

Sydney Streets Code

2013




| Version | Amendment |
|--------------|-----------|
| 24 June 2013 | Adopted |

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A photograph of a busy city street at night. In the foreground, a large group of pedestrians is crossing a street. They are dressed in various urban attire, including coats, scarves, and casual wear. Some are carrying bags or shopping bags. In the background, a white bus is visible, with its destination sign displaying "ABBOTSFORD 436". The street is illuminated by streetlights, and there are trees and buildings in the background. The overall scene depicts a vibrant, active urban environment.

“Looking to other cities in the world it is evident that change is happening in a number of cities... Common for all of them is a movement toward a more balanced traffic system, a strong focus at public space and an understanding of how a high quality public realm can invite more people to use the city in a variety of ways.”


(J. Gehl, Public Space – Public Life, 2007)

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Using the Guidelines



PART A



“Sydney is a world class city enjoying a beautiful landscape setting and a wonderful climate offering the best possible conditions for a thriving public life.”

(J. Gehl, Public Space – Public Life, 2007)

Using the Guidelines

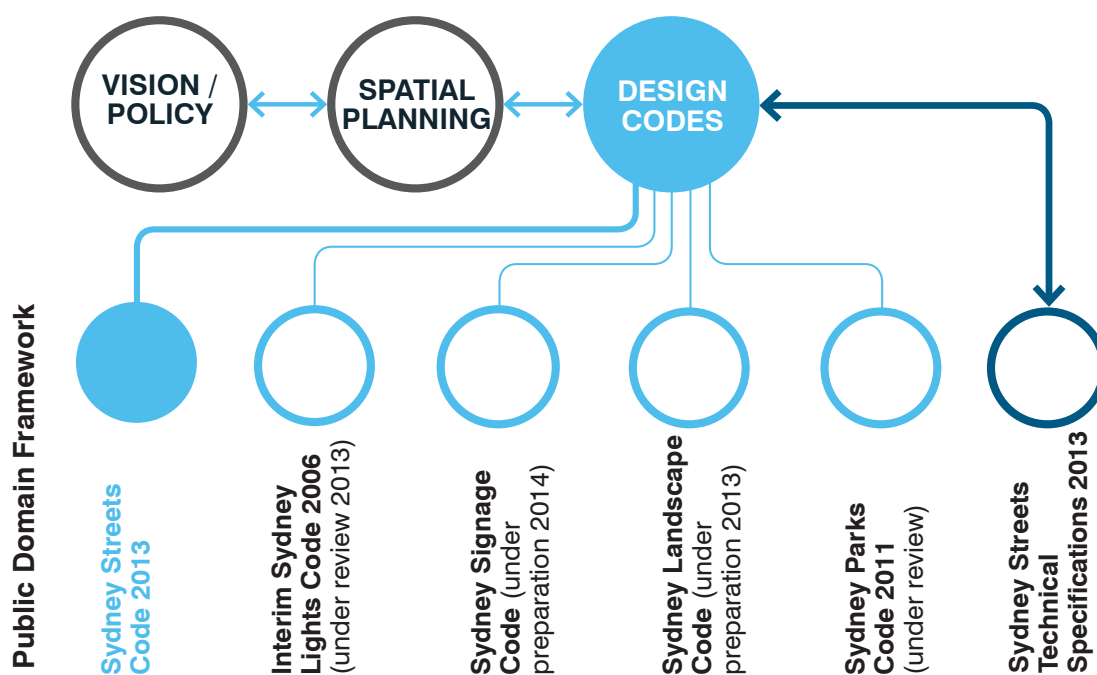
A.1 PURPOSE

Public Domain Codes guide the design of Sydney's public domain. There are five Codes; *Sydney Streets Code*, *Sydney Lights Code*, *Sydney Signage Code*, *Sydney Landscape Code* and *Sydney Parks Code*.

The *Sydney Streets Code* (the Code), sets the guidelines, design coordination and material palettes for public domain works in the Local Government Area. The companion document, *Sydney Streets Code Technical Specifications* provides written specifications and standard drawings for constructing street works in the public domain in accordance with the guidelines set out in this Code.

The City's public domain planning framework includes a number of strategic plans, planning controls, policy codes and technical specifications that together form a holistic vision for the City (refer to figure 1.0). The Code forms part of a family of Design Codes within the City's broader public domain planning framework (refer to figure 1.0). The family of Design Codes provide key design guidelines and principles for all parts of the public domain.

Figure 1.0 City of Sydney Public Domain Framework



For access to other City documents that are part of the planning framework, refer to the City of Sydney website, www.cityofsydney.nsw.gov.au.

A.2 WHY UPDATE THIS CODE?

Since the previous review of the Code in 2010, a significant shift in thinking for the role of streets has occurred. This updated Code aligns the City's public domain vision with the principles of sustainability, active transport (pedestrian and cycling), accessibility and public domain quality, established by Sustainable Sydney 2030 and Public Spaces, Public Life Sydney 2007, Gehl Architects.

The Code updates and supersedes earlier public domain policies, including the *Interim Sydney Streets Design Code 2011*, the *Central Sydney Paving Design Policy*, the *Interim Pavement Design and Construction Guidelines*, the City of Sydney *Construction Specifications for Civil Works (Design and Construction)*, and the *Ultimo-Pyrmont Public Domain Technical Manual*, however some elements of these policies may apply in specific areas as advised by City officers.

A.3 SCOPE

The Code applies to all areas within the City of Sydney Local Government Area that are under the City's control. The City of Sydney also encourages the use of the Code in the areas within its boundary that are not under its control in order to achieve a coordinated and consistent palette of materials, to support long term maintenance benefits and recognise the character of Sydney villages.

A.4 USER

The Code should be used by all stakeholders involved with planning, design and approval of public domain works for the City's streets.

A.6 READING THE CODE

The Code must be read in accordance with other documents in the City of Sydney public domain planning framework (refer to figure 1.0), as well as relevant strategic documents including the *Street Tree Master Plan 2011*, *Liveable Green Network Implementation Plan 2012* and the *Cycle Strategy and Action Plan 2007-2017*. As the Code is a planning and design guide only, all works are subject to council approval and will be assessed on a case by case basis.

This Code relates directly to the companion document, **Sydney Streets Technical Specifications** (to access this manual visit www.cityofsydney.nsw.gov.au), providing standard construction details and installation requirements for the selected palette of materials and elements.

HOW TO USE THE CODE

STEP 1 Understand the 'New Thinking' on street design by referring to Part B.

STEP 2 Review the City's key design principles in Part B.

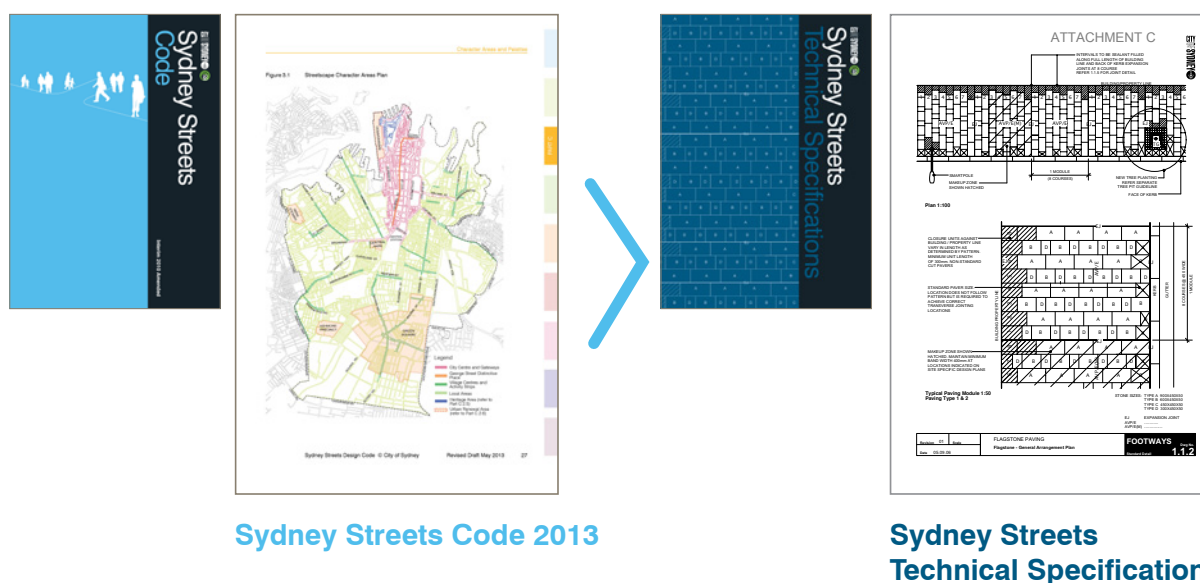
STEP 3 Identify and locate your street Character Area by using the map in Part C.

STEP 4 Use the relevant public domain furniture and materials palette choice listed in Part C to prepare your detailed street designs.

