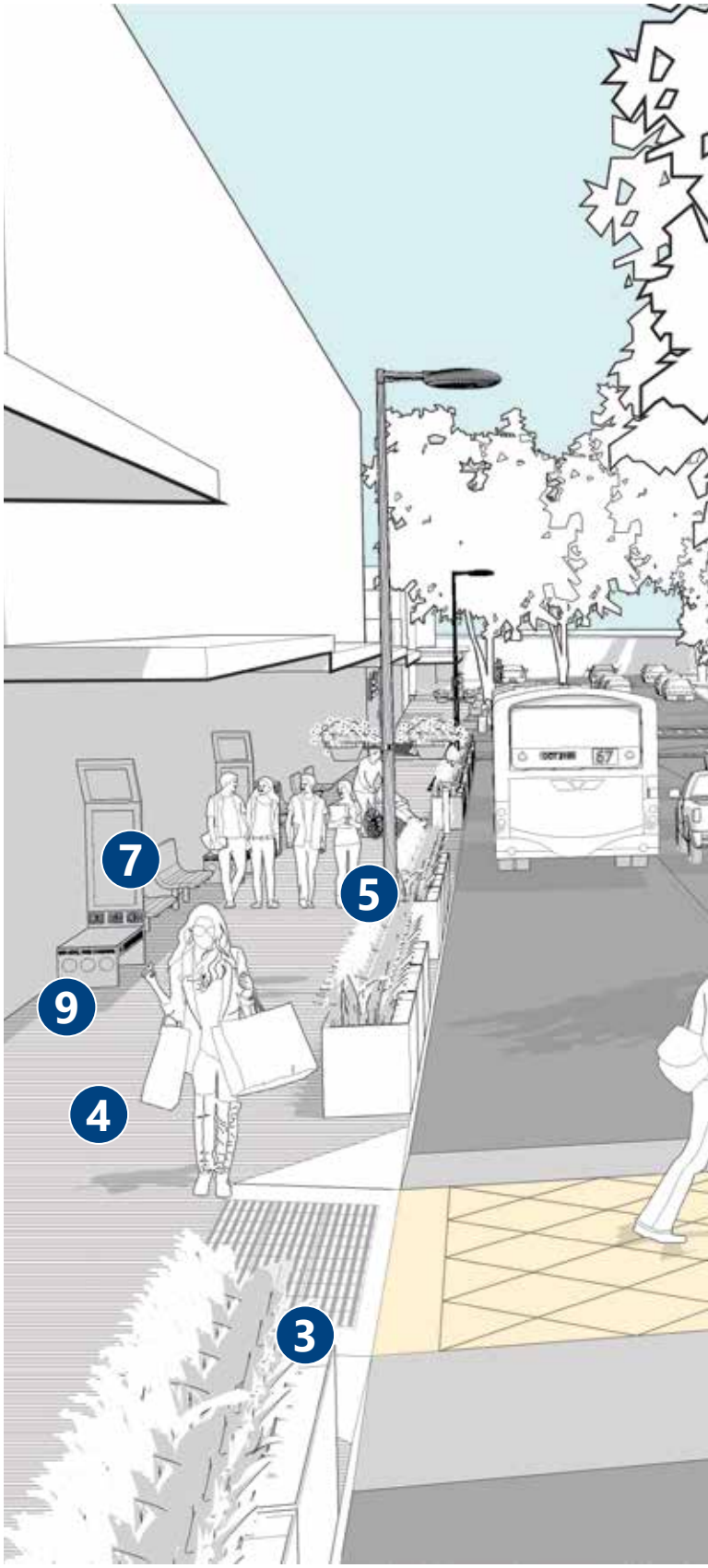
Examples:



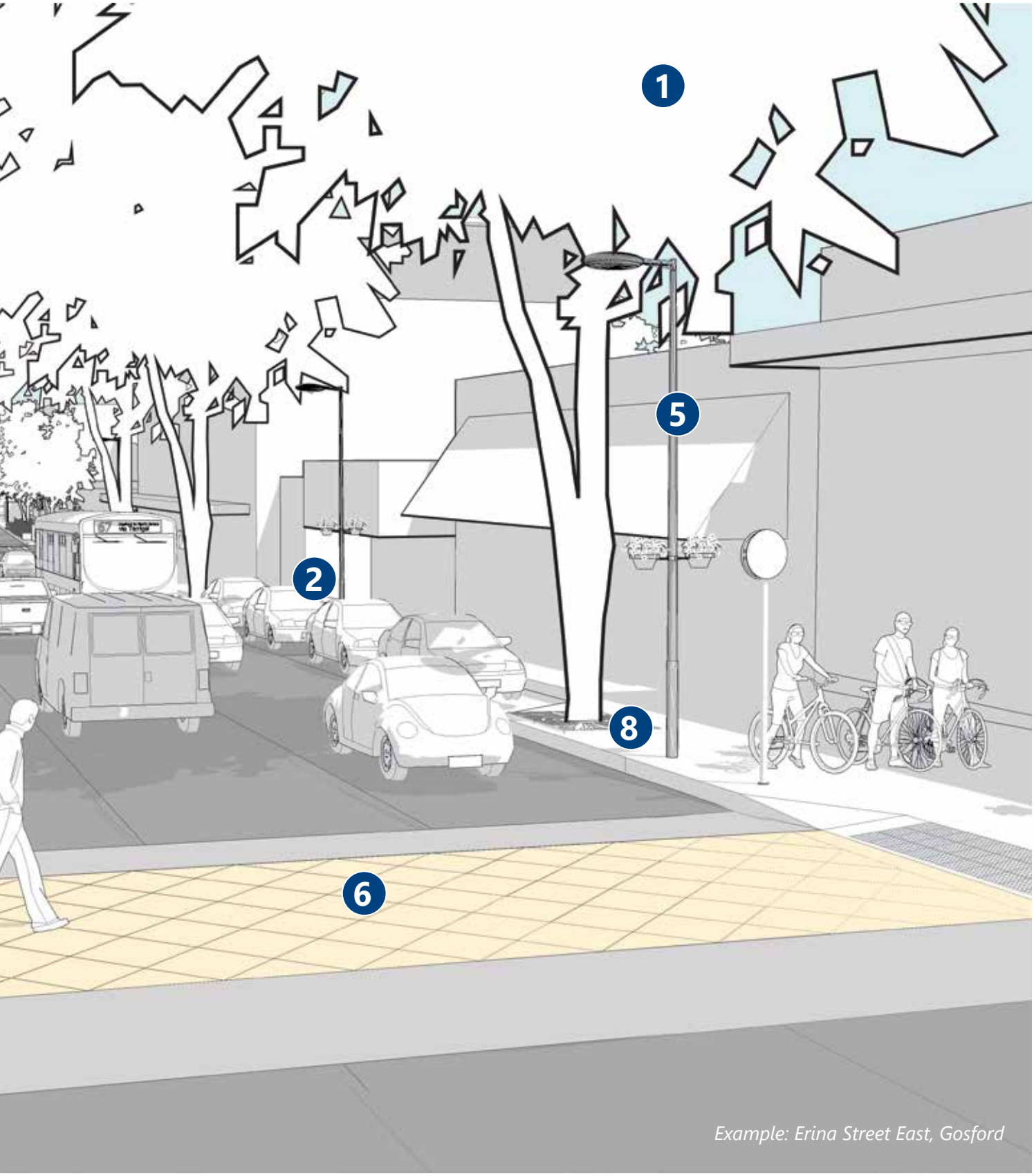
Main Street of Rouse Hill Town Centre, in the Hills District, Sydney is a key component of a master-planned community. The vibrant street that runs through the commercial core provides a safe pedestrian environment with attractive landscaping. The ground level of the buildings along the street activate the public domain.

Crown Street in Surry Hills, Sydney is part of a long urban street that connects the northern and southern districts in Sydney CBD. The character of the street supports a comfortable pedestrian environment that is activated by the ground level uses. The street features mature trees with large canopies on either side, with street parking and painted cycle lanes in parts of the street.

B.2.2.2
Connector Streets

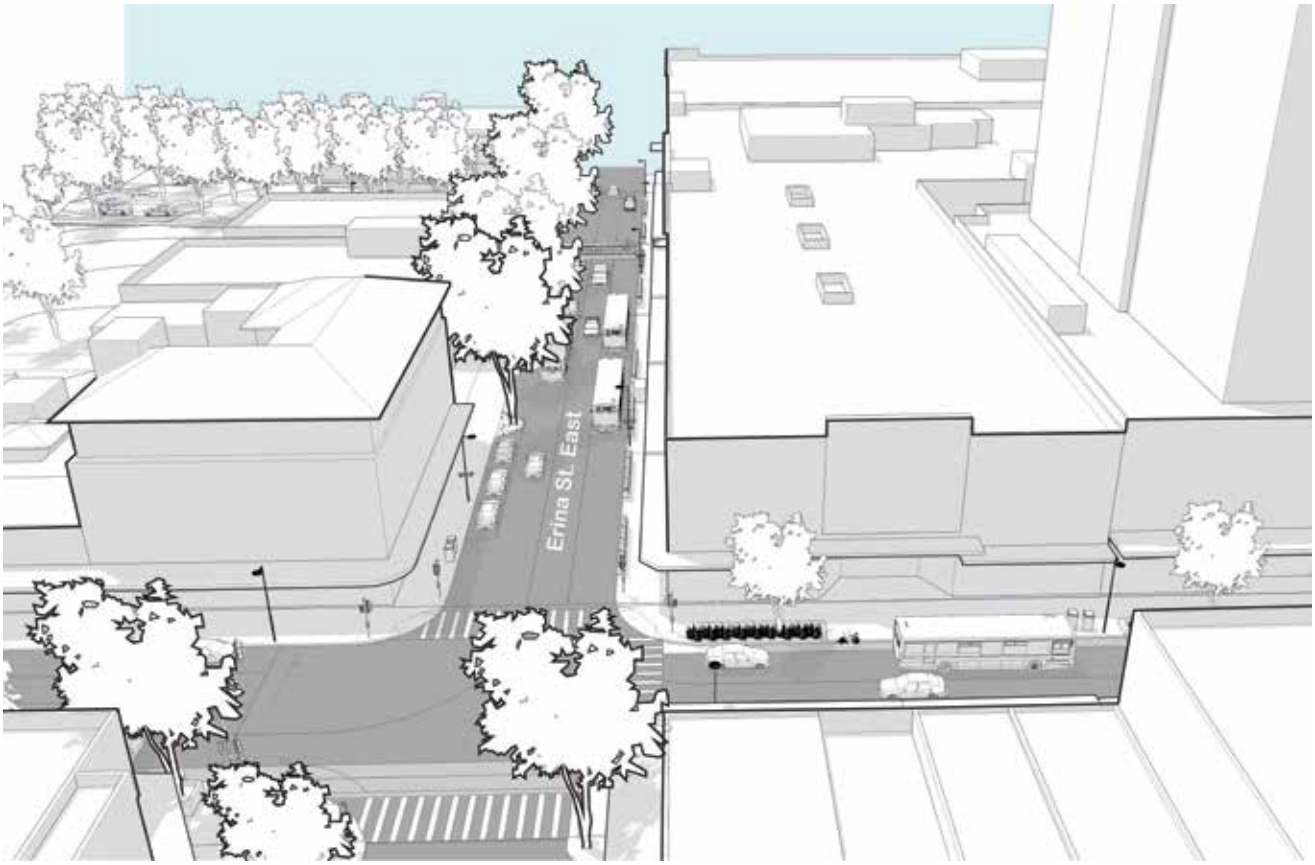


1. Suitably sized and located street trees - refer materials schedules and street tree plans for town centres
2. On-street parking
3. Raised planter troughs for greenery and protection of pedestrians
4. Well coordinated and consistent paving materials - refer materials schedules for town centres
5. Street furniture, Street lamps, bollards and bins - refer materials schedules for town centres
6. Raised-to-kerb pedestrian crossings at high pedestrian traffic linkages
7. Way-finding information- location maps, heritage interpretations (where applicable) and signage
8. Coordinated street tree grates
9. Renewable energy-powered smart benches, wi-fi connectivity, bus information



Example: Erina Street East, Gosford

Connector Streets



Overview

The role of **Connector Streets** is to provide connectivity to the main street from close quarters of the urban centres. Connector Streets support efficient traffic movement while providing street parking and tree canopy. Connector often also cater for shops and local business.

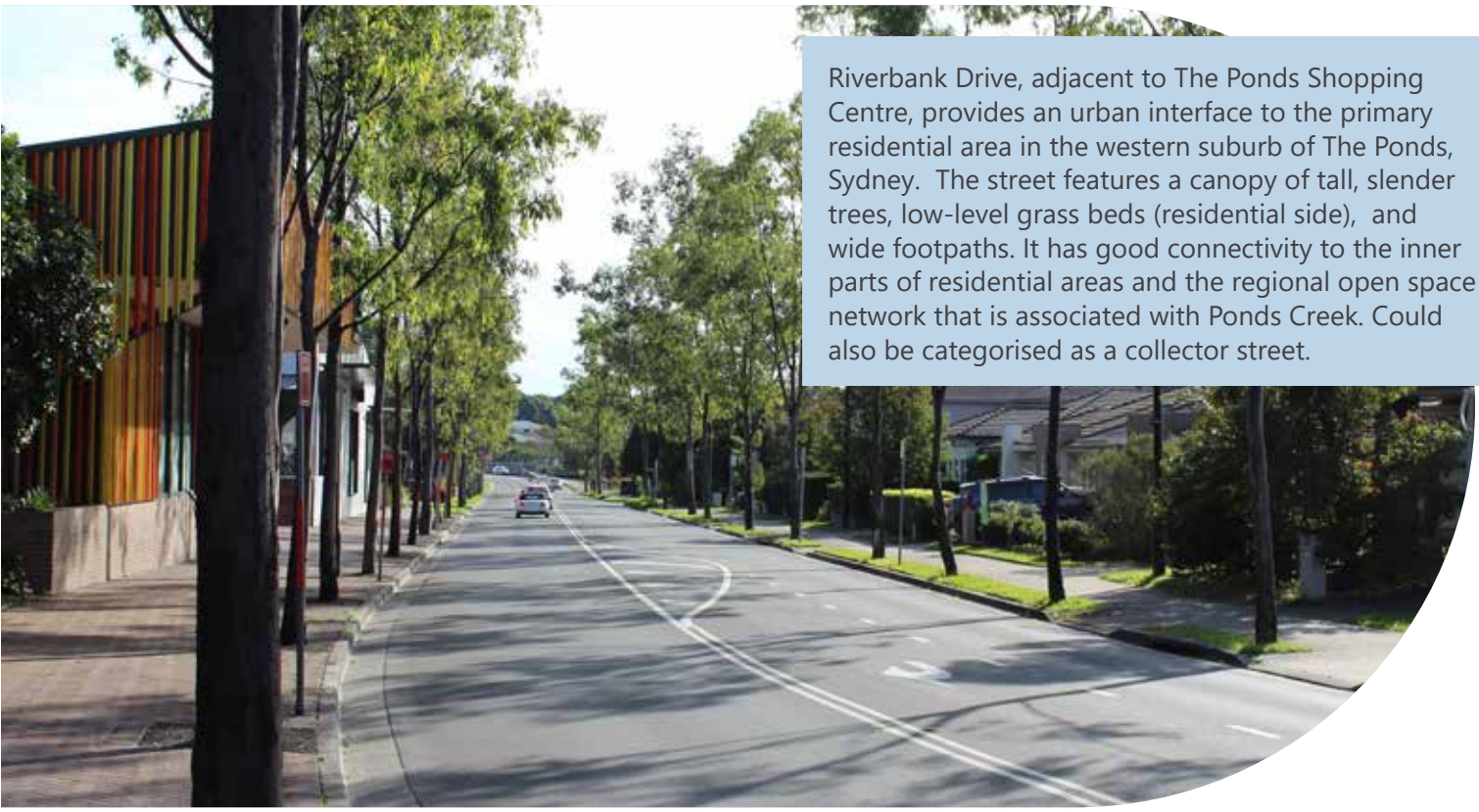
Depending on surrounding uses and the traffic network, Connector Streets can have minor variations to their general street profile.

Recommendations

- Provide 3m min. footpaths either side of the street.
- Provide street trees and on-street parking on both sides of the street where possible.
- Use landscaping to soften and cool the street whilst adding vibrancy and character.
- Where space is limited, plant trees on either the northern or western sides of the street only to maximum shade.
- Consider WSUD systems in the landscape zones with low-level planter beds.
- Emphasise street corners and prioritise pedestrian movement at crossing points.