STEP 4 Review Part D for best practice street layout, function and relevant street type definitions.

STEP 5 Use Part E Street Design Coordination to assist with space allocation and guidance for street element design coordination

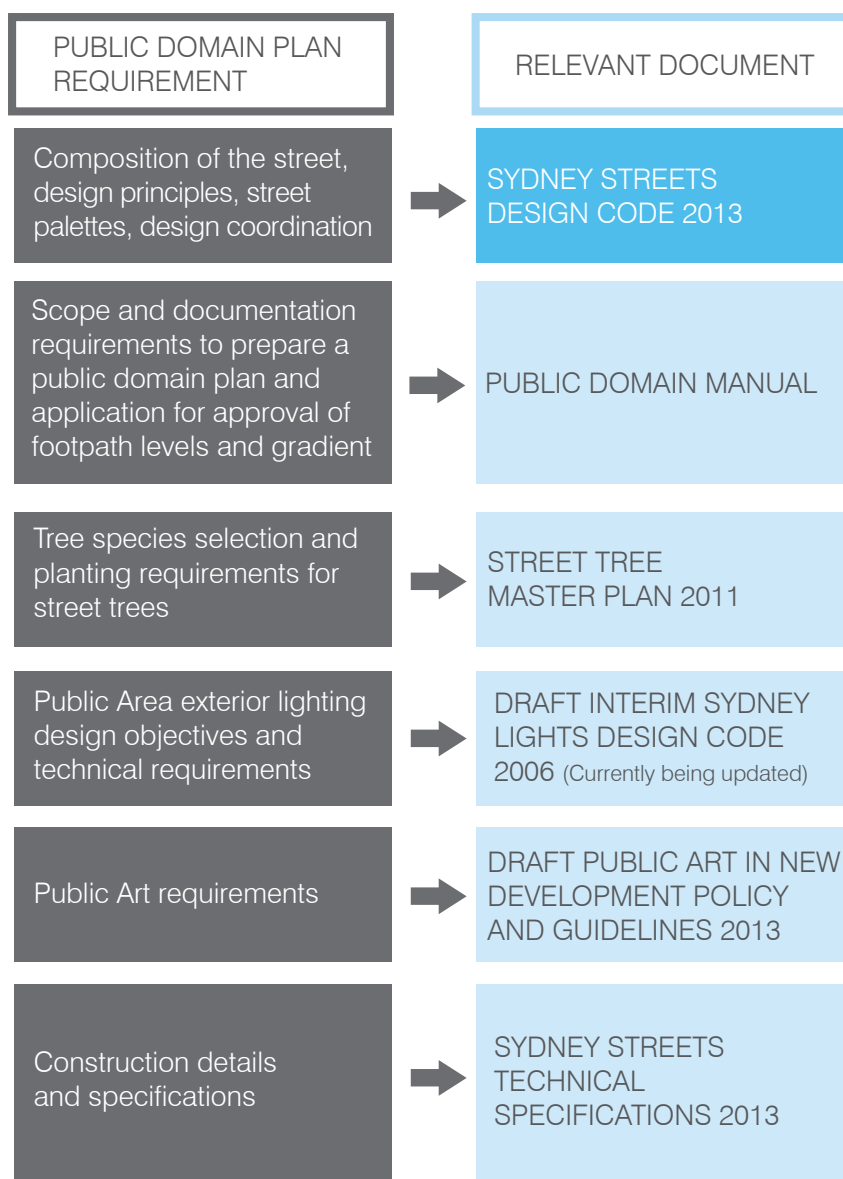
Figure 1.2 Pages from the Code and the companion Sydney Streets Technical Specifications



A.7 DESIGN AND APPROVAL PROCESS

Approval is required to carry out works on land that is owned or managed by the City of Sydney, and land that will be dedicated to the City. When a development application involves an impact upon the surrounding public domain, a condition may be applied to the development consent requiring the submission of a Public Domain Plan.

The Code is one of a number of documents to guide applicants in the preparation of a Public Domain Plan, shown below are the most relevant reference documents. Refer to www.cityofsydney.nsw.gov.au/development for full details of the design and approval process.



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New Thinking on Street Design



PART B

PART B

“Great streets do not require lavish materials or fancy street lights and furniture to make them comfortable, attractive and functional places... the appeal of great streets stems more from ample footpaths and appropriate street trees, and from the presence of building frontages whose windows, doors and awnings are oriented to the street.”

(C. Bohl, 2002)



New Thinking on Street Design

B.1 IMPORTANCE OF STREETS

Streets are the most important element of the public domain and are fundamental to the form and function of the urban environment. Traditionally streets were 'shared spaces' with a diverse set of vehicular and pedestrian uses, however in recent times the focus has predominantly been on facilitating vehicle movements and parking, resulting in a decline in the social and civic activity on streets.

Considering people as important users of the street as a public space has a number of positive outcomes:

- Promotes healthy population;
- Creates safer streets by increasing activity and passive surveillance;
- Builds community by promoting informal social interaction;
- Attractive and pedestrian friendly streets build community; and
- Pride and ownership, and promote economic activity.

In every type of street, the safe and efficient movement of people should be of prime consideration in the design of the street.

This Code promotes a balanced idea of street design that recognises the need to accommodate public life and amenity as well as cater for traditional linking and transport corridor functions.

Streets and Sydney 2030

Sustainable Sydney 2030 sets out key Targets, Big Moves and Strategic Directions relevant to Sydney Streets. In particular, the following targets specifically apply to street design:

- Target 6: 80% of City workers commuting on public transport – 80% of work trips by City residents in non-private vehicles;
- Target 7: 10% of trips made in the city by cycling, 50% of trips made by walking;
- Target 8: Every resident within a 10 minute walk (800m) to a main street;
- Target 9: Every resident within a 3 minute (260m) walk of a continuous green link; and
- Target 10: 45% of people believing most people can be trusted.

Five Big Moves
Number 3: A liveable green network; and
Number 4: Activity hubs as a focus for the city village communities and transport.

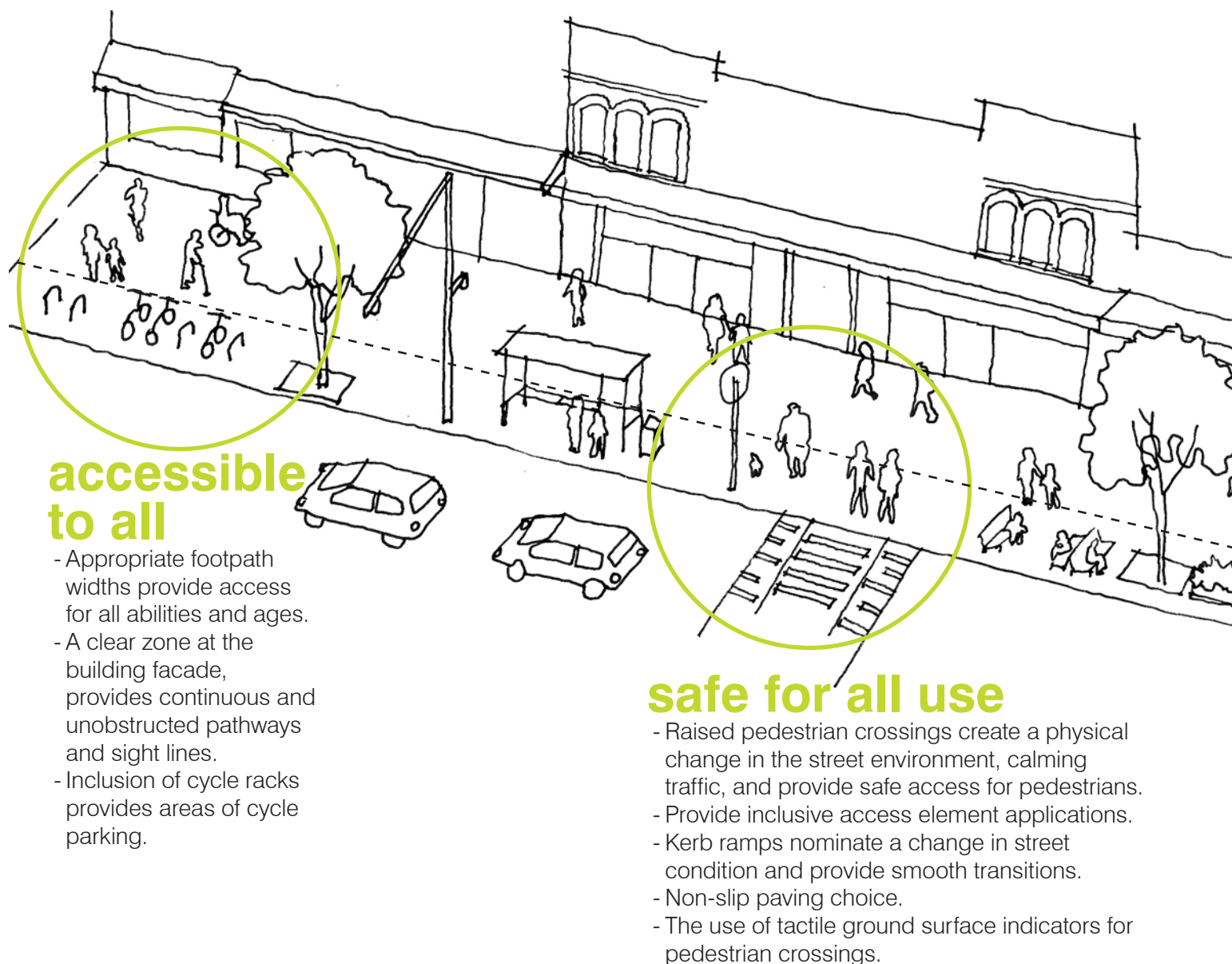
Ten Strategic Directions
Direction 4: A City for Pedestrians and Cyclists.
Direction 5: A Lively, Engaging City Centre.
Direction 9: Sustainable Development Renewal and Design.