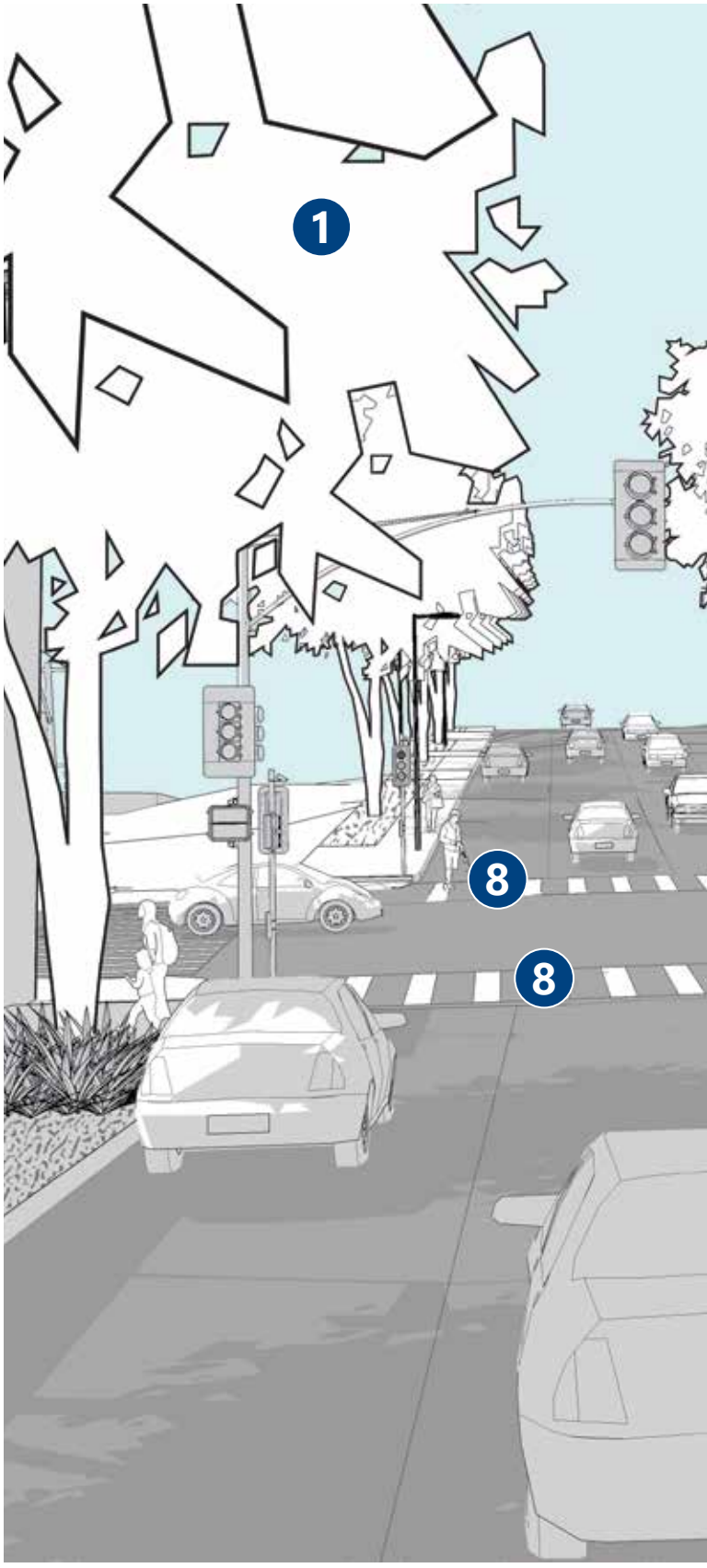
Examples:

Maclear Street at Potts Point, provides connectivity to Darlinghurst Street in the densely built up urban area around Kings Cross, Sydney. The street caters for shops and local businesses, particularly emphasising the street corners. Maclear Street features an established tree canopy and lower level planting beds, plus street parking, wide footpaths, street furniture and bicycle stands.

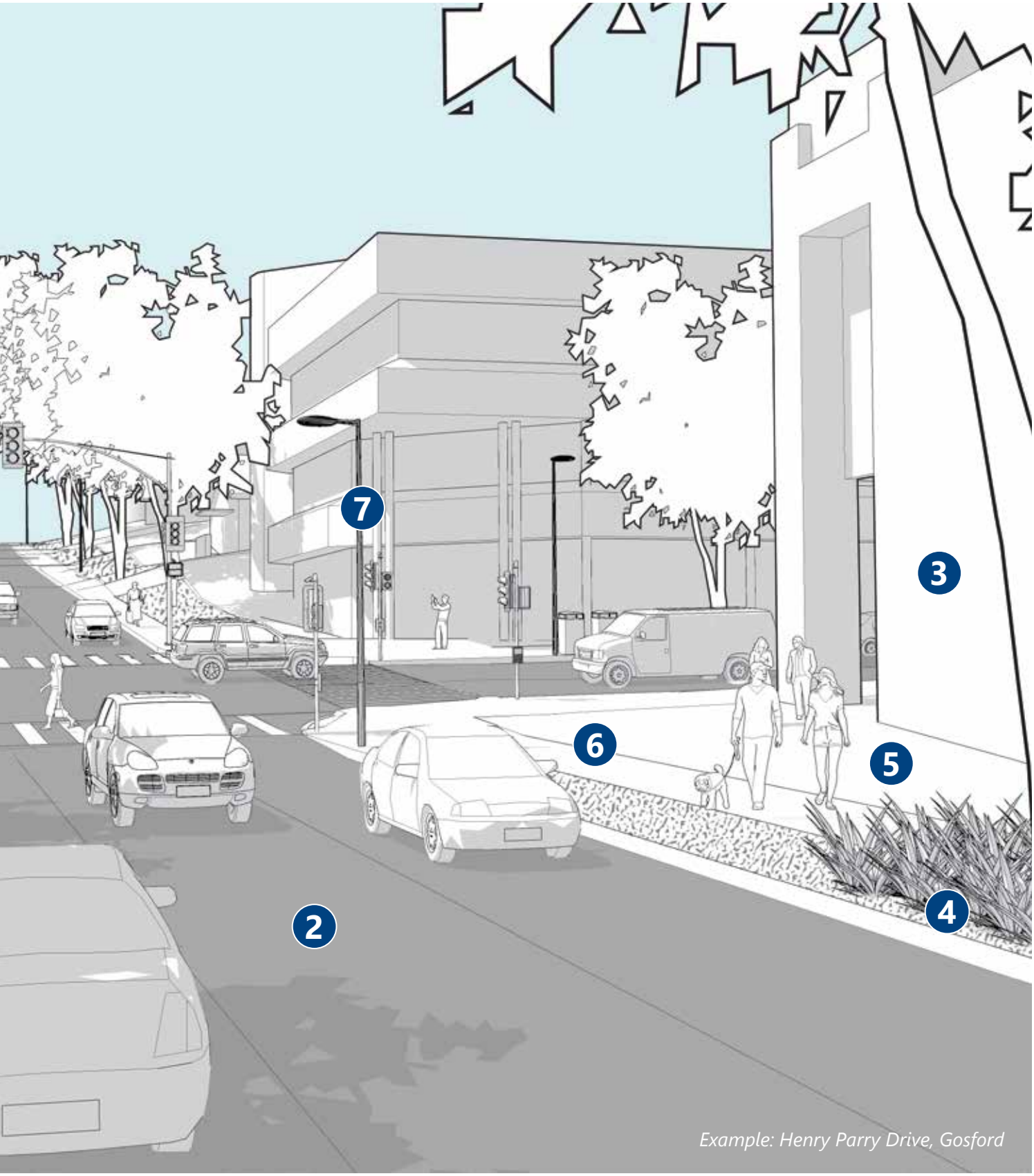


Riverbank Drive, adjacent to The Ponds Shopping Centre, provides an urban interface to the primary residential area in the western suburb of The Ponds, Sydney. The street features a canopy of tall, slender trees, low-level grass beds (residential side), and wide footpaths. It has good connectivity to the inner parts of residential areas and the regional open space network that is associated with Ponds Creek. Could also be categorised as a collector street.

B.2.2.3 Urban Collector Streets



1. Suitably sized and located street trees - refer materials schedules and street tree plans for town centres
2. Wider carriageway that allows multiple traffic lanes
3. Generous landscape setbacks/ building setbacks
4. Low-level planting or WSUD systems
5. 2m min. width footpaths
6. Well coordinated and consistent paving materials - refer materials schedules for town centres
7. Street furniture, Street lamps, bollards and bins - refer materials schedules for town centres
8. Zebra Crossings at major street intersections



Example: Henry Parry Drive, Gosford

Urban Collector Streets

Overview

Urban Collector Streets provide connectivity between urban centres in the region. These streets promote efficient traffic movements at all times. The designated pedestrian areas are separated by the landscaped verge.

Urban Collector Streets provide opportunities for street trees with large canopies. On-street parking is discouraged (except in the vicinity of urban areas or within the centres) on Urban Collector Streets.

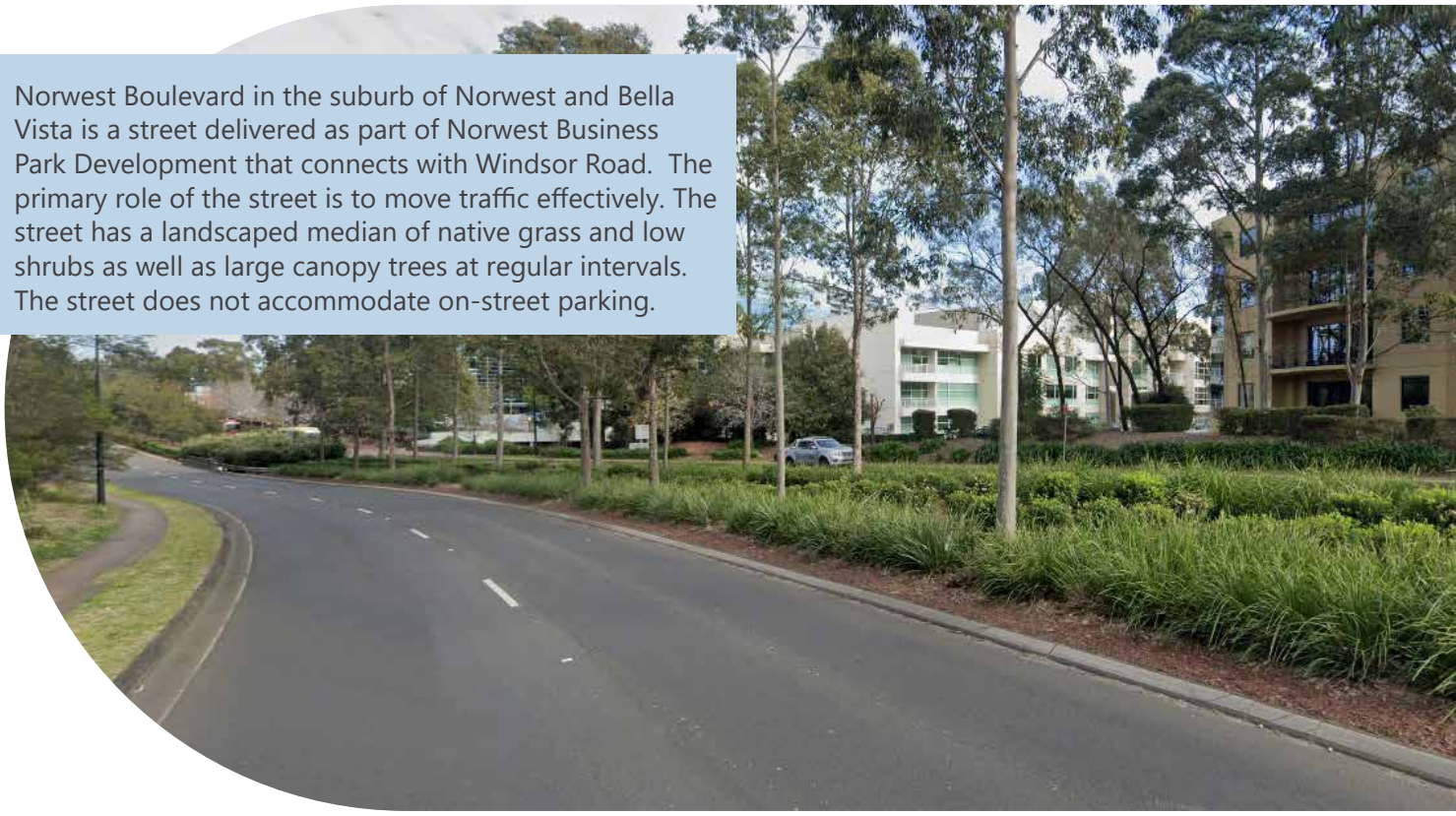
Where Urban Collector runs through town or local centres they double up as main streets, and greater consideration must be given to pedestrian use, materials and street planting.

At gateways to town centres, Urban Collectors can be designed to include central planted medians as arrival experiences and to create stronger definition to each place.

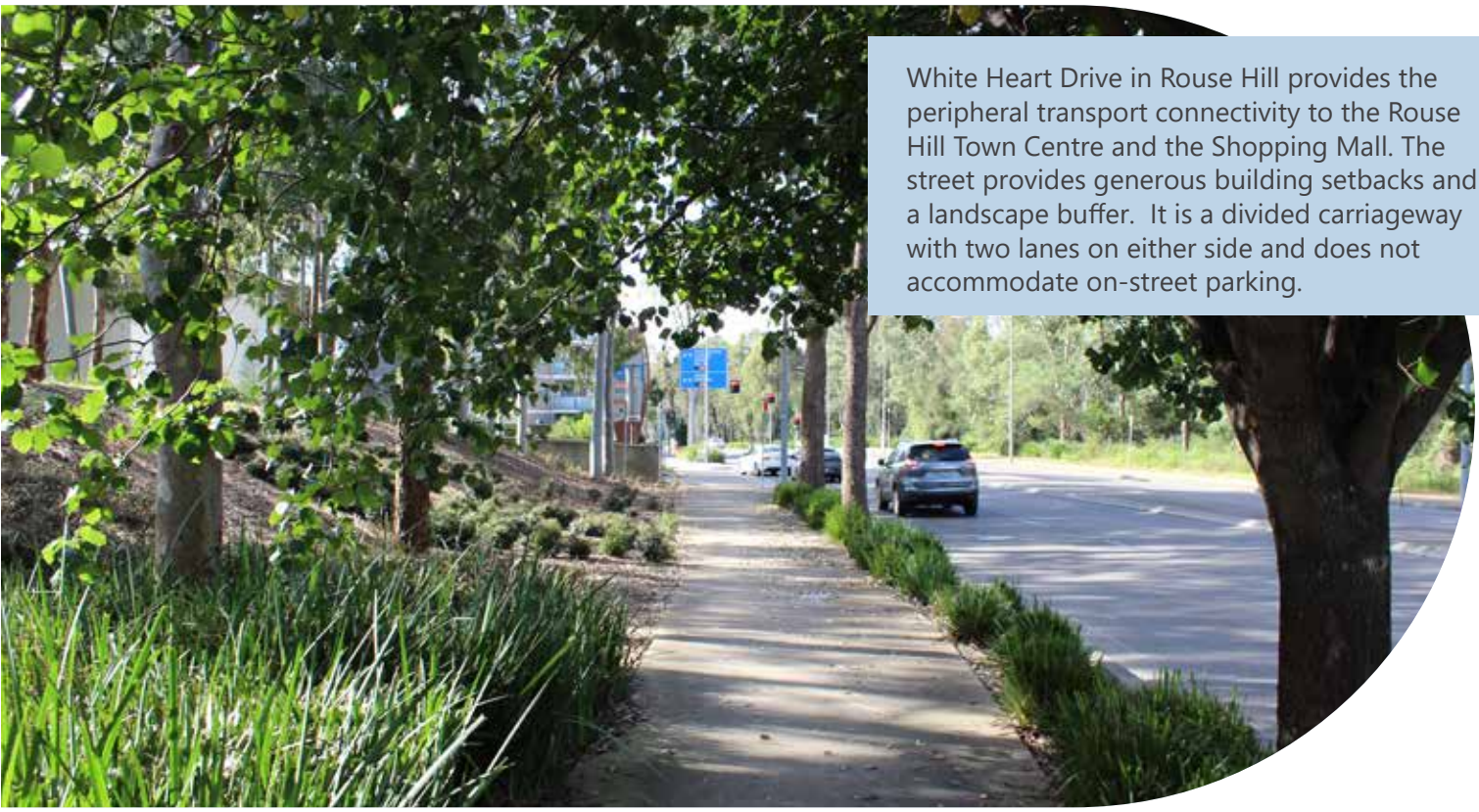
Recommendations

- Consider providing minimum of dual-carriageways in either direction of traffic.
- Provide 2m (min.) footpaths on either side of the street.
- Provide generous landscape buffer within the verge, that can accommodate street trees with large canopies.
- Provide a consistent minimum building setback with landscape complementary to that of the street landscape.
- Consider WSUD best practice mechanisms in the landscape zones with low-level planter beds.
- Consider providing shared paths on wider street reserve corridors.
- See Main Streets for town centre areas.

Examples:

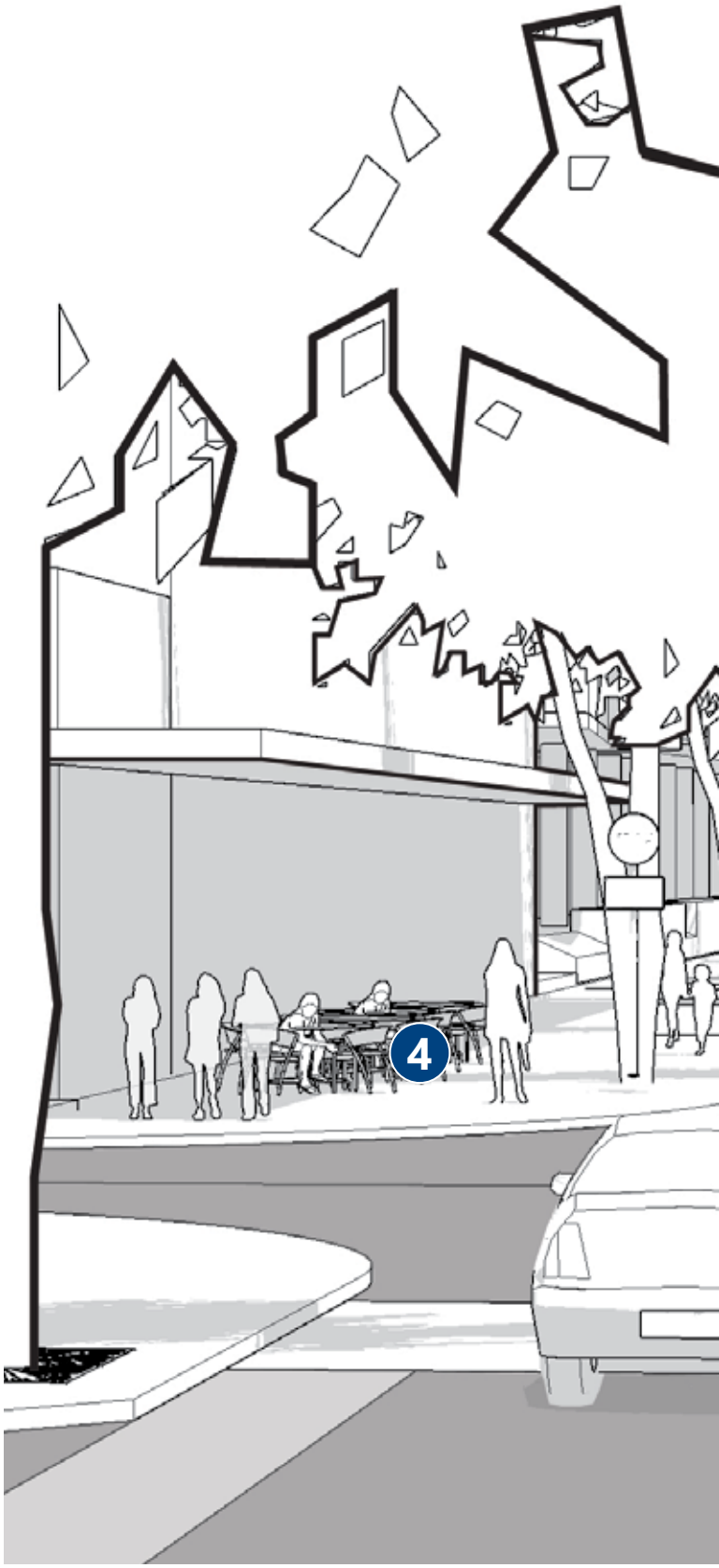


Norwest Boulevard in the suburb of Norwest and Bella Vista is a street delivered as part of Norwest Business Park Development that connects with Windsor Road. The primary role of the street is to move traffic effectively. The street has a landscaped median of native grass and low shrubs as well as large canopy trees at regular intervals. The street does not accommodate on-street parking.