B.2 KEY DESIGN PRINCIPLES

The following five key design principles guide the development of Sydney's street layout and function. They support the Sustainable Sydney 2030 objectives to define and improve the City's streets, enhancing their role for pedestrians and public life.

To achieve these principles, the City has nominated Streetscape Character Areas to guide both future development and street design projects, refer to Part C of the Code.

Figure 2.1 A typical streetscape illustrating key principles for Sydney streets.



PRINCIPLE 1: PUBLIC SPACES, PUBLIC LIFE

This principle supports the Sustainable Sydney 2030; Direction 5; A Lively, Engaging City Centre and supporting Public Space: Public Life Sydney 2007 study, Gehl Architects.

Streets are critical to the liveability and sustainability of urban environments and are important places for people to meet and socialise.

The Code promotes the following principles:

- Provide unified streetscapes that are of high quality, are durable, and are timeless in design.
- Create streetscapes that provide a setting and backdrop for vibrant street life and activity.
- Integrate trees and landscape treatments to provide shade, unify streetscapes and provide interest and amenity.



Martin Place, City Centre

all-weather access

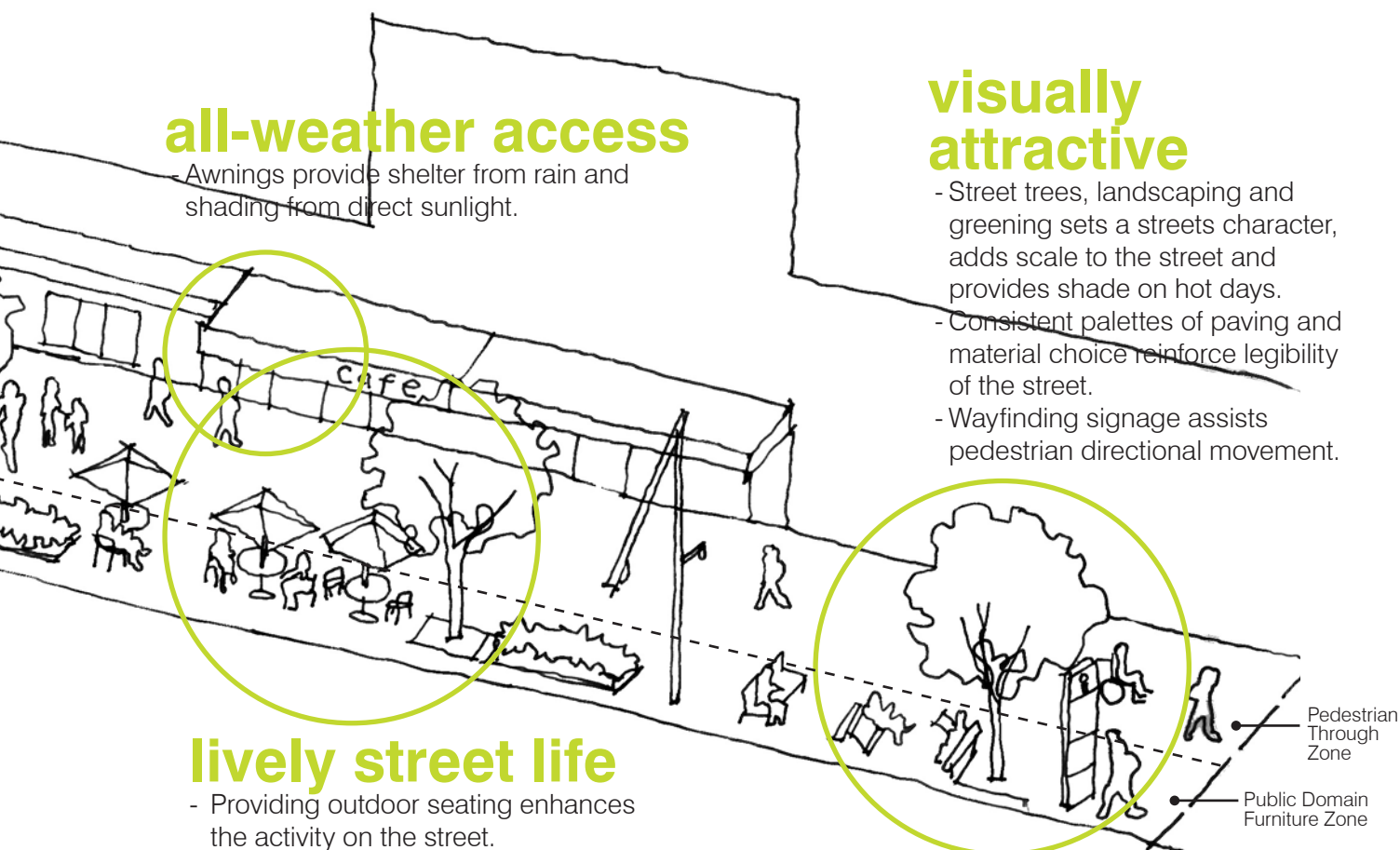
Awnings provide shelter from rain and shading from direct sunlight.

visually attractive

- Street trees, landscaping and greening sets a street's character, adds scale to the street and provides shade on hot days.
- Consistent palettes of paving and material choice reinforce legibility of the street.
- Wayfinding signage assists pedestrian directional movement.

lively street life

- Providing outdoor seating enhances the activity on the street.
- Kerb extensions provide more space for pedestrians and opportunity for outdoor seating, cycle parking and street landscaping.



PRINCIPLE 2: PROMOTE SUSTAINABILITY

This principle supports the Sustainable Sydney 2030; Direction 3: Integrated Transport for an Active City, and Direction 9; Sustainable Development Renewal and Design.

Streets occupy a large part of the City's public domain area. This provides significant opportunities to contribute to sustainability outcomes.

The Sydney Streets Design Code promotes the following principles:

- Integrate Water Sensitive Urban design (WSUD) into the streetscape to treat urban stormwater to meet best practice water quality objectives for reuse and/or discharge to receiving waters.
- Creating green corridors with increased tree planting and landscape treatments to reduce the extent of hard surfaces and improve canopy cover, biodiversity, microclimate and the pedestrian environment.
- Selecting materials with low embodied energy, high recycled content, local provenance, high durability, long service life and low maintenance.
- Encouraging and designing for pedestrian, bicycling and transit use to minimise contribution to greenhouse gas emissions and reduce local air pollution.



Bourke Street dedicated cycleway

PRINCIPLE 3: PROMOTE INCLUSIVE DESIGN

This principle supports the Sustainable Sydney 2030; Direction 4; A City for Pedestrians and Cyclists.

The Sydney Streets Design Code promotes the following principles:

- Street design must include a universal design approach to provide inclusive access and use for people of all ages and abilities; and
- Include specific design objectives for inclusive design layout and for location of elements within each Sydney street typology



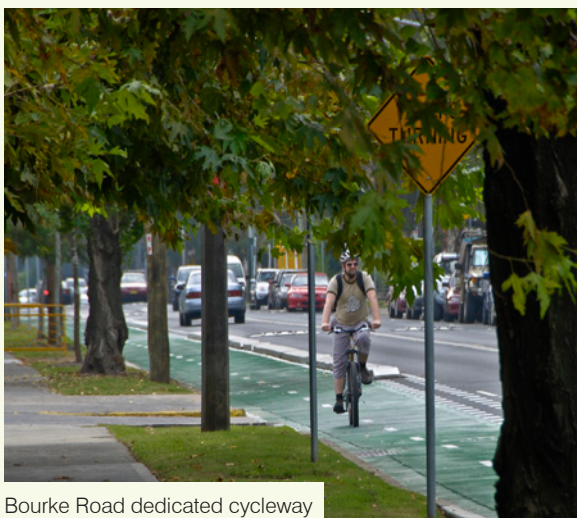
Crown Street raised pedestrian crossing

PRINCIPLE 4: PROMOTE ACTIVE TRANSPORT

This principle supports the Sustainable Sydney 2030; Direction 3; Integrated transport for a Connected City, and Direction 4; A City for Pedestrians and Cyclists.

The Sydney Streets Design Code promotes the following principles:

- Providing a connected and legible pedestrian and bicycle network that facilitates safe, accessible, and convenient connections to desirable destinations; and
- Providing amenities such as seats, bubblers and bike racks to support pedestrian and bicycle use.



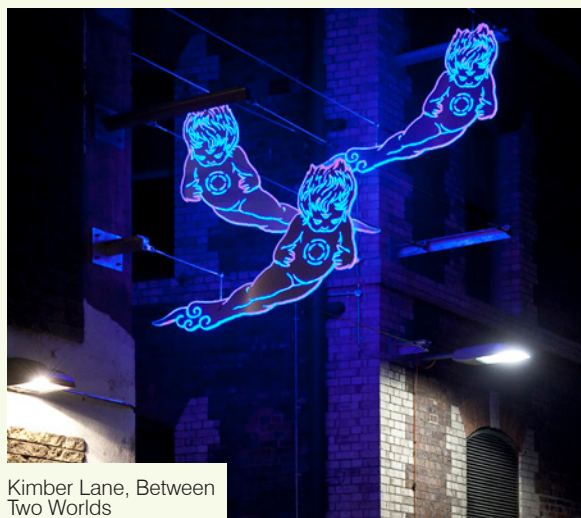
Bourke Road dedicated cycleway

PRINCIPLE 5: RESPECT DISTINCTIVENESS AND 'PLACE'

This principle supports the Sustainable Sydney 2030; Direction 5; A Lively, Engaging City Centre, and Direction 9; Sustainable Development Renewal and Design.

The Sydney Streets Design Code promotes the following principles:

- Promote the 'place' function of streets by clearly defining the role of individual Sydney street types;
- Acknowledge the unique character of the City's villages by allowing design flexibility within the materials palette to express and reinforce the sense of place and local identity. This may be expressed through the selection of unique materials and elements and the introduction of public art; and
- Expressing local distinctiveness and character through retention of Streetscape heritage elements such as stone kerbs and gutters, stone sets and furniture.



Kimber Lane, Between Two Worlds

Street Design

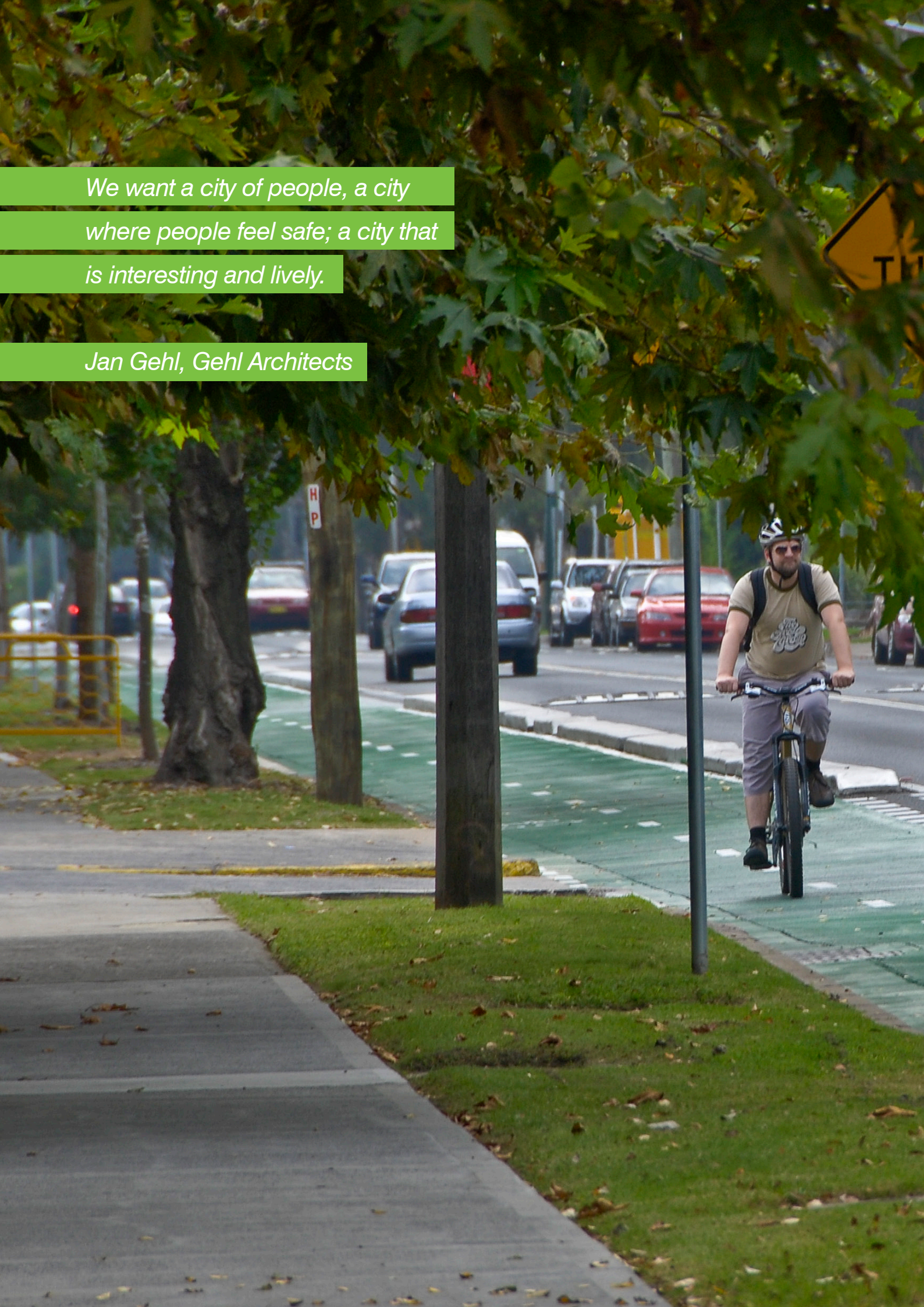
PART D



PART D

*We want a city of people, a city
where people feel safe; a city that
is interesting and lively.*

Jan Gehl, Gehl Architects



Street Design

D.1 FUNCTION

Our streets are the most important public spaces in the City. The street network connects people to their homes, employment, services and recreation every day. The street is the primary space in which people experience the city. Safe and vibrant streets are essential to the economic prosperity of the City. All street design needs to provide for all people, regardless of age and ability.

The street has many functions. The primary function of the street is to facilitate movement of people and goods in and around the city. It also fulfils important social, ecological and economic functions.

The key functions of Sydney streets are:

Place – The Street has an important community function. It can be a place for walking, meeting, shopping, playing, socialising, recreation and rest. The street provides space for formal and informal social activity within the community. Economic activity, such as shops, along the street can stimulate social activity. In residential areas, the street should promote good relationships between neighbours. The street should be attractive and invoke a sense of community pride and ownership. It can also reinforce the cultural and historical identity of a place.

Movement – Streets primarily function as a network for movement of people and goods. Pedestrians, cyclists, buses, light rail and private vehicles all travel through the city on our streets.

Access – The street provides access to and from properties and services. Access to shops is achieved via a footpath and shop frontage. Access to public transport is provided by bus stops or light rail stops. Other forms of access within the carriageway provide for service and commercial vehicles, taxis, car share parking and dedicated cycleways.

Environmental – Streets allow natural processes to continue to work in the City, by providing space for trees and vegetation, stormwater collection, management, and infiltration and distribution. Trees in the street provide shade and amenity for pedestrians, reduce summer temperatures, support activity in the street. Trees and vegetation can also make a street legible, and support a local character or 'sense of place'.

Infrastructure – Drainage, utilities and street lighting all provide fundamental servicing and safety for all neighbourhoods. Sustainable systems within this street can bring environmental benefits such as flood control, efficient stormwater recycling and green ecology into the streetscape.

D.2 TYPES

There are many types of streets within the City. Because the primary function of streets is to facilitate movement, streets have traditionally been organised in a hierarchy that is reflective of their vehicle movement function. They are commonly termed transit corridors, arterial roads, collector roads, local streets, laneways and shared zones.

This hierarchy of street types reflects the traffic volumes on streets, and does not reflect the other diverse factors that make up a street. Streets can not be considered independently on the function of vehicular movement. When all other factors are considered; of place, access, environmental and infrastructure, a different hierarchy of street character is formed. This is formed by how the street is used, for example retail high streets that have a high functional use for vehicle movements as well as support high patterns of pedestrian movement. It is important to understand the complete functions of the street when allocating space, to create balanced street use outcomes.