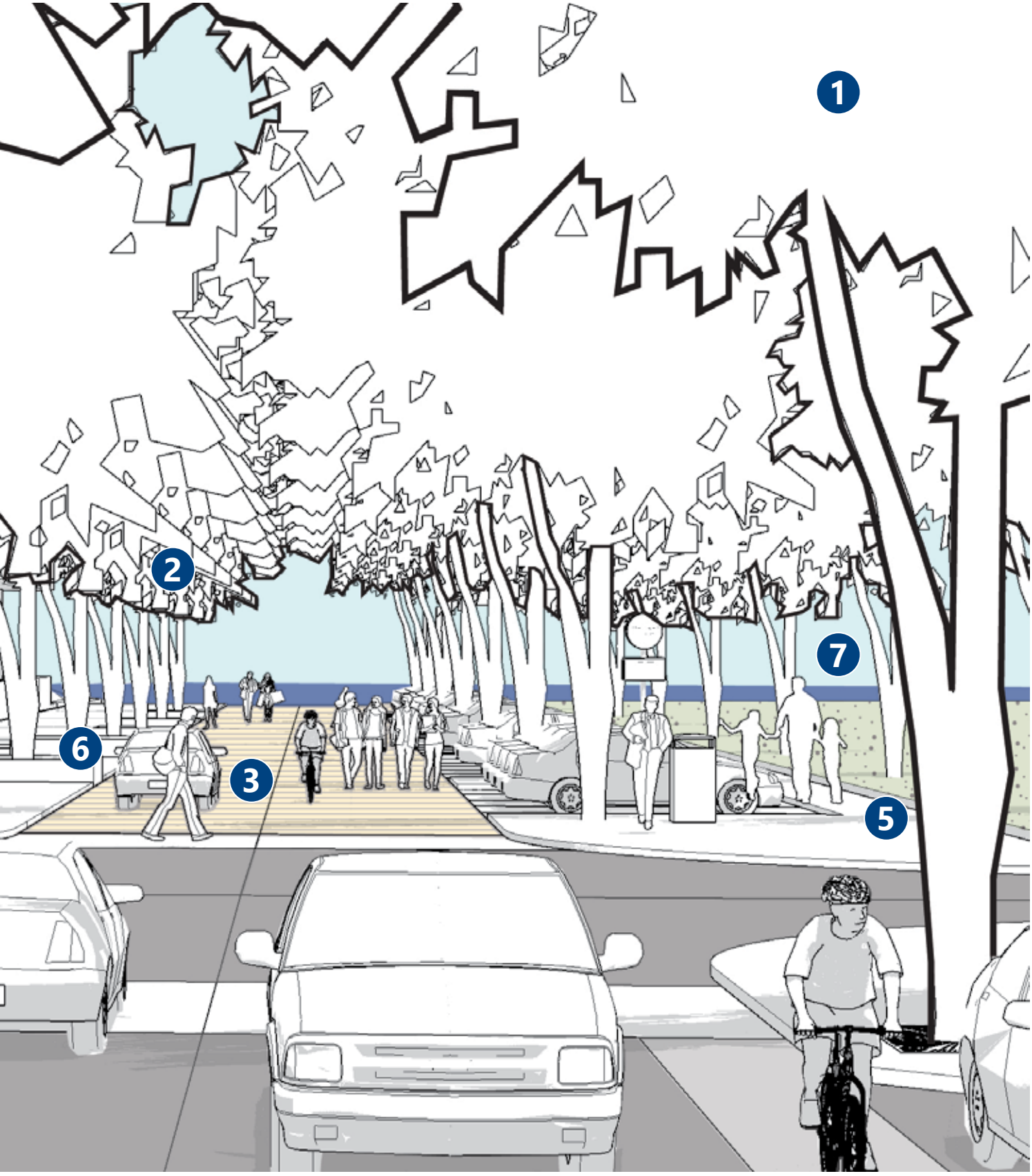


White Heart Drive in Rouse Hill provides the peripheral transport connectivity to the Rouse Hill Town Centre and the Shopping Mall. The street provides generous building setbacks and a landscape buffer. It is a divided carriageway with two lanes on either side and does not accommodate on-street parking.

B.2.2.4
Civic Spaces



1. Suitably sized and located street trees - refer materials schedules and street tree plans for town centres
2. Unifying street trees with significant canopies
3. Pedestrianised space with restricted vehicle movement
4. Ample street furniture with places to stop and rest
5. Well coordinated and consistent paving materials - refer materials schedules for town centres
6. Street furniture, Street lamps, bollards and bins - refer materials schedules for town centres
7. Public should feel a sense of ownership within civic spaces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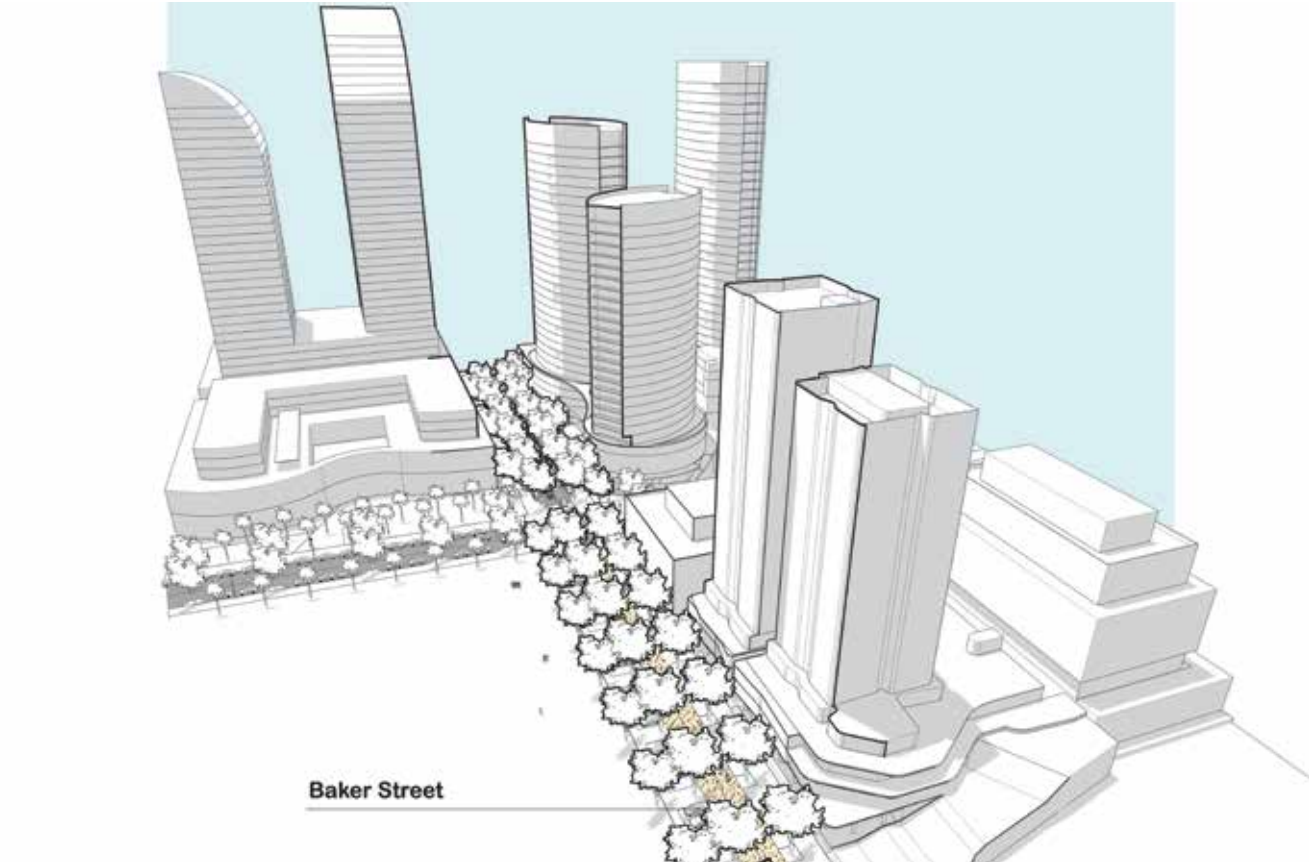
Civic Spaces



Overview

Civic Spaces such as William Street Mall in Gosford, are Civic Spaces within town centres specifically designed for large volumes of people to use or congregate. Historically the 'Town Square' provided an important role in society for public gatherings, but now offer a wide role for commercial and business activities too.

Civic Spaces are variable in size, but should be designed to prioritise pedestrians over any vehicle movement. Traffic should be limited to emergency or service vehicles only, with no through movement of everyday cars or vehicles.

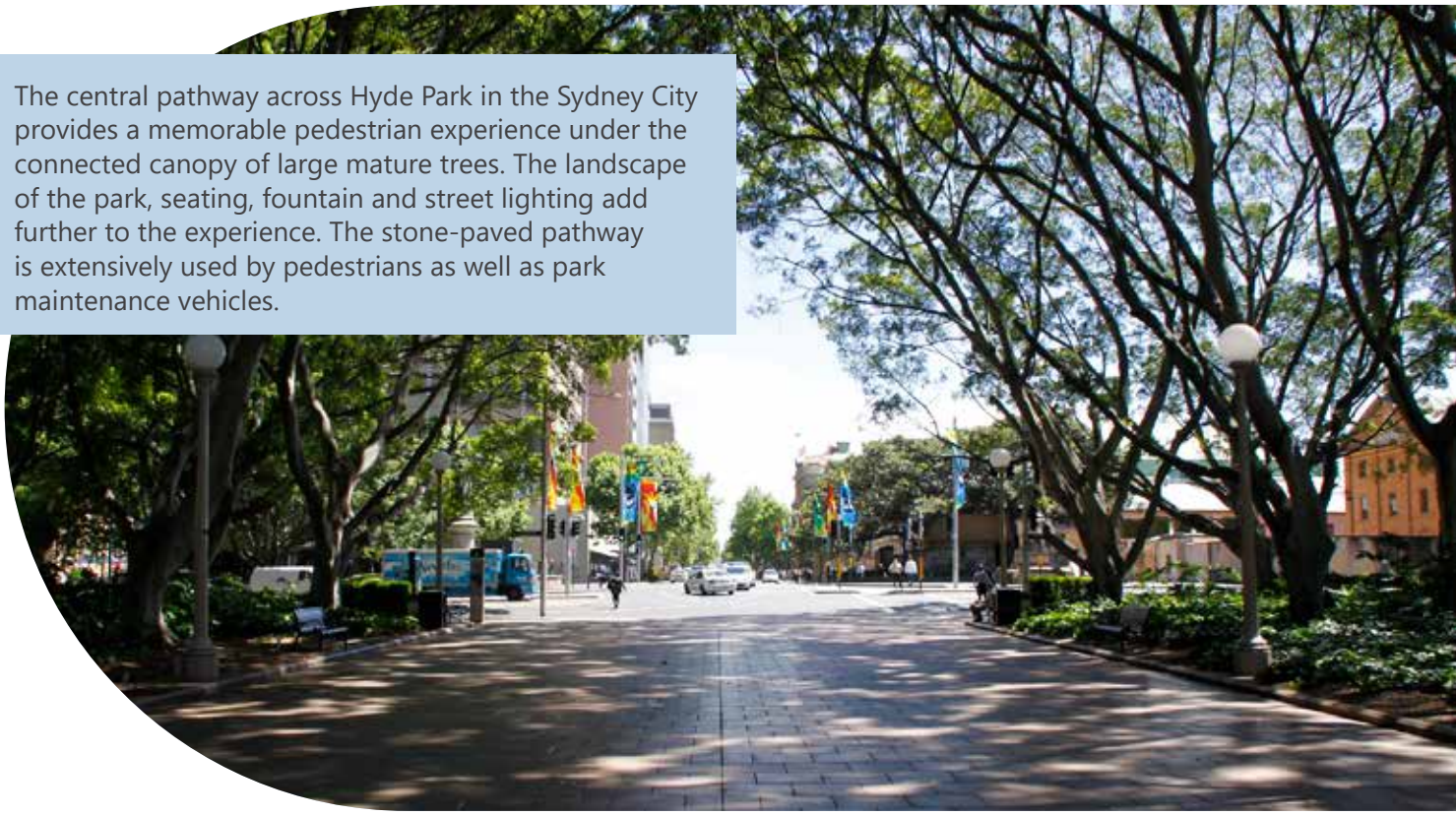
Successful Civic Spaces in Australia provide ample shade and comfort, are associated with local businesses, cafes and restaurants and are flexible to cater for a range of functions and events.

Materials are to be of a higher quality than standard streets, with local art, culture and heritage being reflected through the design.

Recommendations

- Ensure public safety at all times as civic spaces often create the heart of a city
- Provide large canopy unifying street trees at co-ordinated regular intervals.
- Provide a range of civic spaces of varying size throughout town and urban centres
- Provide ample seating opportunities for the public
- Integrate art, culture, heritage and SMART furniture to allow people to connect with their civic space in a variety of ways
- Ensure adequate lighting and way-finding is provided

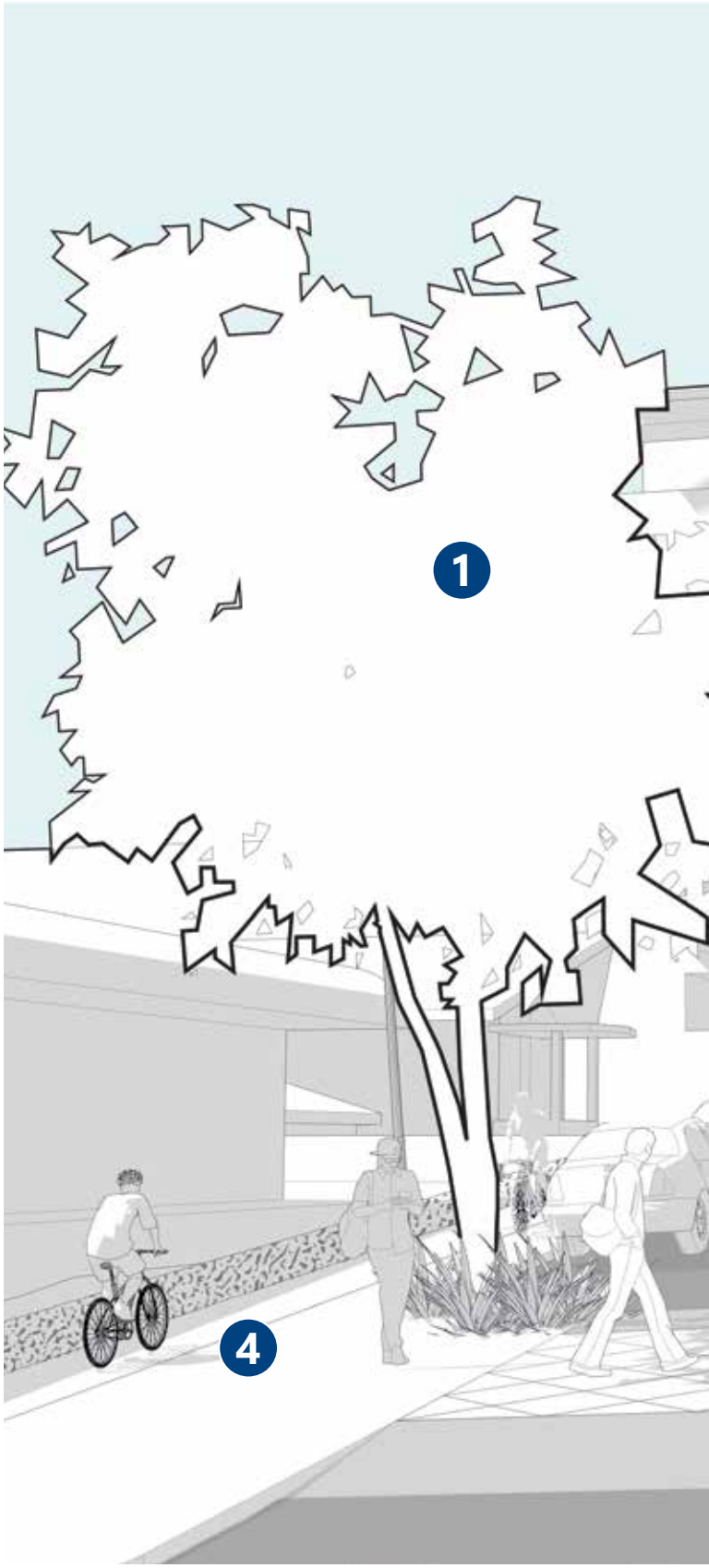
Examples:



The central pathway across Hyde Park in the Sydney City provides a memorable pedestrian experience under the connected canopy of large mature trees. The landscape of the park, seating, fountain and street lighting add further to the experience. The stone-paved pathway is extensively used by pedestrians as well as park maintenance vehicles.

Pitt Street Mall in Sydney is an example of a successful and highly pedestrianised Civic Space. Originally a standard though road for traffic, the mall was changed into a shared zone with access for emergency or delivery vehicles only, given priority to pedestrian movement. The mall has ample shade, street tree planting and consists of attractive materials, furniture and artwork that reference local culture and heritage. Removal of though traffic has allowed businesses to flourish and is on one the busiest retail strips in the CBD.

B.2.2.5 Neighbourhood Streets



1. Suitably sized and located street trees - refer materials schedules and street tree plans
2. Well coordinated and consistent paving materials - refer materials schedules for town centres
3. Street furniture, Street lamps, bollards and bins - refer materials schedules for town centres
4. 2.5m shared footpath, where possible
5. 2m (min.) Footpaths
6. Low-level planting or WSUD systems
7. On-street parking
8. Raised-to-kerb pedestrian crossings at high pedestrian traffic linkages

Example: Watt Street, Gosford

Neighbourhood Street

Overview

Neighbourhood Streets are local community based roads within Urban Centres. There will be a hierarchy of Neighbourhood Streets based on land zoning and the density such as mixed-use, medium density residential zone and low-density residential zone. These streets are recommended to promote livability of the neighbourhood that encompass tree canopy, pedestrian and cyclist movements as well as aesthetic appeal.