New Streets Where new streets are planned, in new neighbourhoods, street types are established in the Development Control Plan to reflect the needs of the place. New streets should have physical dimensions appropriate to their mix of functions, that is, a width that enables all the functions of movement, access, place and ecology and infrastructure, to operate safely and effectively.

Existing Streets In Sydney, many existing streets have the same width, regardless of their mix of functions or where they sit in a functional hierarchy. Their function is driven by their context and made to fit within the existing proportions of the street. The common City Street Types found across the City are General Streets such as Arterial roads, Village Main Streets, Local Streets, Laneways, Slow Streets, Shared Zones and Transit Streets. These are further defined in this section.

State Owned Streets The City includes streets that are controlled by the State Government, that carry high volumes of vehicular traffic, they each have a unique combination of functions. These streets include Broadway, South Dowling Street, Oxford Street, King Street, William Street and Cleveland Street. They carry high volumes of vehicular traffic, which often makes them unpleasant and sometimes unsafe environments for pedestrians and cyclists. At the same time, these streets can have significant pedestrian and retail functions, servicing their local neighbourhood which entails a high degree of pedestrian activity. Site-specific solutions will be required to promote pedestrian and cycle access, place and amenity in the street. The City will work with the State Government to improve the quality of these streets.

Each street has a common set of functional design considerations. Design resolution is site specific, and cannot be generalised by type. Part E Street Design Coordination sets out the priorities for design decision making in the coordination and layout of elements in the street.

City Street Types

The common City Street Types define the basic role for streets across all Character Areas of the City.

Primary to defining a street type is to understand how streets interact with adjacent land uses. Secondary, is the role of the street; as a connector for pedestrian, cycle, transit and/or vehicle movement, setting the hierarchy of movement activity on the street. Thirdly, the interweaving of streets, footpaths, buildings and open spaces, defines Sydney's vibrant urban fabric and creates places for people within the streetscape.

The following section describes the typical street types of:

- **General Streets** - Arterial Roads
- **General Streets** - Village Main Streets
- **General Streets** - Local Streets
- **Laneways;**
- **Slow Streets;**
- **Shared Zones;** and
- **Transit Streets.**

General Streets – Arterial Road

Arterial Roads accommodate higher volumes of traffic and higher volumes of pedestrians where there are mixed uses of retail, commercial and residential uses. The vehicle and pedestrian zones are separated and the street character and physical appearance will vary due to the land use context.

Arterial roads are State Owned roads, differentiated from other General Street types by their higher volumes of traffic. Arterial roads have the highest volumes of vehicular traffic than any other General Street type.

Aim: Arterial Streets aim to facilitate vehicular traffic as a primary function, whilst allocating adequate width in footpath zones for place function.

Design Objectives

- Support a high balance of function for vehicular traffic and public transport, whilst providing for adequate and safe movement functions for pedestrians and cyclists;
- Promote walkability on street edge footpaths and provide opportunity for street furniture and outdoor dining; and
- Provide cycleways where consistent with the City's Cycle Strategy and Action Plan 2007-2017.

Examples include: Oxford Street, Broadway, William Street, Cleveland Street.



Cleveland Street, Surry Hills

General Streets – Village Main Streets

Village Main Streets support a balanced movement function between traffic and pedestrians. The vehicle and pedestrian zones are separated, and the street character and physical appearance responds to a high volume of active retail and commercial frontages. The standard urban speed limit of 50km/hr applies as the urban speed limit and where there are high pedestrian activity areas and school zones, 40km/hr applies.

A Village Main Street can sometimes be differentiated by separated cycleways and transit priority functions. A separated cycleway is only considered for streets that are designed for such treatments under the City's Cycle Strategy and Action Plan 2007-2017.

Aim: Village Main Streets aim to balance function of 'place' with movement, allocating adequate width in footpath zones for place function, while maintaining clear zones of through vehicle movement for public transport and local traffic.

Design Objectives

- Support a balance of function between pedestrian, cyclists, public transport and vehicular movement;
- Promote walkability on street edge footpaths and provide opportunity for street furniture and outdoor dining; and
- Provide cycleways where consistent with the City's Cycle Strategy and Action Plan 2007-2017.

Examples include: Crown Street in a Village Centre Area. Pitt Street in the City Centre Area, Harris Street in a Village Centre Area.



Crown Street., Surry Hills

General Streets – Local Streets

Local Streets, similar to Village Main Streets support a balanced movement function between traffic and pedestrians. Traffic volumes are generally lower than a Village Main Street and primarily function access for residential mixed use with local retail and commercial uses. The typical speed of a Local Street is 40km/hr.

Similar to a Village Main Street, a Local Street may be nominated as a cycle route, and on-street marked cycle can be considered (refer to the City's Cycle Strategy and Action Plan 2007-2017).

Aim: Local Streets aim to balance the functional movement patterns of local traffic with adequate width in footpath zones for pedestrian amenity and place function.

Design Objectives

- Support a balance of function between pedestrian, cyclists, public transport and vehicular movement;
- Promote walkability on street edge footpaths to provide for safe and legible connections from public transport to residential dwellings.
- Provide cycleways where consistent with the City's Cycle Strategy and Action Plan 2007-2017.

Examples include: Marriott Street, Redfern, a Local Area.



Marriott Street, Redfern

Laneways

Laneways are small scale streets that typically carry low numbers of vehicles and are mostly for local access only. They can be used solely for service functions or they may have a partial or full closure to vehicular traffic and/or low speed restrictions in a dedicated shared zone environment. Refer to Part E for further Shared Zones design coordination.

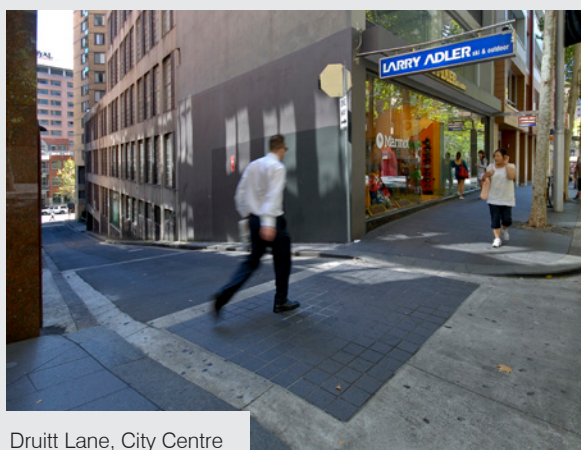
Laneways can serve as valuable public space and when applicable should be designed with seating, landscaping and pedestrian lighting to create safe, attractive and usable space.

Aim: The aim of the laneway is to provide increased pedestrian access where ground floor uses activate the space, and allow for low levels of vehicle and servicing access.

Design Objectives

- Support a balance of function between vehicular access and pedestrian access;
- Promote walkability within the laneway and provide opportunity to activate ground floor uses by inclusion for street furniture and outdoor dining in City Centre locations;
- Vehicular access may be limited to restricted hours for loading and servicing; and
- Provide vehicular access to residential property in local areas.

Examples include: Druitt Lane in the City Centre Area.



Druitt Lane, City Centre

Slow Streets

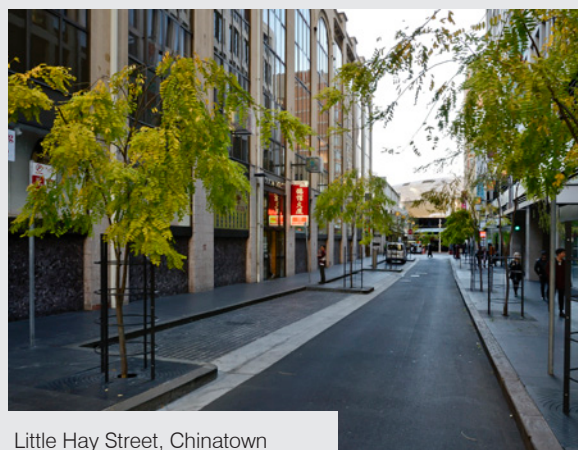
Slow streets make extensive use of traffic calming measures and include reduced speed limit signage to discourage vehicular through-traffic, reduce vehicular speed and green the streetscape, creating a comfortable environment for bicycling and walking. Local Streets and Laneways can be designed to deliver a Slow Street and include additional public domain benefits. The Slow Streets aim is to reduce speeds to 30km/hr.

Aim: Slow Streets aim to reduce traffic speeds, to prioritise a higher use of pedestrian and cyclist movement, creating a comfortable environment.

Design Objectives

- Support a balance of function between vehicular access and pedestrian access;
- Promote walkability through widening of the footpath zone.
- Provide opportunity to activate ground floor uses by inclusion for street furniture and outdoor dining in City Centre locations;
- Inclusion for traffic-calming measures and reduced speeds to 30km/hr.

Examples include: Little Hay Street, Chinatown City Centre Area.



Little Hay Street, Chinatown

Shared Zones

A Shared Zone is a street shared safely by vehicles and pedestrians. It has a low speed limit of 10km/hr. Shared zones are designed to support pedestrian and public life through alternative paving materials, removal of raised kerbs (if drainage considerations allow), footpath extensions and thresholds, seating, landscape treatments, and pedestrian lighting that collectively creates a strong differentiation from traditional vehicle priority streets which reminds drivers that they should proceed cautiously and slowly.

Shared Zones are often kerbless, providing a flush environment for pedestrians, cyclists and low speed vehicles to share the same space, special consideration needs to be given to the provision of adequate tactile or other clues for visually impaired people including options for 'safe' spaces (normally along the building line) if a traditional kerbline is not provided.

Aim

A shared zone aims to create a shared safe street corridor of movement for pedestrians and vehicles.

Design Objectives

- Promote safe primary access for pedestrians and cyclists in a shared environment;
- Inclusive access requirements are a priority to ensure safe navigation of the street;
- Street elements must be located in coordination with through movement zones; and
- Vehicular access may be limited to restricted hours for loading and servicing.

Example: Redfern Street, Redfern in a Village Centre Area, Wilshire Street, Surry Hills, in a Local Area.



Redfern Street, Redfern

Transit Streets

Transit streets are existing or proposed future street types associated with active frontages, that provide a high priority to public transport operations. Hay Street in Haymarket is an example of a light rail transit street. George Street is an example of a proposed future transit street, being identified as a preferred light rail route for the City Centre.

The extension of light rail routes beyond the City centre such as Devonshire Street will involve existing streets being redesigned or new streets in urban renewal areas constructed to accommodate light rail. Transit Streets are streets where private vehicles to have limited or no access, and bus or light rail use is prioritised. Delivery access may be allowed at all times or in off-hours, and cycle lanes may be provided if space permits.

Aim

The Transit Street aims to prioritise through movement on the street through inclusion for multiple modes of transport including dedicated public transport zones, cycleways and high quality footpath zones.

Design Objectives

- Support a high function of public transport;
- Promote walkability on street edge footpaths and provide opportunity for street furniture and outdoor dining; and
- Opportunity to provide a dedicated cycleway where consistent with the City.

Examples include: Hay Street in the City Centre Area and the future George Street and Devonshire Street light rail.



Indicative George Street's future light rail

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Street Design Coordination

PART E



PART E

“TARGET 7: By 2030, at least 10 per cent of trips made in the City will be made by bicycle and 50 per cent by pedestrian movement.”

*(Sustainable Sydney 2030:
Support Document)*



Street Design Coordination

INTRODUCTION

A well-designed street requires street design coordination through planning, design detailing and implementation. Composing and considering all elements within the street is a significant contributor to the character and appearance of a place as well as providing a safe and comfortable pedestrian domain.

Good design and layout of elements:

- Creates a safe street;
- Reinforce the street hierarchy;
- Provide required paths of travel and pedestrian priority;
- Provide a clear and direct composition that reinforces the major design elements;
- Integrate seamlessly into the paved ground plane; and
- Are located consistently throughout the public domain to reflect the overall special character.

This section provides guidance for design coordination, including:

- Space Allocation;
- Footpaths;
- Carriageways;
- Street Trees and Landscaping;
- Public Domain Furniture;
- Street Lighting;
- Street and Intersection Geometry;
- Cycleways; and
- Public Art.

**Technical
Specifications
(chapter
number)**

This section must be read in conjunction with the *Sydney Streets Technical Specifications*. Within this section, the blue boxes (shown left), relate to the chapter reference numbers within the Technical Specifications.

Space Allocation

The priority of functional space allocation on the street is important to the success and safety of a street.

Most streets have limited space and many competing functional uses that need to be considered for a streetscape design project. Within this section, the City's minimum and preferred setouts and dimensions are provided.

There are many competing factors that need to be considered when allocating space across City streets, an analysis by the City will be undertaken to consider factors such as:

- Available pedestrian and vehicle through movement space;
- Anticipated pedestrian volumes;
- Anticipated traffic volumes and speeds;

- Safety and accessibility for all users;
- Transportation routes and locations of shelters and transfer points;
- Future projections for cycleway users;
- Anticipated shared pedestrian zones and cycleways; and
- Necessary street infrastructure.

After these factors have been considered, illustration 5.1 and table 5.2 assist in making space allocation decisions. Each street will vary depending on its unique balance of all functions and require individual assessment and approval by the City.

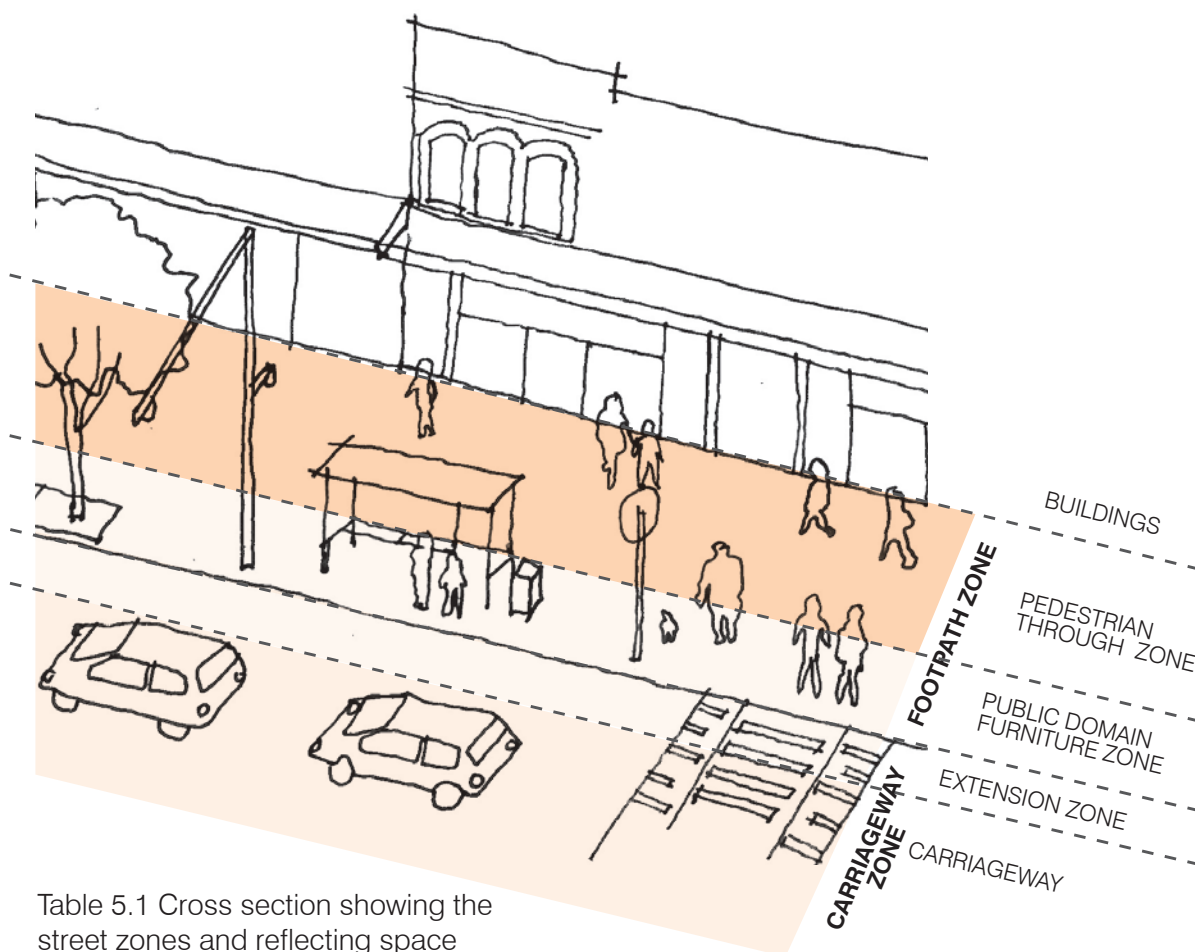


Table 5.1 Cross section showing the street zones and reflecting space allocation considerations.

Table 5.2 Key functional space allocation considerations on streets

| | |
|----------|---|
| 1 | Pedestrians |
| 2 | Cyclists, Vehicles, Public Transport Users |
| 3 | Infrastructure |
| 4 | Trees |
| 5 | Seating and Outdoor Dining |
| 6 | Parking and Loading |
| 7 | Additional Social and Ecological Uses |

1 The number one priority for all streets is to provide pedestrian space that is safe and accessible for all. A minimum 1.2m Pedestrian Through Zone width must be met in all streets, more comfortable minimum, preferred City widths are listed in Table 5.4 Footpath Widths, further in this section. Where these conditions are not met, there must be a design review assessment should be made to reallocate space.