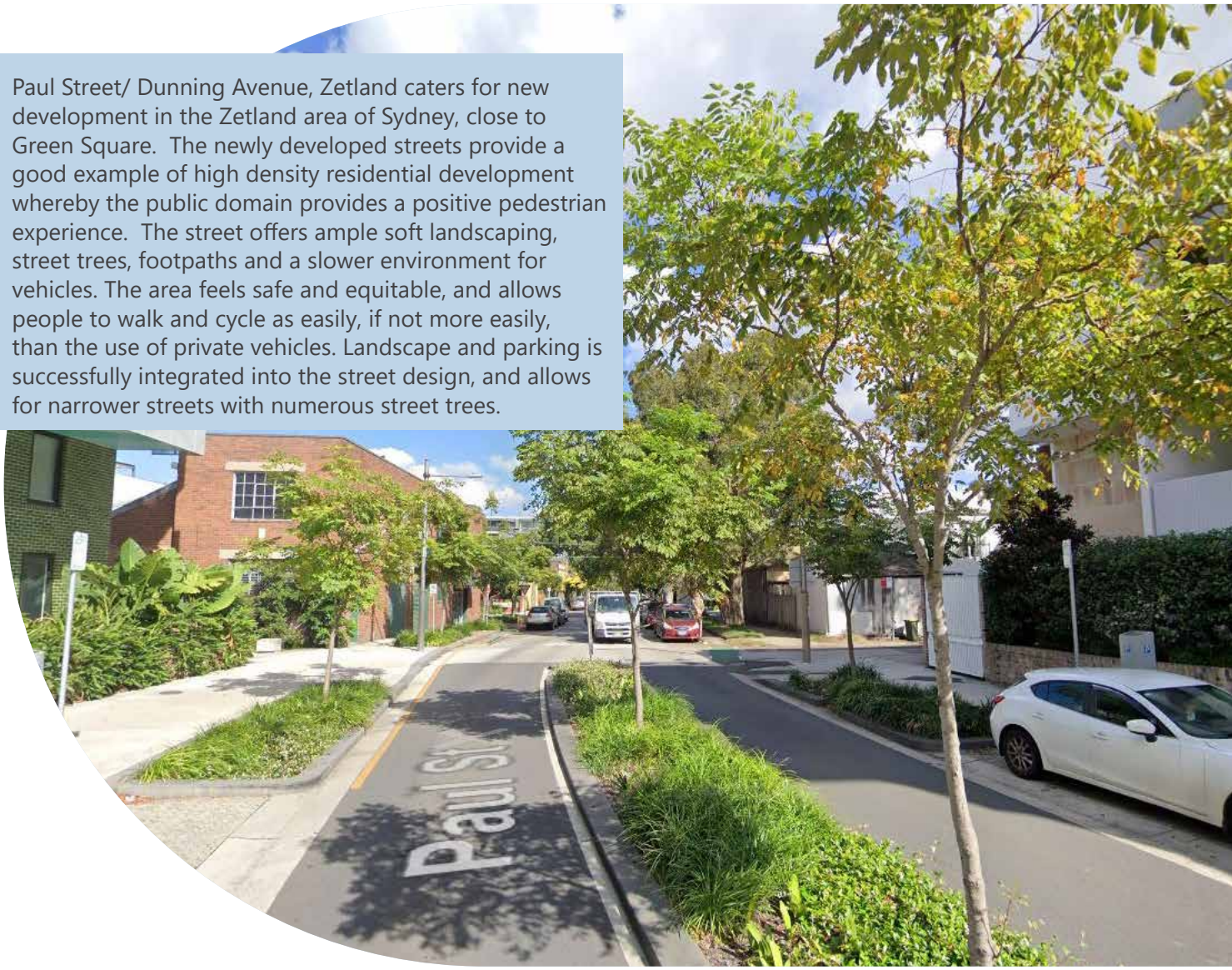
They are generally designed for a maximum speed of 50km/h.

Recommendations

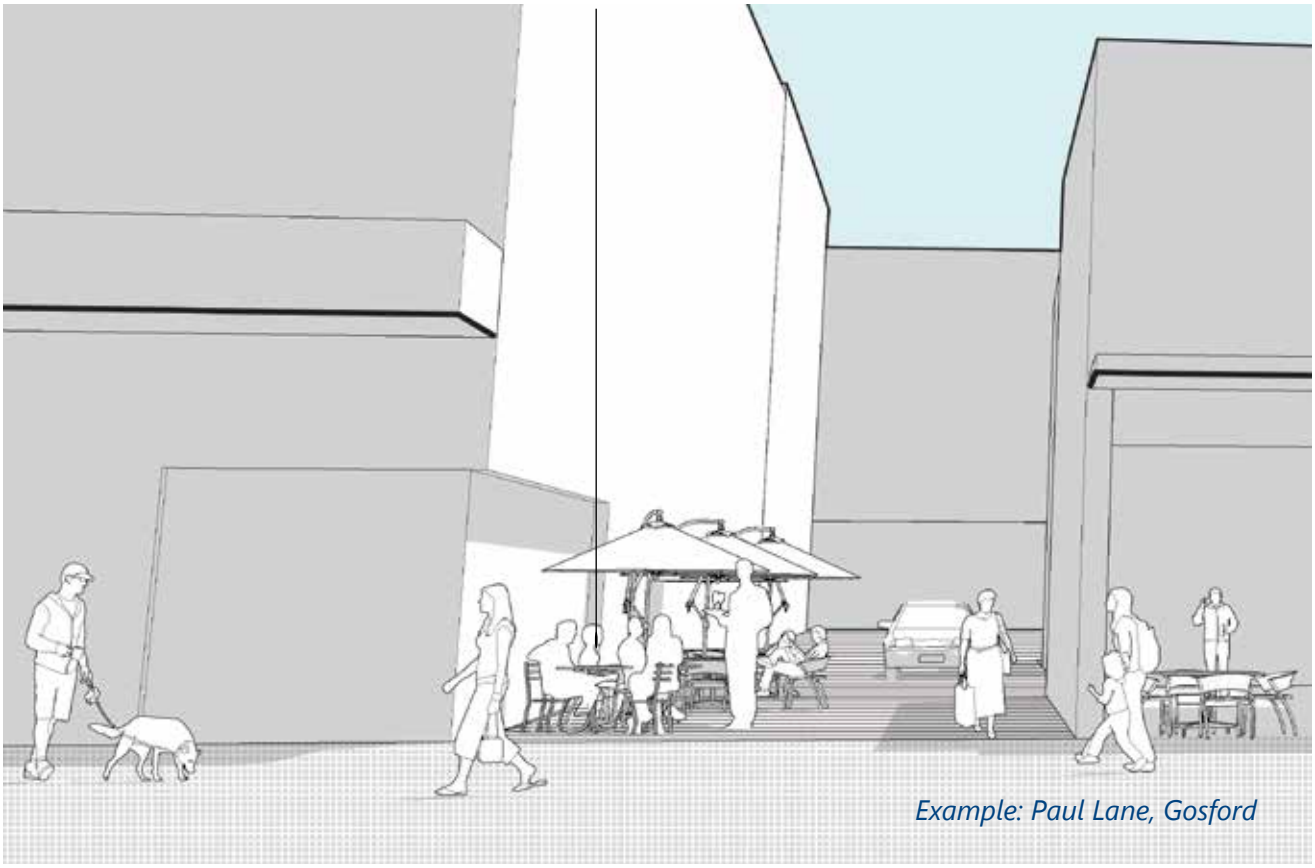
- Provide 2m min. footpaths either side of the street.
- Provide 2.5m wide shared path in the place of footpath on one side of the street where possible, depending on the hierarchy of Neighbourhood Street and the bicycle network of the centre.
- Provide street trees and on-street parking on both sides of the street, between property driveway access points. Consider best practice WSUD mechanisms.
- Provide consistency of property boundary wall/ built edge interface to the street in terms of scale, materiality, texture and colour.

Examples:

Paul Street/ Dunning Avenue, Zetland caters for new development in the Zetland area of Sydney, close to Green Square. The newly developed streets provide a good example of high density residential development whereby the public domain provides a positive pedestrian experience. The street offers ample soft landscaping, street trees, footpaths and a slower environment for vehicles. The area feels safe and equitable, and allows people to walk and cycle as easily, if not more easily, than the use of private vehicles. Landscape and parking is successfully integrated into the street design, and allows for narrower streets with numerous street trees.



B.2.2.6 Urban Laneways



Example: Paul Lane, Gosford

General

Urban Laneways play an important part of circulation in the urban centres. Depending on the location, laneways perform different roles to the functionality of the centre.

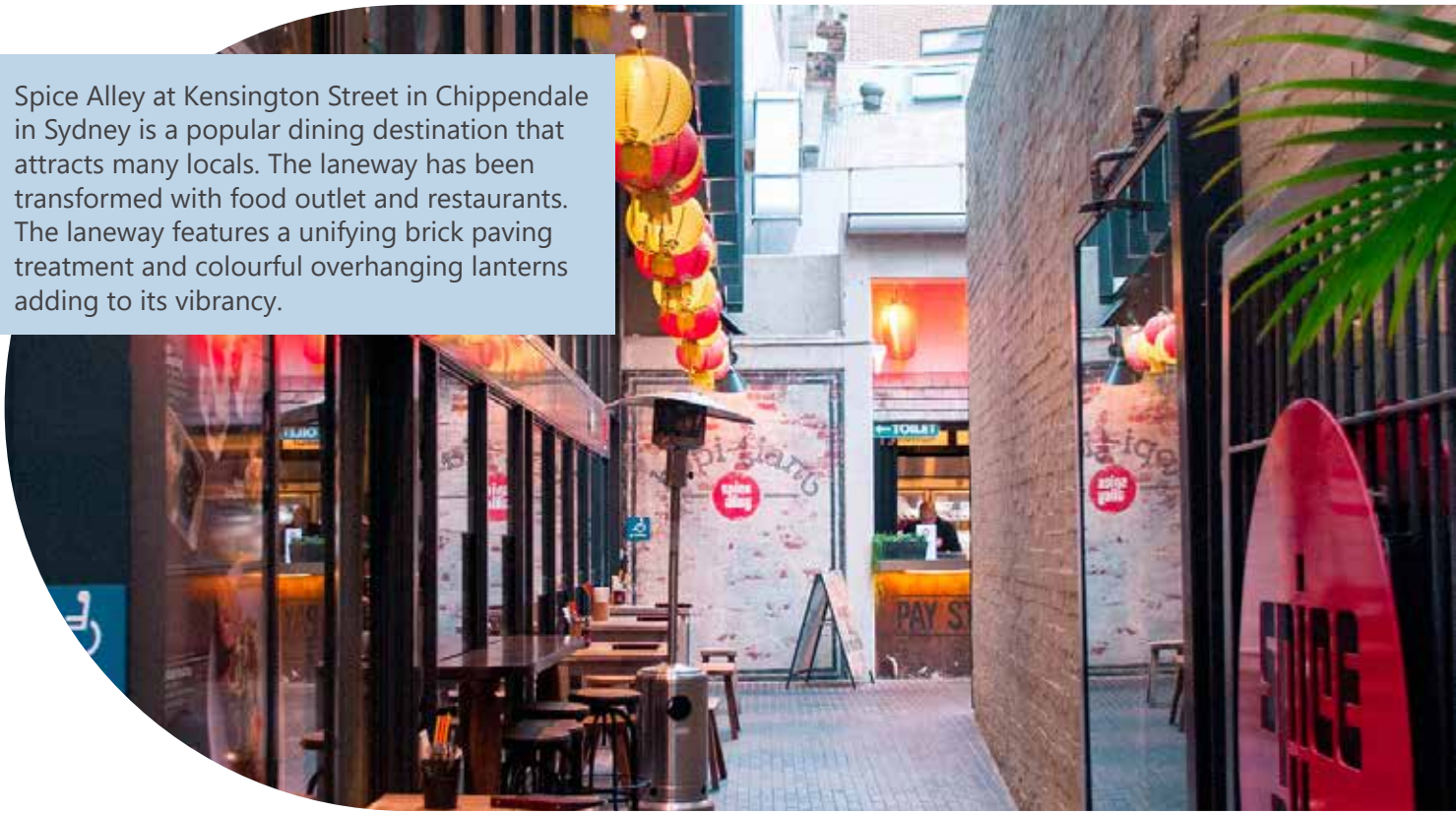
The rear lanes and the mid-block lanes are important service links that facilitate car park access, delivery and garbage collection etc. Foster pedestrian activity by providing connectivity.

There are opportunities to enhance laneways through activation and display of public art and murals, in the urban areas.

Recommendations

- Provide 1.2m (min.) footpaths on either side of the Laneway, unless it is a shared zone.
- Provide adequate passive surveillance .
- Provide visual and physical activation where appropriate.
- Consider unifying paving treatment in the shared laneways.
- Provide street trees where the width of laneways permits. Consider moveable planters and pots in the urban areas where pedestrian circulation is high.
- Provide public art, murals etc, in the urban areas to provide visual interest and links to local history or culture.

Examples:



Spice Alley at Kensington Street in Chippendale in Sydney is a popular dining destination that attracts many locals. The laneway has been transformed with food outlet and restaurants. The laneway features a unifying brick paving treatment and colourful overhanging lanterns adding to its vibrancy.

Angel Place in the heart of Sydney is one of the most celebrated laneways in the city. Surrounded by tall buildings on both sides, the laneway includes restaurants on one side with outdoor dining. The unique attraction of the laneway is its overhanging 'bird cages', in the form of public art. The laneway is paved with cobblestones and granite pavings uniformly.

B.3 Cycling and Micro-mobility

Separated Cycleway at Road Level (one-way)

- A cycleway width of 2.0m – 2.5m is desirable and allows overtaking or riding side by side. The minimum width is 1.8m. If they are narrower, it becomes difficult to manoeuvre different configurations such as cargo bikes and trailers.
- A landscape or constructed 'buffer' should be provided to physically separate and protect the cycleway from the roadway.
- A separated cycleway width must be more generous than on-road cycle lanes, or off-road paths at kerb level, to allow clearances from vertical elements such as street tree branches.

Separated Cycleway at Road Level (two-way)

- An ideal cycleway width ranges from 2.5m to 3m, allowing for overtaking or riding side by side. The minimum width must be 2.5m to accommodate safe and comfortable cycling.
- When implementing segregation buffers in retrofit situations, a minimum width of 0.4m is advised, while in subdivision developments, a minimum width of 1.0m is recommended. The height of the buffer is to be determined based on the specific environment to avoid pedal strike and damage to motor vehicles, particularly in areas with tight turning radii. The use of beveled profiles may be beneficial in addressing this concern.
- To ensure ample space for clearances from vertical elements such as tree branches, it is recommended to provide cycleways with a more generous width compared to on-road cycle lanes or off-road paths at kerb level.

Separated Cycleway at Footpath Level

- A cycleway width of 2.0m – 2.5m is desirable that sits separately to the adjacent footpath of verge area and allows overtaking or riding side by side. A minimum width is 1.8m (or 1.5m at an absolute minimum in constrained situations) is required.
- Separation from the footpath must be clearly indicated with signage, surface marking or changes of colour to materials.

Buffer/ Separation Requirements:

- When designing the buffer area that separates the cycle path from the roadway, careful consideration is to be given to its usage by pedestrians crossing the road or cycleway.
- A desirable width for the buffer area is 0.6m or more, allowing pedestrians to pause comfortably when crossing the road and cycleway. In cases where on-street parking or loading is present, a wider width of 0.8m to 1.0m is to be employed. This wider width ensures that vehicle passengers can exit the vehicle while minimising the risk of opening a car door directly in the path of a cyclist. The separator kerbing in these instances is to have a minimum width of 0.4m or 0.3m for pop-up kerb-and-bollard separators.
- In buffers used between parked cars, it may be beneficial to use castellated kerbing and position it in a way that allows passengers to step out of the car between the blocks, rather than directly onto the buffer itself. This arrangement enhances safety and minimise potential hazards for pedestrians and cyclists.


Temp / Time / Date
28.08.18
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14 min 3.4 km Fitzroy Tce
12 min 2.8 km Barton Tce East Medindie Rd
10 min 2.2 km Ward St Kingston Tce
8 min 1.8 km Sir Edwin-Smith Ave Melbourne St
6 min 1.4 km War Memorial Dr
5 min 0.9 km Victoria Dr
3 min 0.5 km North Tce
2 min 0.3 km Rundle Mall Rundle St
1 min 0.1 km Grenfell St
You Are Here
CITY OF ADELAIDE
SATAC

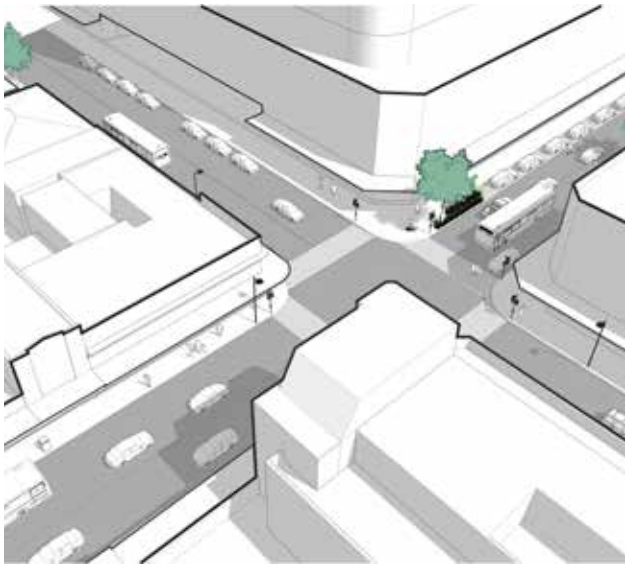
B.4 Stages of Renewal

Most existing streets can be changed over time. Full reconstruction of existing streets can be costly to any organisation and so the opportunity exists to provide interim, low-cost solutions to improve streets, test ideas and review their consequences. Such low-cost initiatives can include painted bike lanes or painted pedestrian thresholds at road intersections.

Other ideas can include pop-up parklets or temporary seating areas to encourage public engagement. These examples of 'Tactical Urbanism' are being used successfully across the globe and can be a great way to change a street before committing to high-cost re-development. Whilst not all streets need to be delivered in stages, many streets can benefit from this approach.

Existing

Where cars and vehicles are prioritised, pedestrians and cyclists are often discouraged from traveling on foot or by bicycle due to a lack of safe, accessible, or well-shaded paths of travel. The perceived lack of attractive, walkable streets or bike lanes on the Central Coast can encourage people to use their cars more and increases road congestion throughout the region.



Existing

Typical Current Streetscape

- Wide Carriageways
- Minimum Footpath Widths
- Lack of safe Cycling Infrastructure
- Lack of Shade
- Noisy, car dominant streets

Interim Design

Use of low-cost materials and temporary design initiatives can change streets easily and at low risk. This can be a great way to test a number of design ideas and review their relative success or any unintended consequences. Streets can be transformed by the addition of painted bike lanes or by prioritising pedestrian movement at road thresholds and intersections. Low-cost public art can be introduced, as well as temporary planter boxes. Car parking spaces can be given over to seating areas, and footpaths can be widened to improve the pedestrian experience.

Full Reconstruction

A full reconstruction of an existing street can take a number of years and must take a holistic urban design approach. Pedestrians and cyclists must be given equal priority to cars and streets must be designed to accommodate high-quality landscaping and street tree planting as well as public art, heritage, ecology, lighting etc. The practicality of streets must also be given due consideration, with essential services and waste collection integrated into the design.

Interim Redesign

Programing; Low Cost Materials (1-2 yrs)

- Painted Bike Lanes
- Temporary Parklets
- New Crossing Points
- Planter Boxes
- Street Art

Full Reconstruction

Full capital reconstruction (5-10yrs)

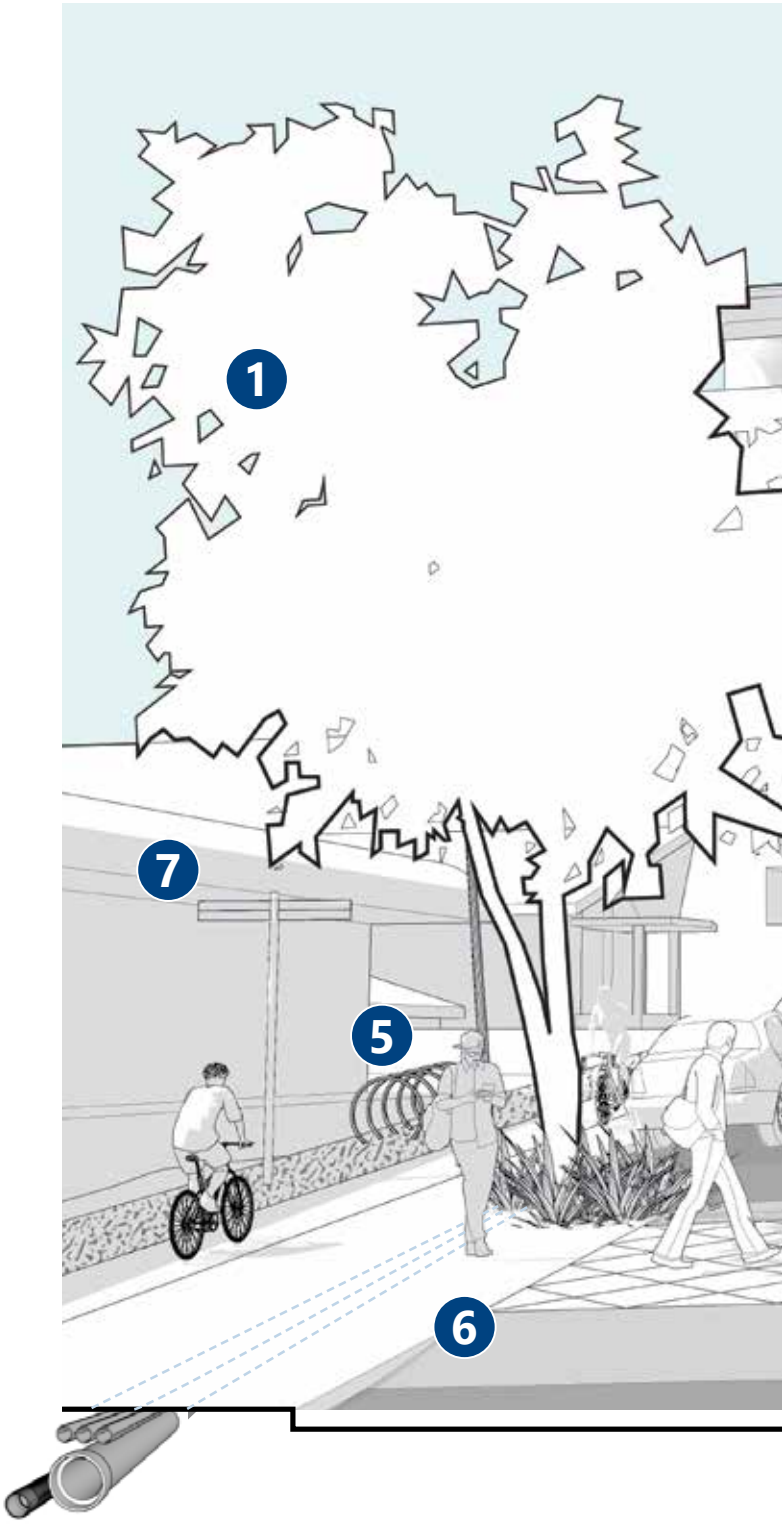
- Wider Footpaths
- Permanent, Segregated Bike Lanes
- Removal of on-street parking
- Street Tree Planting
- Garden Beds, Seating Areas, Lighting Improvements

Dural Lane Hornsby

Appendix C: Design Details

C.1 Coordination of Elements

Space needs to be found within each street for pedestrians, vehicles, cyclists, street trees, landscaping, WSUD, seating, lighting, furniture and services. Careful coordination of all these elements is needed to ensure they are free of clutter and provide adequate space for pedestrian movement.



Street Elements:

1. The design, location and choice of street trees needs to be given careful consideration to allow them to grow to full maturity without creating future conflict or maintenance issues with buildings, assets or services. Street trees in urban streets require adequate soil space beneath ground, and structural soils or soil cells are required to be installed to support pavements whilst providing adequate root space.
2. Service pits must be fully coordinated and correctly aligned with any proposed paving layouts and levels.
3. Seating and outdoor dining areas must be addressed holistically along the street and provided where space is adequate.
4. Bins/ waste collection points must be fully coordinated with waste services; provision of bins in urban areas is to be well coordinated with all other furniture elements and the location of bin collection points must not detract from the street experience.
5. Bike racks locations must be looked at strategically across urban centres.
6. Kerb ramps must be aligned with pedestrian path of travel and coordinated with proposed paving materials and elements.
7. Signage to be coordinated with other furniture and not detract or clutter the look and feel of the street.
8. WSUD devices may be required and coordinated with a wider storm-water collection strategy.
9. Light-poles must be coordinated with location of street trees.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C.2 Components of Street Design

The art of creating exceptional street design emerges when multiple components are carefully planned and integrated to fulfill a comprehensive range of practical and aesthetic purposes. Various design elements work in harmony to establish a sense of safety and comfort, enhance the unique character of a location, offer sensory or visual delight, and promote environmental sustainability by preserving green spaces and ensuring a cool ambiance.

The following Street Design Components are outlined in this appendix:

- Street Trees
- Planting
- Residents / Businesses planting in their verge
- Water Sensitive Urban Design
- Street Furniture
- Heritage Interpretation
- Public Art

Rouse Hill, NSW

C.2.1 Street Trees

Objective

Many streets lack an adequate number of trees, despite their valuable role in mitigating climate change, providing essential shade and cooling during hot summers, and aiding in storm-water management. By creating tree-lined streets, we not only foster healthier communities but also encourage increased pedestrian movement and activity, especially in the summer months.

The conditions for street trees however are less than ideal. Factors such as limited space, ongoing development pressures, or poor planting practices and stock selection often result in urban trees having limited lifespans.

This section highlights crucial considerations for retrofitting existing streets or planning and designing new ones to achieve better outcomes and success rates for urban trees.

For residents wishing to plant or landscape their verge (refer p.120).

Recommendations

- All Trees that are procured and installed on development projects must be done in accordance with **AS 2303:2018 Tree stock for landscape use**.
- Ensure all tree planting details are in accordance with the **Landscape Works Specification - Standard Drawing**
- Ensure all tree locations have been coordinated with on-site services and built elements. Residents wishing to plant street trees must contact Dial-Before-You-Dig to help locate any existing services.
- Ensure a tree maintenance report is provided to Council for review in accordance with the Landscape Specifications.
- In most cases, native or locally endemic street tree species are preferred. Refer Street Tree Species List for approved species.

Space Below Ground:

Soil volume requirements for street trees should be calculated using the following 'Balance Formula' found in the NATSPEC Specification for landscape trees and/or AS 2303: 2015:

Field Size Index (FSI) = Height (m) x Diameter at Breast Height (mm)

Required soil volume (m3) = Estimated FSI / 100

For example: A tree with an estimated Height at Maturity of 10m and an estimated Diameter at Breast Height of 400mm:

Required soil volume (m3) = (10 x 40) / 100

Required soil volume = 40m3

Space Above Ground:

Healthy tree growth is also directly related to available sunlight and space above ground. The wrong tree in the wrong place can cause damage to property and/ or Council assets, not to mention the resultant poor visual from and lack of street quality. When planting trees, ensure that adequate space above ground is available relative to the estimated size of the tree species at full maturity.

Inadequate space below ground

Inadequate space above ground

Tree species selection is essential when planning the location of trees - 'the right tree in the right place' will ensure the longevity of individual trees and help built an urban tree canopy for future generations. Refer Tree Species List for suitable tree sizes.

Poor Tree Selection/ Conflicts with overhead power-lines

Soil and Nutrition:

A significant number of urban soils are deficient in essential nutrients necessary for optimal tree growth. Moreover, it is not uncommon for these soils to contain contaminants that have detrimental effects on the health of individual trees. Ensuring an ample supply of proper nutrients is vital for the long-term viability of street trees. Therefore, it is crucial to address the quality of the soil in which a new tree will be planted during the appropriate stage of the process. This ensures that the soil provides the necessary conditions for the tree's successful establishment and sustained growth.

Many practical solutions exist to either ameliorate existing site soils, or import new soils to ensure the long term survival of street trees. Soils can be amended with either quick or slow-release fertilizers to temporarily restore soil nutrients. De-compaction and aeration can also improve poor growing conditions that aid with the natural succession of mycorrhizae into the soil. Tree selection is also a factor in determining soil improvement measures with native species often requiring different soil types to non-native species for example.

Council requirements for landscape soils including testing, importing or ameliorating of exiting soils are outlined in the Landscape Works Specification.

Coordination with Services:

Properly addressing conflicts with utility services stands as a paramount factor in the planning and design of streets, as well as in retrofitting existing ones. It is crucial to coordinate the placement of new tree planting with the locations of utility services to prevent planting directly over or near underground pipes and cables. When trees are planted inappropriately, their roots can potentially damage these services, particularly water and sewer mains, as they naturally seek water sources. In such cases, trees are often removed when services require repair or maintenance.

A minimum 1.5m x 4m wide deep soil zone is required in all new residential streets, free of services and built elements.

Stock Size and Quality:

Assessment of tree stock (above ground): In accordance with the standards, all trees installed are required to be assessed prior to planting by a suitably qualified Landscape Architect or AFQ 5 qualified Arborist to review criteria including: True to type; Height and caliper; Health, Crown symmetry; Significant injury; Stem taper; Self-supporting; Stem and branch structure; Formative pruning; Included bark; Trunk position; Compatibility of graft unions; and Freedom from pests and disease.

Recommended Minimum Tree Sizes:

- Less than or equal to 25ltr for residents planting in existing verges.
- Less than or equal to 75ltr for Council projects.
- Greater than or equal to 100ltr for private developments or subdivision projects.
- 200ltr or greater for significant developments or public domain projects where existing services allow.

Assessment of tree stock (below ground):

Similarly, and in accordance with the standards, all trees installed are required to be assessed prior to planting by a suitably qualified Landscape Architect or AFQ 5 qualified Arborist to review criteria including: Rootball diameter; Rootball depth; Height of root crown; Non-suckering rootstock; Pests, diseases and weeds; Rootball occupancy; Root direction; and Root division.

It is a requirement that all trees must be assessed and signed off prior to installation, and any rejected trees replaced with trees that meet AS2303:2018.

Tree Species Selection:

When selecting tree species for an individual project, a number of factors must be taken into account:

- Constraints: Assess the presence of overhead power cables and proximity to buildings, awnings, or other infrastructure when selecting tree species. Smaller trees with smaller canopies can still be utilised in areas with overhead constraints.
- Native vs. Non-Native: Native trees are generally better adapted to Australian conditions, offer faster growth and canopy cover, and are more suitable for harsh climates. Exotic species can be used in specific cases, but deciduous trees may require additional maintenance due to leaf fall.
- High-Performing Species: Choose trees that establish quickly and have consistently thrived in the local conditions.
- Low Maintenance: Opt for trees that, once established, require minimal ongoing maintenance such as watering, fertilising, and pruning.
- Environmental Weeds: Avoid trees listed as invasive species or those that may pose a risk of becoming environmental weeds in the local area (refer to Central Coast Council DCP).
- Urban Habitat: Whenever possible, select native trees that offer maximum habitat for local wildlife.
- Mitigate Heat Island Effect: Select trees that provide extensive canopy cover to roads and footpaths. Adequate space for mature canopy growth is to be allowed for.
- Pest and Disease Tolerance: Choose trees that meet the requirements of AS2303:2018 and consider using a diverse range of species to minimise the impact of a particular pest or disease in the area.
- Aesthetic Appeal: Establish a cohesive planting theme for each street.
- Scale and Form: Select the appropriate tree species based on its eventual size, shape, and proportions in relation to the surrounding environment – does it fit?

Establishment and Maintenance:

Even if all the necessary requirements for street tree planting are met, a tree is likely to fail if ongoing maintenance is not properly carried out, especially during the initial two growing seasons. Regular watering, vigilant monitoring for pests, damage, and disease, as well as selective formative pruning, are essential for ensuring the long-term survival of newly planted trees.

Developers and contractors are obligated to submit a proposed tree maintenance schedule that complies with the requirements stated in the Standard Drawings and Technical Specifications. Each maintenance plan is to be diligently followed, and a logbook documenting the maintenance activities is to be kept and provided to the Council upon request.

Watering

Water is essential for trees as it supports various life processes, including nutrient uptake, photosynthesis, and transpiration. In urban areas, water demand for trees is often higher due to the heat island effect, which elevates local temperatures and can reduce humidity, accelerating the transpiration process. As a result, urban trees may lose more water compared to their natural environment.

Several factors limit the availability of water for tree root systems, including compacted soils, pipes, drainage systems, and surrounding built surfaces such as roads and footpaths. These constraints reduce the amount of water that can be absorbed by the roots.

To ensure proper tree establishment and survival, developers or contractors are responsible for implementing a watering regime as outlined in adjacent tables, specifying the frequency and amounts of watering. Additionally, for each street tree planting project, a maintenance schedule must be provided to the Council during the Construction Certificate stage. It is also required for the contractor to maintain a logbook documenting maintenance activities, including the amount of watering carried out during the tree establishment phase. This is to be provided to Council upon request.

Table a - Watering Amounts

Container/ Root Ball Size	Amount of Water*
45L	5 - 10L
100L	15-20L
150L	20-30L
200L	30-40L
250L	35-50L
300L	45-60L
400L	60-80L
500L	75-100L
1000L	150-200L

* Trees in free draining soils may require the higher amount of water; trees may also require more water on hotter days or in periods of minimal rainfall

Time of Year	Required Watering Frequency: 1st Month	Required Watering Frequency: 2nd and 3rd Month	Required Watering Frequency: Establishment Period
Sep-Feb	4 x per week	3 x per week	2 x per week
Mar-May	3 x per week	2 x per week	1 x per week
Jun-Aug	2 x per week	1 x per week	1 x per fortnight

Table b - Watering Frequency Requirements (source: Trees Impact Group)

Tree Placement

As a general rule, trees are to be placed so that they develop freely without growing into each other, into adjacent buildings or into assets such as power-lines, or awnings. Tree species are to be selected with an understanding of their mature height and width and available soil space. Less trees, planted in accordance with the Guideline and Specifications' are preferable to more trees planted poorly.

Changes to approved tree locations are to be discussed with Council's representative prior to planting. Ensure that tree locations have been fully coordinated with all existing and proposed underground utilities during the planning and design process.