2 The aim for motor vehicle movement is to provide the minimum possible space to support through movement, while inciting safe traffic speeds. For streets nominated in the City of Sydney Cycle Strategy and Action Plan 2007-2017, space should be allocated to separated cycleways. On other streets cycleways may be provided for if traffic speeds are low.

When there are low volumes of traffic assessed, and a lack of space separation for balance between pedestrian and vehicle movement, a change in street type can be considered. Further exploration of reduction in traffic lanes could occur, or a Shared Zone considered.

3 Most streets will require lighting, generally from power poles or mounted to buildings if space is very tight.

4 There should be a presumption for street trees in all streets. Trees can be located in the Extension Zone, in alignment with the parking bays or in the Public Domain Furniture Zone.

5 Streets with high activity, food and beverage uses need to provide additional footpath space allocated for public seating and outdoor dining.

6 On-street private parking and loading zones need to be considered in areas for local business, retail and residential.

7 Any additional space should be used for social and ecological uses such as, rain gardens, play spaces and seating.

Space Allocation

Typical General Street Layout

The consideration of function, place, access, environment and infrastructure, all combine to form a street layout. Through careful consideration of all elements within the streetscape, life and vitality is created in the public domain. The indicative streetscape figure 5.3 represents the conditions on a commonly found street within the City. For other streets outside of a General Street type, such as Shared Zone a different condition is set, refer to Shared Zones later in this section.

A common streetscape consists of:

- the public **footpath zone**; its width, spatial layout, physical finishes, furniture and landscaping treatment;
- the **buildings**; framing the street corridor and setting up a transition zone from public to private; and
- the **carriageway**; its width, use, surface treatment and volume of traffic flow.

The indicative streetscape figure 5.3, illustrates the relationship of these zones and their contribution to the quality of the public domain.

Within the street, are the physical elements such as street trees, furniture, outdoor seating, lighting and paving, kerbs, corner junctions, kerb extensions, driveways and pedestrian ramps require a coordinated design approach to maintain a consistent, legible and safe pathway for pedestrians.

The City aims to create streets with a high standard of accessibility, safety, visually attractive and easily maintained. A well-designed footpath will encourage people to use the footpath zone for walking, sitting, eating and socialising.

Figure 5.3 Indicative streetscape illustration for a common street.



THE STRUCTURE OF THE STREET

The structure of the street can be further classified by the following spaces that are allocated specific functions. They are:

Pedestrian Through Zone is an area to provide for accessible pedestrian travel and must be clear of obstacles, including street furniture, street trees, outdoor seating and driveway ramping. It should be well-lit and functional in all weather conditions and meet accessibility standards.

The interface area adjacent to the Building Zone, provides a buffer for pedestrians from building entries and architectural features. It can provide a “sure line” for the visually impaired. This interface also allows opportunity for people to gather, window shop, and engage in conversation.

Public Domain Furniture Zone acts as a buffer between the active pedestrian walking area and street traffic. Street trees and other landscaping, streetlights, site furnishings, traffic and parking poles and equipment, utility poles, and other site furnishings should be consolidated in this zone. This zone also has the potential to be utilised for outdoor dining.

This zone is the interface between the roadway and the footpath and is intended for use by people accessing parked vehicles.

Extension Zone refers to the specific conditions where the footpath extends into the parking lane through kerb extensions, flexible use of parking lanes, bicycle parking, tree planting, and Water Sensitive Urban Design features. The extension zone may accommodate landscape treatments, seating, street furniture and outdoor dining use to free up footpath space for through travel.

Carriageway refers to the area used by various forms of movement including motor vehicles, public transport and cyclists. This zone can be two-way, one-way, or become part of a shared environment.

Cycleway refers to the area dedicated for cyclists, to provide a safe on street environment for the movement of cyclists. A dedicated cycleway is only considered for streets that are designated for such treatments (refer to Cycleways later in this section).

Building Zone this zone forms a transition from public to private. This is formalised by the built form facade and its interface with the footpath design and form.

Space Allocation

Footpath Widths

It is important to note that most of Sydney's existing streets are not consistent in width and constraints can occur where existing street elements and servicing utilities are located. The City's preferred widths are shown in table 5.4.

When considering a street upgrade, it is important to consider the minimum footpath widths necessary to allow for unobstructed travel paths and for inclusive access requirements, such as allowing enough width for movement of a wheelchair and a person to pass safely and minimum clearance spacing for elements such as street trees.

A standard 1.2m wide footpath (AS 1428.2) supports two people walking past. The City recommends a minimum width of 2m to allow two pairs of people to comfortably pass each other, or a wheel chair and a person to pass each other, and 3m or wider can support higher volumes of pedestrians.

Widening footpaths may require significant changes to drainage infrastructure as well as the relocation of utilities and must be reviewed on individual project basis. Where possible, the widening of footpaths may be achieved by narrowing and/or removing vehicular travel lanes or parking lanes, or establishing setbacks as part of redevelopments.

When making decisions for how to allocate footpath space, the following principles should be used:

Pedestrian Through Zone

- The Pedestrian Zone must be clear of all physical obstructions;
- When reconstructing the Pedestrian Zone and relocating utilities, all access points must be

located outside of the Pedestrian Zone where possible;

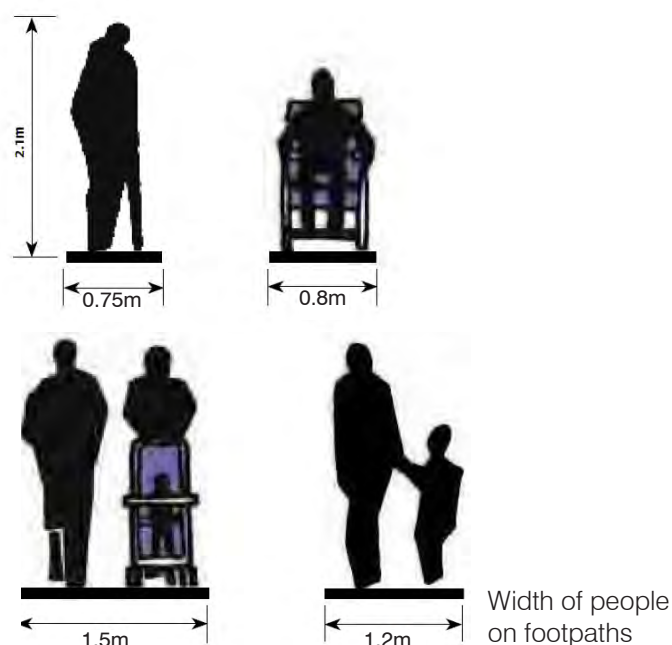
- Within the Pedestrian Zone, adjacent to the building line, this space should be maximised to provide spill out areas from building facades wherever possible; and
- The width must be a minimum of 1.2m.

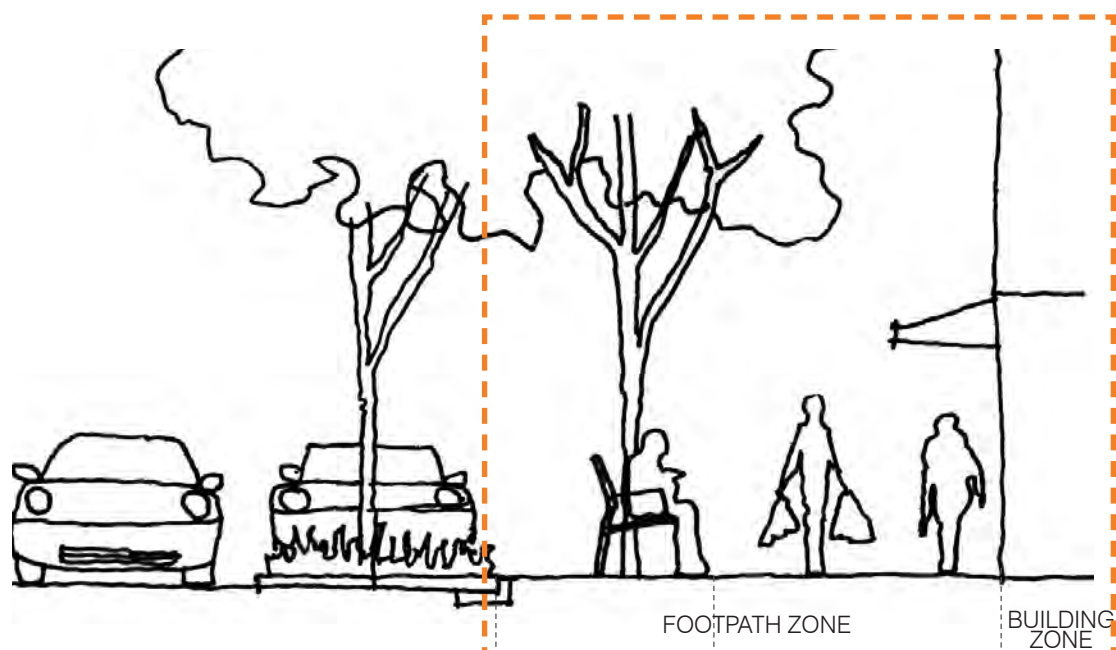
Public Domain Furniture Zone

- Elements in this zone should be setback a minimum of 600mm from the kerb face; and
- Minimum width of this zone for placement of outdoor seating is 600m from the kerb face.