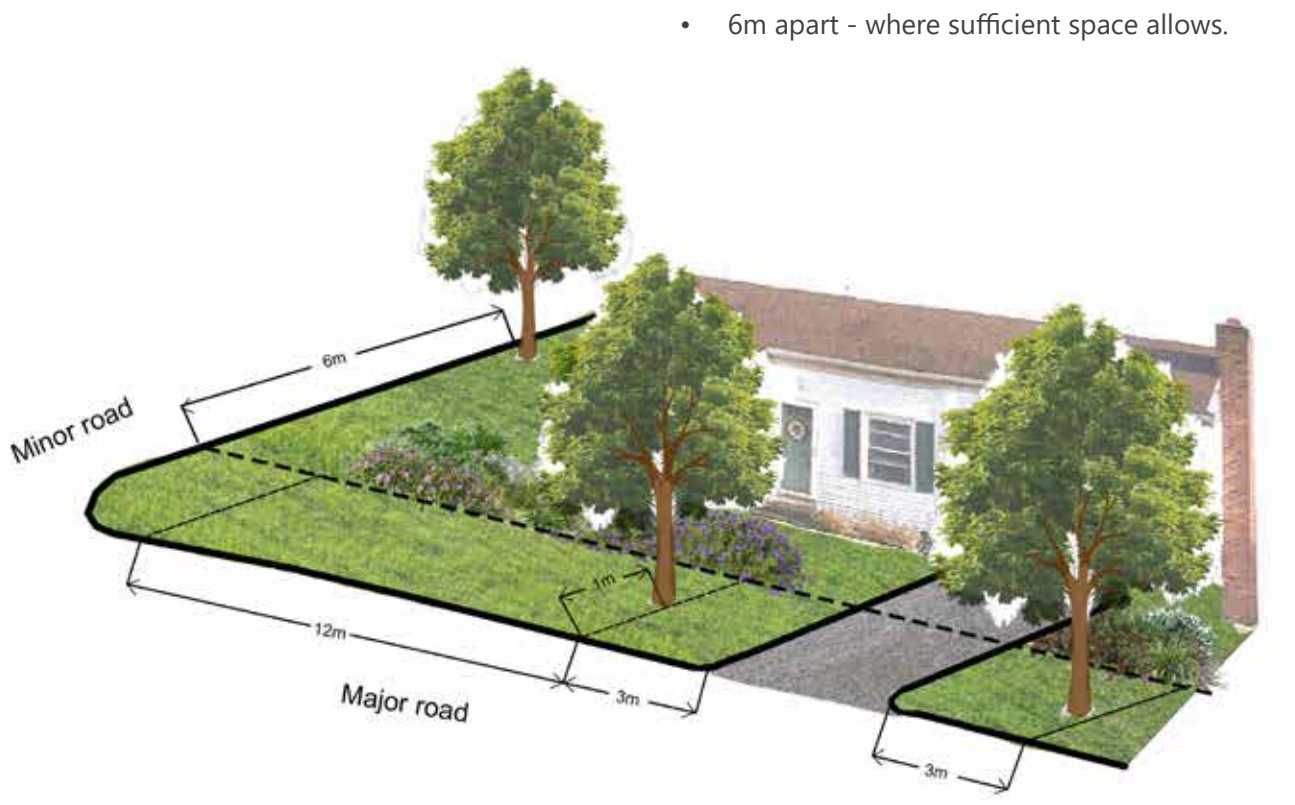
Tree planting shall not obstruct sight-lines in roads. For all development including residential subdivision, tree planting must occur at the following minimum rates:

a) One tree per lot where lot width is 15m or less, or

b) Two trees per 15m of frontage where lot width is greater than 15m.

Variations may be permitted where the following clearance distances cannot be achieved:

- 12m from the building line at intersections on major roads, 6m from minor roads.
- 3m from driveways or access-ways.
- 3m from power poles and light poles.
- Min. 1m from back of kerb. Where 1m cannot be achieved in existing suburbs, tree planting may occur within the centre of the vegetated corridor giving consideration to services and sightlines. Tree planting is not recommended where there is less than 1.2m total width available.
- 15m from bus stops.
- 6m apart - where sufficient space allows.



Typical Spacing of Street Trees in Residential Areas

Gosford NSW

C.2.2 Street Tree Species List

Small Trees

Botanical Name	Common Name	Origin	Deciduous	Height (m)	Width (m)	Suitable Uses				Soil Condition Requirements			
						Narrow Streets	Medium/ Wide Streets	Parks/ Civic Spaces	Salt Air Tolerant	Free draining	Moderate draining	Slow draining tolerant	Biodiversity Benefit
Angophora hispida	Dwarf Apple	Native	N	7	3-6	•			N	•			H
Backhousia citriodora	Lemon Myrtle	Native	N	8	3-6	•		•	N	•			H
Cupaniopsis anacardioides	Tuckeroo	Local Native	N	8	3-6	•		•	Y	•	•		H
Elaeocarpus reticulatus	Blueberry Ash	Local Native	N	8	3-6	•		•	N	•			H
Fraxinus griffithii	Himalayan Ash	Exotic	N	8	3-6			•	N	•	•		L
Geijera parviflora	Wilga Wilga	Native	N	8	3-6	•		•	N	•			H
Lagerstroemia archeriana	Native Crepe Myrtle	Native	Y	5-7	3-6	•					•		L
Lagerstroemia indica x L. fauriei 'Biloxi'	Crepe Myrtle	Exotic	Y	8	3-5	•		•	N		•		L
Lagerstroemia indica x L. fauriei 'Tuscarora'	Crepe Myrtle	Exotic	Y	8	3-5	•		•	N		•		L
Leptospermum petersonii	Lemon Scented Tea Tree	Local Native	N	8	3-6	•		•	N		•		H
Melaleuca decora	White Feather Honey-myrtle	Local Native	N	6-8	5-6	•	•	•	Y			•	H
Melaleuca styphelioides	Prickly Paperbark	Local Native	N	8	3-6	•		•	Y			•	H
Tristaniopsis laurina	Watergum	Local Native	N	8	3-6	•		•	N		•		H
Tristaniopsis laurina 'Luscious'	Luscious Watergum	Native	N	8	3-6	•		•	N		•		H
Waterhousea floribunda Green Avenue'	Weeping Lilly Pilly	Native	N	8	3-6	•		•	N		•		H

Medium Trees

Botanical Name	Common Name	Origin	Deciduous	Height (m)	Width (m)	Suitable Uses				Soil Condition Requirements			
						Narrow Streets	Medium/ Wide Streets	Parks/ Civic Spaces	Salt Air Tolerant	Free draining	Moderate draining	Slow draining tolerant	Biodiversity Benefit
Acer rubrum (varieties)	Maple varieties	Exotic	Y	12-15	6-8		•	•	N	•			L
Acmena smithii	Lilly Pilly	Local Native	N	8-12	6-8		•	•	Y	•	•		H
Banksia integrifolia	Coastal Banksia	Local Native	N	15	6		•	•	Y	•			H
Brachychiton acerifolius	Illawarra Flame Tree	Native	Semi	8-12	6-8			•	N	•	•		H
Buckinghamia celcissima	Ivory Curl Flower	Native	N	8-12	6-8		•	•	N	•			H
Callistemon salignus	Willow Bottle-brush	Local Native	N	8-12	3-6	•	•	•	N			•	H
Callistemon viminalis	Weeping Bottle-brush	N	N	8	6		•		N	•			H
Calodendrum capense	Cape Chestnut	Exotic	N	10	6		•		N	•			L
Corymbia eximia nana	Dwarf Yellow Bloodwood	N	N	6-8	3-6	•			N		•		H
Elaeocarpus eumundii	Smooth-leaved Quandong	Native	N	8-12	3-6	•	•	•	N	•	•		H
Eucalyptus sideroxylon	Ironbark	Native	N	12-15	6-8		•	•	N	•	•		H
Flindersia australis	Crows Ash	Local Native	Semi	12-15	8-10		•	•	N	•	•		H
Fraxinus angustifolia	Claret Ash	Exotic	Y	12-15	3-6		•	•	N	•	•	•	L
Fraxinus pennsylvanica	Green Ash	Exotic	Y	12-15	6-8		•	•	N	•	•		L
Glochidion ferdinandi	Cheese Tree	Local Native	N	8-12	3-6		•	•	N	•	•	•	H

Medium Trees

Botanical Name	Common Name	Origin	Deciduous	Height (m)	Width (m)	Suitable Uses				Soil Condition Requirements			
						Narrow Streets	Medium/ Wide Streets	Parks/ Civic Spaces	Salt Air Tolerant	Free draining	Moderate draining	Slow draining tolerant	Biodiversity Benefit
Jacaranda mimosifolia	Jacaranda	Exotic	Y	8-12	6-8			•	N	•		•	L
Liquidambar styraciflua	Liquidamber	Exotic	Y	10-15	10-12			•	N		•		L
Magnolia grandiflora	Evergreen Magnolia	Exotic	N	15-20	8-10		•	•	Y		•		L
Magnolia grandiflora 'Exmouth'	Evergreen Magnolia	Exotic	N	12-15	6-8		•	•	Y		•		L
Magnolia grandiflora 'Little Gem'	Little Gem Magnolia	Exotic	N	8-12	6-8		•	•	Y		•		L
Melaleuca linariifolia	Flax-leaved Paperbark	Local Native	N	8-10	3-6	•	•	•	Y			•	H
Melaleuca quin-quenervia	Swamp Paperbark	Local Native	N	12-15	6-8		•	•	Y			•	H
Nyssa sylvatica	Blackgum	Exotic	Y	8-12	3-6	•	•	•	N			•	L
Pistachia chinensis	Chinese Pistachio	Exotic	Y	8-12	6-8		•	•	N		•		L
Platanus acerifolia	London Plane Tree	Exotic	Y	12-15	10-12			•	N		•		L
Populus simonii	Chinese poplar	Exotic	Y	12-15	1-2	•			N			•	L
Pyrus calleryana 'Bradford'	Ornamental Pear	Exotic	Y	10-12	7-9		•	•	N	•			L
Pyrus calleryana 'Capital'	Ornamental Pear	Exotic	Y	8-12	2-4	•	•	•	N		•		L
Pyrus calleryana 'Chanticleer'	Ornamental Pear	Exotic	Y	8-12	3-6	•	•	•	N		•		L
Pyrus calleryana 'Cleveland Select'	Ornamental Pear	Exotic	Y	8-12	3-6	•	•	•	N	•			L

Medium Trees

Botanical Name	Common Name	Origin	Deciduous	Height (m)	Width (m)	Suitable Uses				Soil Condition Requirements			
						Narrow Streets	Medium/ Wide Streets	Parks/ Civic Spaces	Salt Air Tolerant	Free draining	Moderate draining	Slow draining tolerant	Biodiversity Benefit
Pyrus nivalis	Snow Pear	Exotic	Y	8-12	3-6	•	•	•	N		•		L
Pyrus ussuriensis	Manchurian Pear	Exotic	Y	8-12	6-8		•	•	N		•		L
Syzygium australe	Bush Cherry	Local Native	N	8-12	6-8		•	•	N		•		H
Syzygium luehmannii	Small-leaved Lilly Pilly	Local Native	N	8-12	6-8		•	•	N		•		H
Syzygium paniculatum	Magenta Lilly Pilly	Local Native	N	8-12	6-8		•	•	Y		•		H
Trachycarpus fortunei	Windmill Palm	Exotic	N	10-13	3-4	•	•	•	Y	•			L
Ulmus parvifolia	Chinese Elm	Exotic	Y	8-12	6-8		•	•	N		•		L
Ulmus parvifolia 'Burnley Select'	Chinese Elm	Exotic	Y	8-12	6-8		•	•	N		•		L
Ulmus parvifolia 'Todd'	Chinese Elm	Exotic	Y	8-12	6-8		•	•	N		•		L
Ulmus zparvifolia 'Reflection'	Chinese Elm	Exotic	Y	8-12	6-8		•	•	N		•		L
Waterhousea floribunda	Weeping Lilly Pilly	Local Native	N	12-15	8-10		•	•	N		•		H
Waterhousea floribunda 'Amaroo'	Weeping Lilly Pilly	Native	N	8-12	5-8		•	•	N		•		H
Waterhousea floribunda 'Sweeper'	Weeping Lilly Pilly	Native	N	8-12	5-8		•	•	N		•		H
Xanthostemon chrysanthus	Golden Penda	Native	N	8-12	5-8		•	•	N		•		H
Zelkova serrata	Japanese Elm	Exotic	Y	12-15	8-10		•	•	N		•		L

Large Trees

Botanical Name	Common Name	Origin	Deciduous	Height (m)	Width (m)	Suitable Uses				Soil Condition Requirements			
						Narrow Streets	Medium/ Wide Streets	Parks/ Civic Spaces	Salt Air Tolerant	Free draining	Moderate draining	Slow draining tolerant	Biodiversity Benefit
Angophora costata	Smooth-barked Apple	Local Native	N	20+	8-10			•	N	•			H
Araucaria heterophylla	Norfolk Island Pine	Native	N	20+	6-8		•	•	YF		•		H
Archonto--phoenix cunning-hamiana	Bangalow Palm	Local Native	N	20+	8-10			•	N			•	H
Corymbia maculata	Spotted Gum	Local Native	N	20+	6-8		•	•	N	•	•		H
Eucalyptus botryoides	Southern Mahogany	Local Native	N	20+	7-9			•	N	•			H
Eucalyptus fibrosa	Red Ironbark	Local Native	N	15-20	6-8		•	•	N	•	•		H
Eucalyptus leucoxylon	Red Flowering Gum	Native	N	12-15	3-6		•		N		•		H
Eucalyptus microcorys	Tallowood	Native	N	15-20	6-8		•	•	N	•	•		H
Eucalyptus pilularis	Blackbutt	Local Native	N	15-20	6-8			•	N	•			H
Eucalyptus punctata	Grey Gum	Local Native	N	15-20	6-8			•	N	•	•		H
Eucalyptus robusta	Swamp Mahogany	Local Native	N	15-20	6-8			•	N	•	•	•	H
Eucalyptus saligna	Sydney Blue Gum	Local Native	N	15-20	6-8			•	N	•	•	•	H
Eucalyptus tereticornis	Forest Red Gum	Local Native	N	10-20	6-8			•	N	•			H
Ficus macrophylla	Moreton Bay Fig	Local Native	N	20+	15-20			•	Y	•	•		H
Ficus microcarpa var. 'Hillii'	Hills Weeping Fig	Native	N	15-20	15-20			•	Y	•	•		H

Large Trees

Botanical Name	Common Name	Origin	Deciduous	Height (m)	Width (m)	Suitable Uses				Soil Condition Requirements			
						Narrow Streets	Medium/ Wide Streets	Parks/ Civic Spaces	Salt Air Tolerant	Free draining	Moderate draining	Slow draining tolerant	Biodiversity Benefit
Ficus rubiginosa	Port Jackson Fig	Local Native	N	12-15	15-20			•	YF	•	•		H
Liriodendron tulipifera	Tulip Tree	Exotic	Y	15-20	6-8			•	N		•		L
Livistona australis	Cabbage Palm	Local Native	N	15-10	3-6	•	•	•	Y			•	H
Lophostemon confertus	Brushbox	Native	N	15-20	6-8		•	•	N			•	H
Melia azedarach	White Cedar	Local Native	y	12	6-8		•	•	N		•		H
Quercus palustris	Pin Oak	Exotic	Y	15-20	15-20			•	N		•		L
Syncarpia glomulifera	Turpentine	Local Native	N	12-15	6-8		•	•	N			•	H

C.2.3 Soft Landscaping

Objective

In addition to the inclusion of street trees, incorporating "soft landscaping" in our towns and neighborhoods can have a profound impact on the overall quality of a place. It can significantly improve micro-climatic conditions, enhance human health, and promote biodiversity. The aim is to create pleasant, inviting, and memorable spaces that are also ecologically sustainable.

The Central Coast community is increasingly aware of the importance of adopting improved and sustainable land use practices. There is a growing focus on designing, implementing, and establishing native plant communities in suitable environmental conditions that can support their long-term growth.

By embracing true landscape design principles, we can create optimal habitats for urban wildlife while also mitigating heat and improving thermal comfort in our towns and suburbs. Thoughtfully planned and designed landscapes is to be integral to any new growth areas or urban renewal projects from their inception.

Recommendations

- With approval from Council, integrate trees and soft landscaping into any proposed development as early as possible with full consideration given to the creation of natural plant communities and systems.
- Incorporate ecologically sound landscape design principles into all development ensuring plants can thrive and grow in place
- Design contextually appropriates landscapes that respond to and enhance the existing 'sense of place'.
- Enhance key views and vistas using intelligent landscape design - borrow the existing landscape where possible.
- Use soft landscaping to mediate poor sensory experiences such as noise, wind, heat etc.

Principles of Plant Design

A key aspect of successful horticulture is the strategic placement of plants according to their specific requirements. When designers carefully match plants with their intended environments, they can ensure the plants' health, strong establishment, and minimise ongoing maintenance.

Basic Design Principles include:

- Choose plants that are adapted to the local environment
- Design different landscapes for different environments
- Create seasonal interest with a broad range of native plants
- Match plants to micro-climates within the built environment
- Create diverse plant populations
- Select plants that grow together
- Know your soil
- Create resilient landscapes

Preserve and enhance the natural ecosystem

Trees and plants help slow down storm-water and help transfer it back to the ground naturally. This helps reduce hazardous run-off which can damage property or pollute our oceans and water systems.

Urban landscape design works with the natural ecosystem to provide shelter for wildlife and promote biodiversity. To do this, designers are to consider the native plants and animals that our urban areas already host and use successful landscape design to support this.

Design for health and well-being

When developing a landscape proposal, the design consultant are to consider the following questions:

- Does the proposed landscape design reflect the region or local culture?
- Does this landscape design promote a sense of place and identity?
- Does it promote health? Studies report that spending time in nature is excellent for your health. It can lead to decreased stress levels, reduced blood pressure, better asthma management, a clearer mind and a feeling of overall peace.
- Does it increase recreation? Landscaping can promote and enhance recreational opportunities like beach access, walking trails, river and lake access, community gardening and birdwatching.
- Does it increase pleasure? Landscaping can provide practical benefits like noise buffering between neighborhoods. Beautiful landscapes also make people happy with the flowers, trees and the wildlife they provide.

C.2.4 Planting in your verge

For any planting installed by businesses/residents/owners within the verge it is the responibility of the businesses/residents/owners to ensure regular maintenance is undertaken and ongoing compliance with Councils requirements.

For those wishing to install trees in their verge:

- Contact council for written approval first. (Council's preference is to plant the tree on your behalf to ensure safety and avoid conflicts with services).
- Use native or locally endemic species approved by Council (see Street Tree Species List, p.112).
- Plant trees in accordance with the parameters outlined in section C.2.1 Tree Placement, p.110.
- Pot size must be no bigger than 25ltr (to avoid in-ground services).
- Where Council plants trees for residents, the establishment and ongoing maintenance must be undertaken by the resident themselves.
- Note there will be some instances where street trees cannot be planted.

For those wishing to install plants their verge:

- Use native or locally endemic plants that do not grow above 700mm in height (to maintain sight lines).
- Provide 600mm clearance from the edge of the kerb (for car doors to open). If there is no kerb and gutter, provide 600mm clearance from either the road edge or the edge of the table drain.
- Provide 1m clearance around letterboxes.
- If there is no footpath, maintain a safe level pathway 1500mm wide (for pedestrian access).
- No structures or hard surfaces are allowed (use plants and organic mulch only).
- Ensure the verge is maintained and that plants do not obstruct any Council footpaths, cycleways, or shared paths.
- Discuss planting with your neighbours (the verge is public land).

C.2.5 Water Sensitive Urban Design (WSUD)

Objective

In natural environments rainwater is mostly absorbed into the ground, used by plants, or evaporates back into the atmosphere. In urban areas, hard surfaces such as roads, roofs, driveways, and paths stop water being absorbed by the ground and create storm-water runoff.

Human activity such as littering, driving cars and industry create pollutants that settle on these hard surfaces. When it rains, storm-water carries the polluted water down drains and eventually to our creeks, rivers, estuaries and oceans.

These hard surfaces also increase the speed and volume of storm-water flow increasing the likelihood of erosion. WSUD aims to improve the ability of urban environments to capture, treat and re-use storm-water before it has the chance to pollute and degrade our waterways.

Recommendations

Where WSUD is incorporated into any public domain works, the design of the WSUD structures are to integrate cultural, environmental, social and economic considerations whenever possible. This includes incorporating story telling and place-making, crime prevention through environmental design, maximising the benefit to local wildlife whilst also being easy to maintain.

Any WSUD assets provided must be designed to; effectively remove pollutants from storm-water, ensure community safety, ensure maintenance and operational safety and minimise ongoing maintenance costs.

In large greenfield areas, consideration is to be given to achieving a neutral or beneficial environmental outcome in terms of resultant storm-water quality post development.

Raingardens

Raingardens are specially-designed garden beds that filter storm-water runoff. Raingardens are also known as bio-retention systems because they use soil, plants and microbes to biologically treat storm-water. Water collects and settles on the garden surface before soaking through the plants and filter media, trapping rubbish and sediment on the surface. Plants use the nutrients in the storm-water to grow. The soil and plant roots work together to naturally filter the water and remove pollutants. Raingardens are not effective in areas of high flow and high sediment loads.

Infiltration trenches

Infiltration trenches are a simple structure that allows storm-water to flow through porous material such as gravel, prior to entering the subsoil or groundwater. It is intended that pollutants remain in the porous material.

Porous landscaping treatments

Porous landscaping treatments include porous paving, grassed verges and rock lined drainage channels. These treatments are highly suited to the existing urban environment as they may not result in the loss of any public domain space for dedicated WSUD structures.

Why does the Central Coast need best practice Water Sensitive Urban Design?

In December 2020 the NSW Government's Tuggerah Lakes Expert Panel released their final report into water quality in the Tuggerah Lakes System which stated, among other things:

"The Tuggerah Lakes Expert Panel is highly concerned that without best practice policy and catchment management in place, along with improved funding and State government resources, significant and potentially irrecoverable threats to the water quality of Tuggerah Lakes are likely."

This position supports the need for best practice WSUD to be included in the public domain in the catchments of Intermittently Closed and Open Lakes and Lagoons (ICOLLS), in both greenfield development areas and in urban renewal areas such as at The Entrance. Where possible, a Neutral or Beneficial Effect (NoBE) on water quality is to be achieved, meaning that the quality of storm-water leaving a site should be the same or better than if the development was not in place.

Example of WSUD system

Rouse Hill, NSW

C.2.6 Street Furniture

Objective

Street furniture plays a crucial role in shaping the appearance, ambiance, and identity of a town or location while also catering to various pedestrian needs and functions. This chapter presents guidelines that offer direction on how to choose, distribute, and position furniture within our town centres. Over time the specific furniture options recommended for each centre will be found in the Materials and Finishes Schedules at the end of this document.

Where the Materials and Finishes Schedule has not yet been specified for a centre, the proponent is to prepare a schedule that will be reviewed and approved by Council. The schedule prepared must be consistent with the objectives and recommendations of this section.

In certain locations, customised furniture may be considered to enhance the character and specialty of that individual place.

Recommendations

- Street furniture is to contribute to the individual character of a place and enhance the look and feel of a particular street.
- Bespoke furniture are to be considered in Special Areas where the unique local character, heritage or identity should be celebrated.
- Furniture is to be coordinated across a particular centre to create a unified approach and help streamline purchasing or maintenance requirements.
- Furniture selection is to be universal and provide comfort and functionality for all user groups.
- Furniture selection is to consider longevity through the use of robust materials and products that can be easily sourced, maintained or replaced.

General Layout and Selection

Typical streets or footpaths within centres are divided into zones, to maximise functionality and create the clearest paths of travel for pedestrians. Where possible, street furniture must always be located within the Landscape and Furnishings Zone or along building frontages provided there is no intrusion into pedestrian paths of travel.

Generally:

- Locate street furniture elements near meeting places, retail uses, community buildings and other areas where demand is likely to be highest.
- Locate street furniture elements along the kerb to maximise building access and maintenance of a clear building line for walking canes.
- Avoid overcrowding of streets and creating obstructions to pedestrians by using a minimum number of elements (consider placing on an as-needs basis).
- Locate street furniture and lighting well clear of building entrances, emergency access points and service covers in footpaths.
- Locate street furniture elements such as seats and bins a minimum of 600mm back from the kerb to avoid collisions by vehicles.
- Space street furniture a minimum of 1m apart to maximise access and maintenance.
- Align street furniture elements on footpaths to maximise clear sight-lines in the public domain.

Universal Access:

All furniture within the Public Domain is to meet the requirements and actions outlined in the Central Coast Disability Inclusion Action Plan 2021-2025 and is to be accessible in accordance with the *Disability Discrimination Act 1992 (DDA)*.

Seating

In general, seats should be specified in accordance with the furniture plans and schedules in provided. Bespoke furniture can also be developed or selected for special places subject to Council approval. Any proposed furniture must be contextually appropriate and comprised of high quality, robust materials that are vandal proof and require minimum maintenance.

Placement: Seating is to be suitably located throughout our town centres to provide maximum amenity value. Generally, seating is to be:

- Located in the Landscape and Furnishings Zone
- Located at all pedestrian waiting points such as bus stops, taxi ranks or outside public buildings.
- Located along major streets with high pedestrian volumes, placed in pairs approximately every 50m.
- Located in civic centres or 'special places' in pairs or logical groupings approximately every 30m.
- Provide seating in a range of sunny and shady places.
- Consider seating that caters adequately for social distancing requirements.
- Providing seating that is comfortable and allows people to stay and linger.
- Design for formal and informal seating opportunities to create places that are inviting to stay.
- Protect seats from high volume traffic.
- Face seats away from the road when placed along kerb (towards road when against buildings).
- Place seats perpendicular to road where space permits.

Attractive furniture, suitably located

Poorly located bin enclosure potentially deters people from using seat

Ensure structures provide shade in the right place

Bin Enclosures

To meet the waste collection service standards of the Council, bin enclosures at various locations must accommodate the standard 120L and 240L bins. The specifications for bin enclosures is to align with any furniture plans and schedules provided in Appendix C3, otherwise where a schedule doesn't exist for a centre as per schedule submitted to and approved by Council.. Individuals involved in the development of public domain plans are required to contact waste services at the earliest opportunity, or at least prior to submitting plans for approval, to address any public waste requirements.

While specific bin enclosure criteria may differ across centres, certain universal requirements must be met. All enclosures are to be sturdy, resistant to flames and vandalism, and prevent access by birds and wildlife. They are also to be designed to prevent the disposal of domestic waste bags by the public. Additionally, all enclosures must have lockable mechanisms in accordance with the guidelines.

Bin enclosures are to be:

- Suitably located to provide even coverage across town centres and close to main litter sources such as fast food outlets, bus stops, parks or places where people gather to stop, eat or linger.
- Located at street corners in areas with high volumes of pedestrian activity subject to accessible.
- Easily accessible by Council's waste collection service.
- Placed in groups to separately provide for general waste and co-mingling and recycling collections
- Sensitively designed and located so as not to be obtrusive and not to become a focal point; bins should be conveniently located close to group seating areas, but down-wind of congregation areas where possible.
- Designed to suit the broader site context; bin enclosure can incorporate artwork or reference elements of local history and culture.

Also refer to Council's DA Guidelines for Resource and Waste Management Planning.

Bike Racks

Bike racks are to be specified in accordance with the furniture plans and schedules provided in this document. Bike racks are to be made of robust, durable materials and vandal proof. Material choice and finishes must be of a quality that is not easily damaged or scratched by continued locking/ moving of bikes.

Bike racks are to be:

- Located at major destinations such as shopping centres, libraries, sports or educational facilities and other locations with high pedestrian activity or at major transport hubs.
- Located in parks, public squares and civic spaces.
- Located in well-lit, visible spaces in full public view. Located in groups of four and be accessible from roads, footpaths and bike lanes.
- Located so that bikes do not protrude into the pedestrian zone of any street space or protrude into the road reserve.

Bollards

Fixed and retractable bollards are to be provided to protect laneways, shared zones, parks and civic spaces and public buildings. Bollards are to be in accordance with the furniture plans and schedules provided and are to be comprised of robust materials that are vandal proof with a durable finish. All removable bollards must be lockable in accordance with the requirements of Council's Town Centre Management Team.

Bollards are to be placed at spacings that do not allow standard vehicle to pass between, unless approved otherwise.

Drinking Fountains

Drinking fountains are to be provided in parks and civic spaces and adjacent to public buildings. Drinking fountains are to be universally accessible and comply with relevant industry standards. Fountains are to be robust, vandal proof, accessible, dog friendly, allow for refilling of water bottles and easy to maintain.

Drinking fountains are to be:

- Located in areas of high pedestrian activity such as parks and civic spaces.
- Universally accessible.

Planter Boxes

Planter boxes can be used to provide simple, temporary separation between areas of pedestrian activity and areas of vehicle movement. Planter boxes are to be attractive, robust, easily maintained and moveable. Planter boxes are not suitable for tree species, and are not to be considered as an alternative to well designed street tree planting.

Planter boxes are to be:

- Used to delineate seating or dining areas, and contribute to the overall visual appeal of the street.
- Consideration is to be given to watering and whether these can these be maintained by local business.
- Not used for street trees.
- If an occupier or property owner wishes to install planter boxes on a footpath, they must seek Council approval first. All planter boxes must be maintained by the occupier or property owner, unless installed by Council.

C.2.7 Heritage Interpretation

City of Melville War Memorial

Objective

All places have a history and a story to tell. These stories are what connects us to place and makes these places our home. Our heritage is all around us. It includes our landscapes, rural lands, rivers and waterways, our archaeological sites, our buildings, our history, traditions, language, and customs. It is what makes our places special.

Heritage Interpretation is a creative way to explore and share what is special about these places. This can include a major theme in the development of a town or city, to stories about local people, or how the landscape was formed, or a place has a particular name. The objective is to value, enjoy or simply understand in the present, the complex layers of history that have contributed to the making of a place.

By understanding the past, we can build stronger connections to the land and the lives and events that came before us.

Recommendations

Heritage Interpretation must be considered and included as part of any project, whether it is a major development site, street upgrade or a subdivision project. There are many ways of interpreting heritage and the stories that define us these are only limited by our imagination and understanding of place.

- Don't assume you know what is important – talk to the locals, First Nations People, Council Heritage Staff, the Heritage Librarians, and local history groups.
- Check with Council to locate existing heritage, archaeological sites, conservation areas and areas of First Nations Cultural heritage, discuss your proposal and approval pathways.
- Heritage Interpretation is to be specific to a place.
- Larger developments may require a site-specific Heritage Interpretation Strategy.

- Be creative and think outside the box. Carefully consider the tone of the interpretation with regard to the sensitivity of the story, consider the context in which it will be viewed and experienced. Can the interpretation be linked with broader cultural tourism or recreational activities?
- Can members of the community be used in the design or sharing of the information?
- Avoid interpretation signage or materials that will impact or damage a heritage item or fabric.
- First Nations stories and history must come from First Nations People and be sensitively represented with First Nations involvement and consent.

Natural Heritage and Landscape Character:

The Central Coast is fortunate to be surrounded by natural heritage which helps define both geographical areas as well as the character of the area. These natural areas are the backdrop to our homes, provide places to play and explore, and provide links between people, places and stories.

Cultural Heritage:

Aboriginal heritage consists of places, traditions, beliefs, customs, values and objects that represent the living history of past Aboriginal generations and are of important cultural and heritage significance to Aboriginal people. (Heritage NSW: website). These can include both material evidence of Aboriginal occupation (archaeological sites) and intangible expressions of Aboriginal culture such as social and cultural values, art, stories, language and song.

Non-Aboriginal heritage includes those physical resources that contribute to an understanding and appreciation of the Central Coast's non-indigenous history and cultures. It includes historic sites, structures, places and areas, archaeological sites, landscapes and shipwrecks.

Note: More Information on Heritage Interpretation can be found at Heritage NSW Website – Interpreting Heritage Places and Items Guidelines and SPH and Central Coast Council: Gosford City Centre Heritage Interpretation Strategy 2019

Heritage Signage

Signage can come in many forms. It can be a static display or something interactive depending on budget and location. Signage can be used to tell the story of a specific building or place, a person important to an area, or the history of a streetscape or landscape.

Footpath Inlays

Footpath inlays are a relatively simple type of interpretation and are particularly useful when space is a premium. They can be achieved with impressions, plaques, or inlays of different materials. They can also include names of people, place names, or emotive text, poems, language, or maps.

Murals

Murals are a common tool for heritage interpretation that can be applied to walls or footpath surfaces. They are a form of public art that can be eye catching, and emotive. There are no limitations to what materials, images, art, or collages can be used to design a mural.

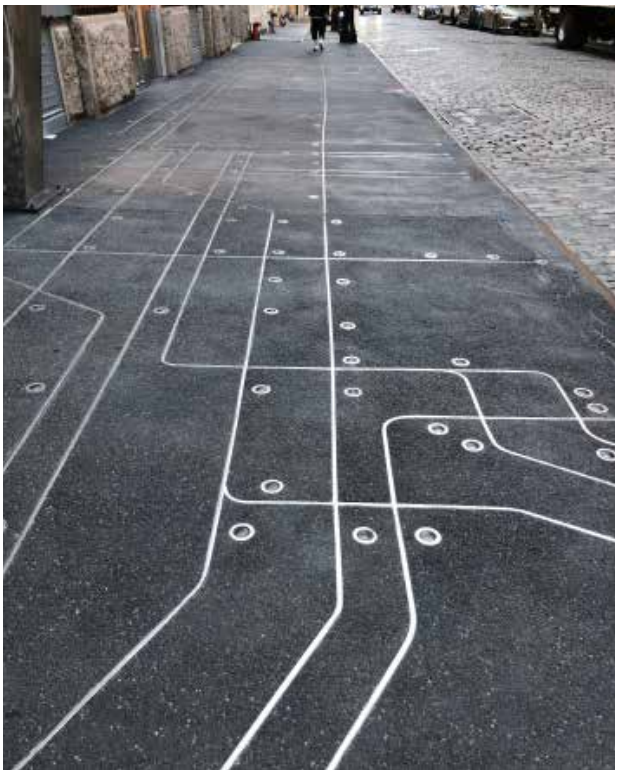
Timelines

Linear public spaces and footpaths make a great canvas for the installation of timelines. Timelines are particularly useful for areas that have relatively long, more detailed histories and can provide a snapshot of natural, First Nations, and historic heritage in one place. They also can make for attractive graphics in areas where people are moving through the space.

Heritage Trails and Walks

Heritage Trails and Walks are a traditional and well-loved way of telling the history and stories of a town or landscape. They are often a combination of maps, signage, pamphlets, or digital media. Although there are no limitations on how these stories could be told. These are particularly good for areas that attract visitors and tourist.

Signage



Footpath inlays

Lighting and Illumination

These days many towns and cities are just as focused on the night-time economy as well as the day. Lighting of buildings, light displays, murals, and inlays all add to the appeal of these places at night, can improve public safety and can invite the visitor to stay longer in one place.

Furniture

Furniture provides an available canvas on which interpretation can be placed. This can either be retrofitted to existing furniture or can be specifically designed with way-finding or particular stories in mind. Street furniture is an obvious location to include access to digital media such as web sites or oral histories.

Public Art

Public Art is frequently incorporated into many aspects of heritage interpretation and is a very effective way of telling local stories. This is especially the case when important aspects of our heritage are intangible in character such as oral histories, language, views, and song lines.

Events and Exhibitions

Events and Exhibitions can be an engaging way to share stories, celebrate events and people, and increase the tourism to an area. They are also important for local people to appreciate their own places and identity, as well as all aspects of local history that are unique to the Central Coast.

Apps or Smart Technology

Apps and other smart technology such as augmented or virtual reality are effective and engaging ways to share past events and places. These are fun, new, and exciting for the user. They can be updated frequently which retains their relevance and they can be adapted for changing urban landscapes. Due their ubiquity and ease of use, Smartphone and Tablet Apps have rapidly been adopted as major elements of interpretation-based tourism.

Lighting and Illumination

Apps and Smart Technology

C.2.8 Public Art

Objective

Public Art is acknowledged for its capacity to enrich the public space, foster a sense of community, and cultivate the social, cultural, and economic values of the region. Central Coast Council is committed to commissioning or collaborating with proponents to commission and acquire Public Art that uncovers and interprets the region's history, cultural diversity, richness, and modern aspirations. The Council's Public Art initiatives aim to cultivate a distinct sense of place and identity that resonates with the residents and communities of the region.

For more comprehensive information see the 2022 NSW State Government Public Art toolkit.

Recommendations

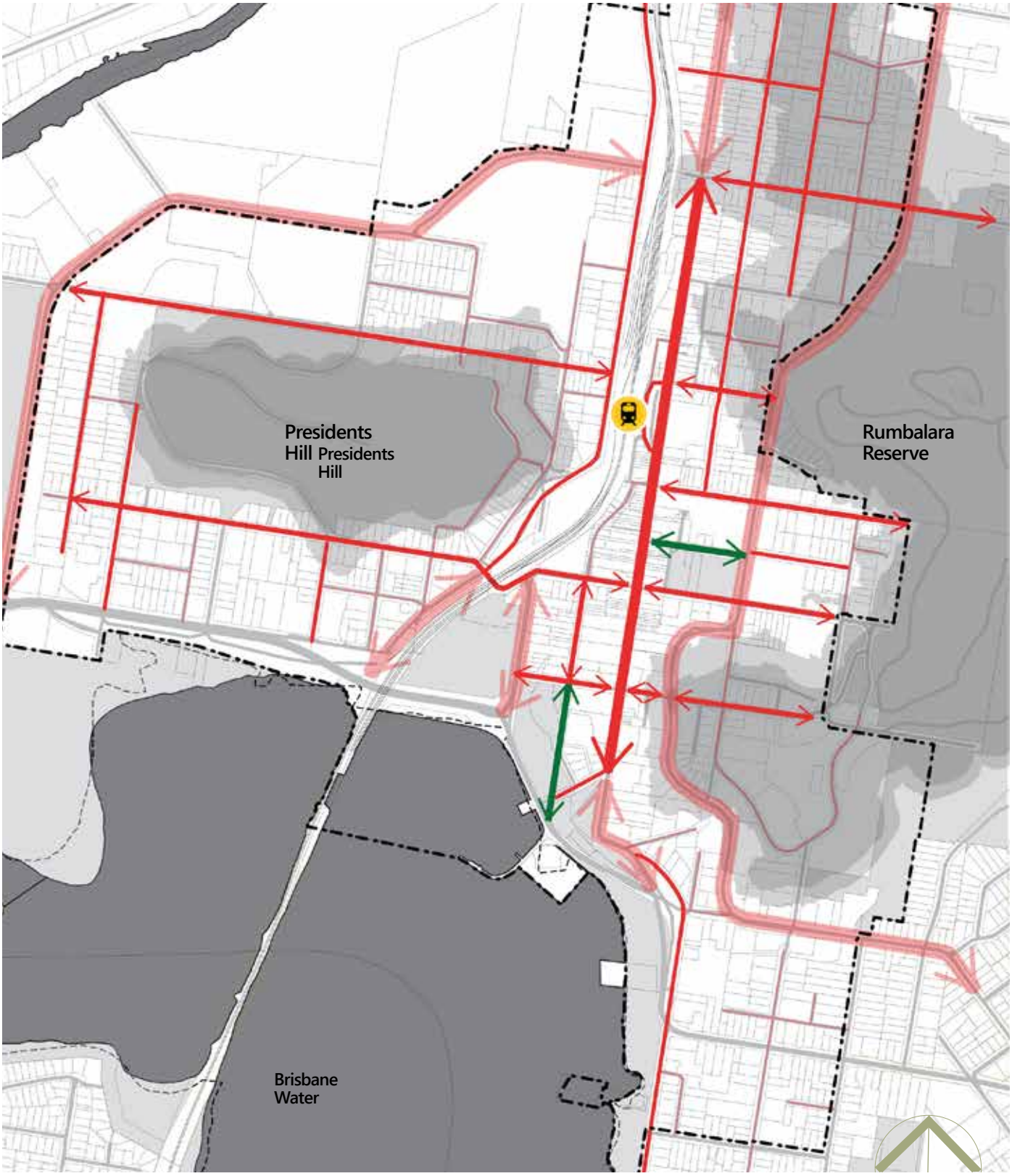
- High-quality public art is to be integrated into the design and function of developments to embellish and enliven the public domain.
- Public art is to be provided to capture and reflect the qualities and essence of place, community values and the stories of past and present cultures, places, and people.
- Public Art must be easy to maintain and made from materials that are appropriate to the landscape and local environment.
- Public Art can be site-specific, drawing its meaning from and adding to the meaning of a particular site or place
- Public Art can relate to First Nations stories and should come from First Nations people. It is important to understand the ownership and be sensitivities to their cultural material, heritage, practices, stories and traditions.

Point Cook, VIC

C.3 Materials and Finishes Schedules

Council will prepare Materials, Finishes and Tree Schedules for individual town and local centres over time. Where a schedule does not exist for a centre, the proponent is to prepare a schedule which is to be reviewed and approved by Council.

C.3.1 Gosford CBD Materials and Finishes Schedules



Street Types: Gosford

Main Street
Collector Streets
Urban Collector Streets
Civic Spaces
Neighbourhood Streets

0 1 km

Heritage Interpretation Plan: Gosford

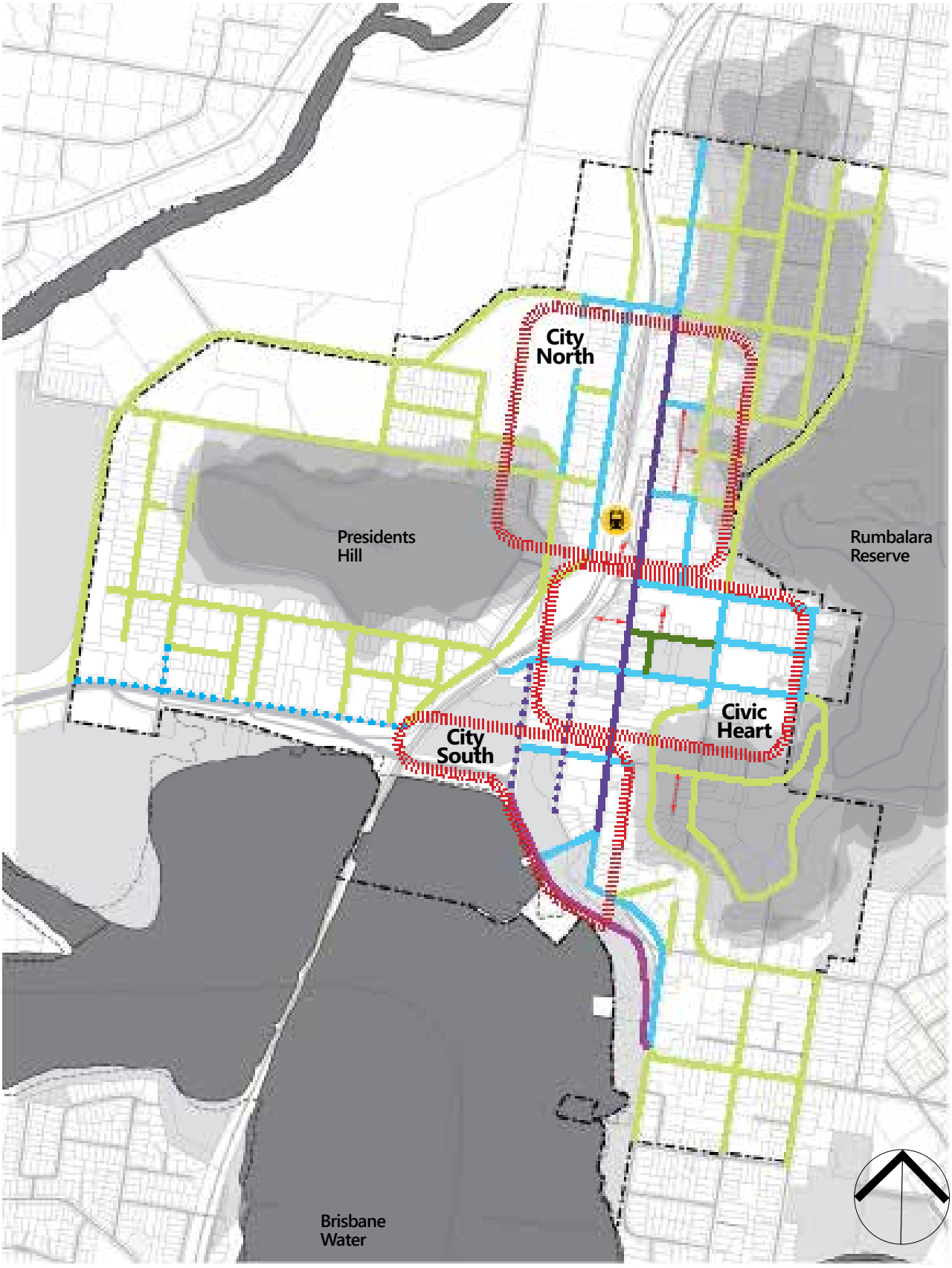
Heritage Items Cluster- South

Mann Street Heritage Interpretation Corridor

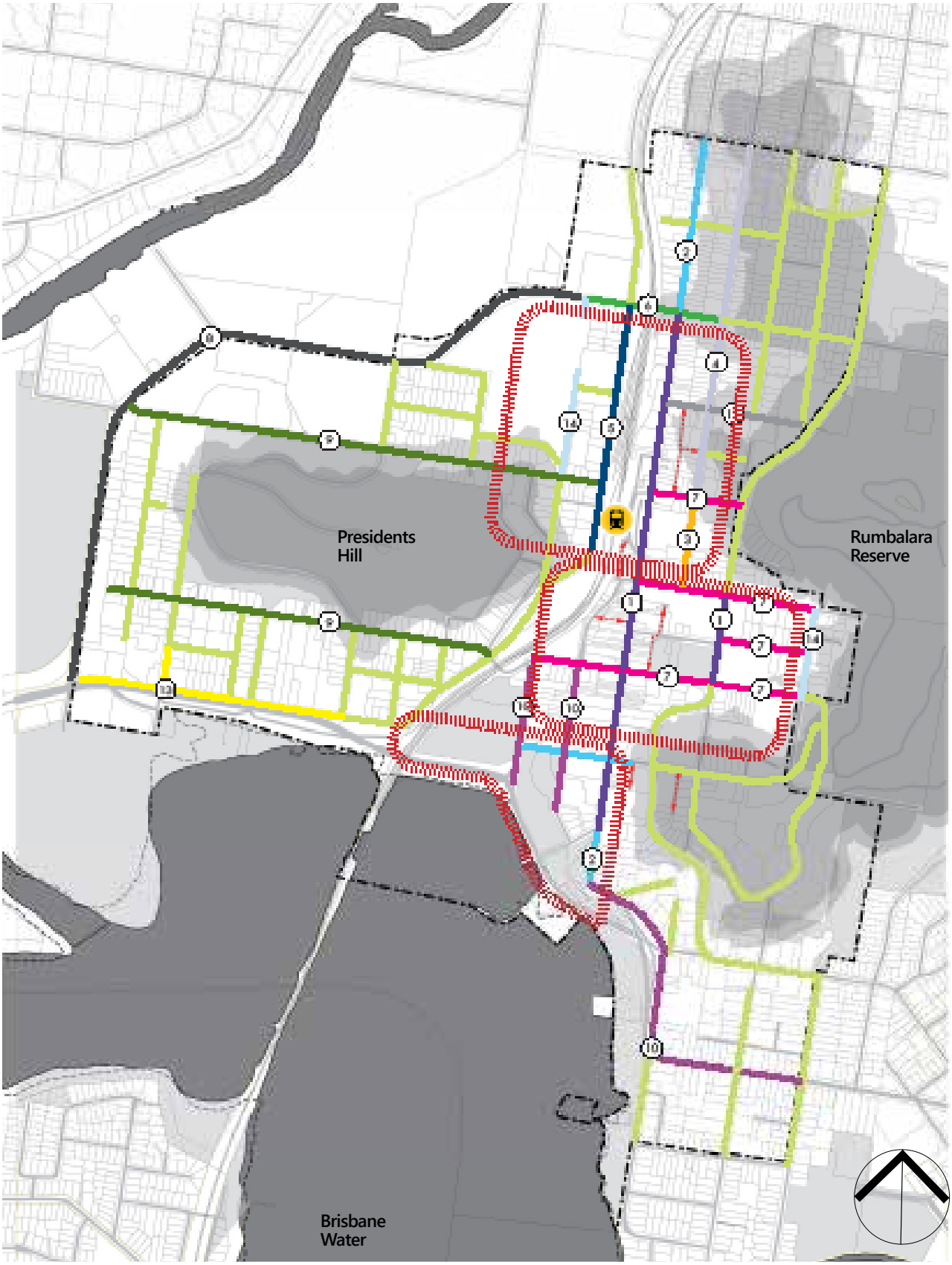
Anchors of the Interpretation Corridor

Urban Creek Interpretation

0 1 km



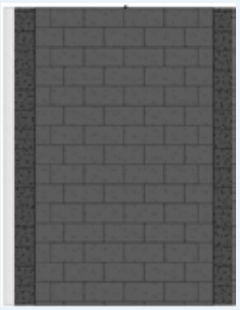
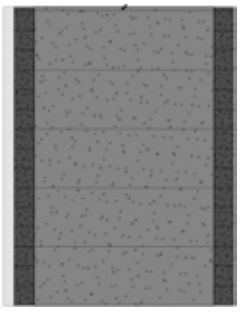
Paving Plan: Gosford



Street Tree Plan: Gosford

- Lophostemon confertus
- Mix of natives

CENTRAL COAST STREET DESIGN MANUAL - GOSFORD CITY CENTRE MATERIALS AND FINISHES SCHEDULE

Item	Potential Supplier (Alternative suppliers can be sourced)	Material	Specification	Image	Applicable Street Type
Paving Type 1	CINAJUS & Austral Bricks	Bluestone Paver and Brick Paver	BLUESTONE PAVER COLOUR LIGHT GREY - SANDBLAST FINISH 600 x 300 x 30mm BLUESTONE PAVER COLOUR LIGHT GREY - HAMMER FINISH (EDGE COURSE) 300 x 300 x 30mm BRICK PAVER COLOUR FIRESTONE RED (EDGE COURSE) 230 x 114 x 50mm		MS
Paving Type 2	CINAJUS	Bluestone Paver	BLUESTONE PAVER COLOUR LIGHT GREY - SANDBLAST FINISH 600 x 300 x 30mm BLUESTONE PAVER COLOUR LIGHT GREY - HAMMER FINISH (EDGE COURSE) 300 x 300 x 30mm		CS, UCS
Paving Type 3	CINAJUS & Concrete Colour Solutions (CCS)	Bluestone Paver and Concrete	BLUESTONE PAVER COLOUR LIGHT GREY - HAMMER FINISH (EDGE COURSE) 300 x 300 x 30mm CONCRETE HONED COLOUR 'ONYX' SAW CUTS AT 900mm SPACING		GS
Paving Type 4	Concrete Colour Solutions (CCS)	Concrete	CONCRETE HONED COLOUR 'ONYX' SAW CUTS AT 900mm SPACING		GLS, L
Paving Type 5	TBC	Concrete	CONCRETE BROOM FINISH WITH TOOLED EDGE COLOUR OFF WHITE		NS

CENTRAL COAST STREET DESIGN MANUAL - GOSFORD CITY CENTRE FURNITURE SCHEDULE OPTION 2

Item	Supplier	Price Level	Material	Specification	Image	Description	Applicable Street Type
1.0 SEATING							
Aalto Bench	Straße	$$	Frame: Galvanised, powder coated mild steel or stainless steel. Battens: Hardwood or Aluminium	L 2200 x H 438 x W 566 mm Surface Mounted Standard Colours options: Powder-coat Colour Range 100% Australian Made Comprehensive Manufacturer's Warranty		StraBe's 'Aalto' Bench incorporates a contemporary and angled design.	MS, CS, UCS, GS, GLS, NS, L
Aalto Seat	Straße	$$	Frame: Galvanised, powder coated mild steel or stainless steel. Battens: Hardwood or Aluminium	L 2200 x H 783 x W 600 mm Surface Mounted Optional Armrests Standard Colours options: Powder-coat Colour Range 100% Australian Made Comprehensive Manufacturer's Warranty		StraBe's 'Aalto' Seat incorporates a contemporary and angled design, including back and arm rests.	MS, CS, GLS
Aalto Table Setting	Straße	$$	Frame: Steel, hot dip galvanised or zinc primed powder coated. Battens: Hardwood, Duraslat or Aluminium	Table – L 2200 x H 688 x W 750 mm Benches – L 2200 x H 438 x W 528 mm Surface Mounted DDA Compliant Standard Colours options: Powder-coat Colour Range 100% Australian Made Comprehensive Manufacturer's Warranty		StraBe's 'Aalto' Table Setting incorporates a contemporary and angled design, this provides a picnic setting with table and 2 benches.	MS, CS, GLS, L
Aalto Platform	Straße	$$	Frame: Steel, hot dip galvanised or zinc primed powder coated. Battens: Hardwood, Duraslat or Aluminium	L 1927 x H 385 x W 1455 mm Surface Mounted Standard Colours options: Powder-coat Colour Range 100% Australian Made Comprehensive Manufacturer's Warranty		StraBe's 'Aalto' Platform incorporates a contemporary and angled design and provides for casual group seating.	MS, CS, GLS, L
Aalto Plinth Mounted	Straße	$$	Frame: Steel, hot dip galvanised or zinc primed powder coated. Battens: Hardwood, Duraslat or Aluminium	L 1995 x W 599 mm Plinth Mounted Optional Armrests Standard Colours options: Powder-coat Colour Range 100% Australian Made Comprehensive Manufacturer's Warranty Base not supplied		StraBe's 'Aalto' Plinth Mounted Seat incorporates a contemporary and angled design, to be used with concrete or stone walling.	MS, CS, L
2.0 BINS							
Leura Bin	Botton & Gardiner	$$$	HOOD - Powder coated aluminium FEATURE PANELS - Speckle, Rain or Windows perforated powder coated galvanised steel FRAME - Stainless steel, satin or powder coated POWDER COAT COLOURS - standard or custom specified colour FITTINGS - Compression lock prevents door rattling SIGNAGE - Recycling or General Waste vinyl decal mounted to door front + back panel on double bins	120L SINGLE - 605L x 640D x 1200mmH DOUBLE - 1175L x 640D x 1200mmH 240L SINGLE - 740L x 820D x 1370mmH DOUBLE - 1450L x 820D x 1370mmH		Standard bin enclosure for town centres.	MS, CS, UCS, GS, GLS, NS, L

LEGEND

MS	Main Street
CS	Connector Street
UCS	Urban Collector Street
GS	Gateway Street
GLS	Green Link Street
NS	Neighbourhood Street
L	Laneways

3.0 DRINKING FOUNTAIN

Prospect Drinking Fountain	Botton & Gardiner	$$	Frame: 316 grade stainless steel	940L x 405D x 800mmH		Standard drinking fountain for Gosford CBD.	MS, CS, GS, GLS, L

4.0 BOLLARDS

Avenue Bollard	Botton & Gardiner	$$	BODY: Hot dip galvanised steel, custom powder coat colours available	180W x 180D x 950mmH		Standard bollard for Gosford CBD.	MS, CS, UCS, GS, GLS

5.0 BICYCLE PARKING

Linea Bicycle Stand	Street Furniture Australia	$$	BODY: Aluminium various colours (Bondi blue, Lobster Red, Sensation Orange, Brilliant Yellow, Viper Green etc.) and optional spotted gum timber inserts.	620W x 1000H x 1550L		Standard bicycle stand Gosford CBD.	MS, GS, GLS, L

6.0 TREE GRATES & SURROUNDS

Silva Tree Grate	Street Furniture Australia	$$	BODY: Cast aluminium and frame 304 grade stainless steel.	1210L x 1210W (mm)		Standard tree grate for Gosford CBD.	MS, CS, GS, GLS, L

LEGEND

MS	Main Street
CS	Connector Street
UCS	Urban Collector Street
GS	Gateway Street
GLS	Green Link Street
NS	Neighbourhood Street
L	Laneways

Central Coast Council

Street Design Guideline

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P 02 4306 7900

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