Extension Zone

- Where parallel parking is included within this zone, a total of 1.2m must allow for adequate door swing allowance. This is a minimum of 600mm between the Extension Zone and the kerb face, and 600mm from the kerb face into the Public Domain Furniture Zone.





| STREET TYPES | | PUBLIC DOMAIN FURNITURE ZONE (m) | | PEDESTRIAN THROUGH ZONE (m) | |
|-----------------|---|----------------------------------|---------|-----------------------------|-----------|
| | | Preferred | Minimum | Preferred | Minimum ^ |
| General Streets | City Streets | 2.0 | 1.0 | 4.0 | 3.0 |
| | Village Centres and Activity Strips | 1.5 | 1.0 | 3.5 | 2.5 |
| | Local Streets (mid-high activity streets) | 1.5 | 1.0 | 3.5 | 2.0* |
| | Local Streets (low-mid activity streets) | 1.5 | 0.6 | 2.0 | 1.5* |
| Laneways | | Shared Zone | | Shared Zone 1.2** | |
| Shared Zones | | 2.0-3.0 | – | 3.2 | 2.8 |
| Slow Streets | | 1.5+ | 1.0 | 3.5 | 2.0 |

Table 5.4 Footpath Widths

Notes

- Pedestrian Through Zone - is the clear path of travel.
- Public Domain Furniture Zone - where lighting, street trees and seating are positioned.
- Minimum footpath widths are based on the City's minimal provision for a comfortable pedestrian access, and for two wheelchairs to pass.
- Preferred footpath widths are desired City dimensions for providing better pedestrian comfort and amenity and full inclusion for street trees, verge landscaping and public domain furniture. Street upgrades will need to be assessed for minimal and preferred widths on a project basis.

^ The State Government RTA standard is absolute 1.2m minimum (with frequent 1.8m wide passing opportunities for people passing in wheelchairs).

* The City recommends a more comfortable preferred width of at least 2.0m.

** If the footpath does not meet the minimum of 1.2m then a Shared Zone must be considered.

Space Allocation

Carriageway Widths

The City presents proposed guidelines for carriageway widths, to allow for the provision of public transport vehicles, servicing trucks, vans, waste collection vehicles, private vehicles, and cyclists.

The carriageway widths shown in table 5.5, should be considered as maximums for new construction, major reconstruction and retrofit street upgrades. The carriageways have been classified using the RTA functional road classification system. This system recognised the needs of different road users and the transport and non-transport functions of the roads.

Carriageway widths should be appropriate for the particular context and uses of the street. Key factors to take into consideration include:

- The volume of vehicular traffic and pedestrian activity;
- Traffic composition;
- The demarcation, if any between carriageway and footpath (for example kerb, street trees or planting and public domain furniture);
- Whether parking is to take place in the carriageway and if so, distribution, arrangement, the frequency of occupation, and the likely level of parking enforcement;
- The design speed;
- The curvature of the street (bends require greater width to accommodate the swept path); and
- Any intention to include one-way streets, or stretches of single lane working in two-way streets.

In streets with less traffic, carriageways maybe narrowed as a traffic calming function. For example, intersections, traffic lanes and parking lanes should be considered, as they act to naturally calm traffic to a maximum of 40km/hr on high pedestrian activity streets, 30km/hr on Local Streets and Slow Streets and 10km/hr on Laneways, Shared Zones. Design considerations for traffic calming measures are discussed further in this section, refer to 'Pedestrian, Cycling and Traffic Calming'.

Design exceptions may be required for some width values on State Owned streets. Decisions regarding carriageway widths in the City should support the desired characteristics of Sydney's street types.

Presence of heavy vehicles is a key consideration when using minimum carriageway widths. Wider lane widths are appropriate in locations with high volumes of heavy vehicles. A collaborative judgement between Planners, Designers and Engineering is necessary to make final determinations regarding lane widths.

Table 5.5 Carriageway Widths

Preferred Maximum Vehicle Widths

| RTA Classification | Primary traffic Lane | Additional Traffic Lanes | Parking |
|--|----------------------|--------------------------|---------|
| Sub-Arterial Roads including bus/heavy vehicle routes (assumes multiple lanes of traffic in each direction) | 3.2m | 2.8–2.9m | 2.3m ^ |
| Local Roads | | | |
| Two lanes of traffic in either direction | 2.9m | 2.9m | 2.2m |
| One lane of traffic in either direction | 2.75m | None | 2.1m |
| Single lane, bi-directional streets and lanes (passing bays required in parking zone) | 3.2m | None | 2.1m |
| Single lane, one-way streets and lanes (or adjacent to median) | 3.0m | None | 2.1m |
| Shared Zones | 2.8m (min) | None | Varies |

Preferred Minimum Cycleway Widths

| | Minimum lane width | Minimum kerb width |
|--|-------------------------------|--------------------|
| Separated Bi-directional Cycleway | 2.4m | 0.4m |
| Separated One-way Cycleway | 2.0 | 0.4m |
| On-street painted cycle lane | * | None |
| Shared Path (cycle and pedestrian) | 2m (min. 1.2 at pinch points) | None |

Notes

The City Design vehicle is 9.25 waste collection vehicle except on a dedicated bus or heavy vehicle route.

* For mixed traffic in low speed environments, the painted on-street cycle lane should accommodate suitable width to allow for deflection of a parked car door swing.

^ Decisions regarding parking lane width when adjacent to bike lanes should consider parking turnover rates and vehicle types.

Technical Specifications**A3, B6, B9, C3**

Footpaths

Footpath Types

The character of footpaths can vary widely depending on the context and Street Type. The three zones of the footpath outlined earlier in section Typical General Street Layout; the Frontage, Pedestrian Through Zone and the Public Domain Furniture Zone, change in width to accommodate varying movement functions and differing degrees of prominence in each Street Type.

The City aims to optimise the footpaths for pedestrian movement and create activated public domain, while respecting the existing fabric of the city. For streets with higher volumes of vehicle traffic flow, the buffer between the Public Domain Furniture Zone and the adjacent carriageway is important for pedestrian safety. The Extension Zone, including parked cars and bicycle lanes can help improve the comfort and safety for pedestrians.

The following section provides guiding footpath design considerations for each of Sydney's footpath types:

- City Centre Streets;
- Village Centre and Activity Strips;
- Local Area Streets;
- Laneways;
- Shared Zones;
- Slow Streets; and
- Shared Paths.

City Centre Streets Footpaths

Wider Pedestrian Zones should be a feature of these streets to accommodate high volumes of pedestrian traffic. Within the variety of City Streets, the footpath area needs to support the predominant mixed use of retail and commercial tenancies.

The area of the footpath adjacent to the building line provides visual interest at the ground-level through continuous building facades, with retail and commercial window displays, entry ways and high volume awnings. The Public Domain Furniture Zone is characterised by street tree planting, public domain furniture, way finding signage and Smart Pole lighting.

All City Streets footpaths are in the process of being upgraded to have high-quality finishes to support the flows of pedestrian movement.



Market Street

Village Centre and Activity Strips Footpaths

Village Centre and Activity Strips are characterised by high volumes of pedestrians, and a wide Pedestrian Zone should be provided.

Ground floor conditions are characterised by a mixed land use of retail, local business and residential use. Inclusion for tables and chairs at cafes and planted areas at residential entrances create meeting places for locals.

Widened footpath areas into the Extension Zone can be utilised as an extended Public Domain Furniture Zone, including removable cafe tables and chairs, permanent seating and opportunity for bicycle parking.



Harris Street, Ultimo

Local Area Streets Footpaths

Typically with less pedestrian intensity, the Local Area streets provide residential or industrial land use address. The Pedestrian Zone becomes the focus of the street section, adjacent to the minimised width of the Public Domain Furniture Zone.

Visual interest is provided by street landscaping within the Public Domain Furniture Zone and architectural detail of the residential entry ways and building frontages. Lower ground-level landscaping can be enhanced through under-storey planting and water sensitive urban design elements.



Meagher Street, Chippendale

Laneway Footpaths

There are variety of laneways within the Local Government Area ranging from use for service functions to having a full or partial closure to vehicle traffic and low speed restrictions in a dedicated shared zone environment. Laneways such as Angel Place provide Shared Zones, allowing pedestrian and vehicle access and cafes to spill out activating the laneway.

Within Local Areas, laneways are traditionally rear access ways to residential properties, Pedestrian Zones are narrower in pathway width between the property boundary and kerbline, however when upgrades occur, provision for a wider Pedestrian Zone should be considered where possible.

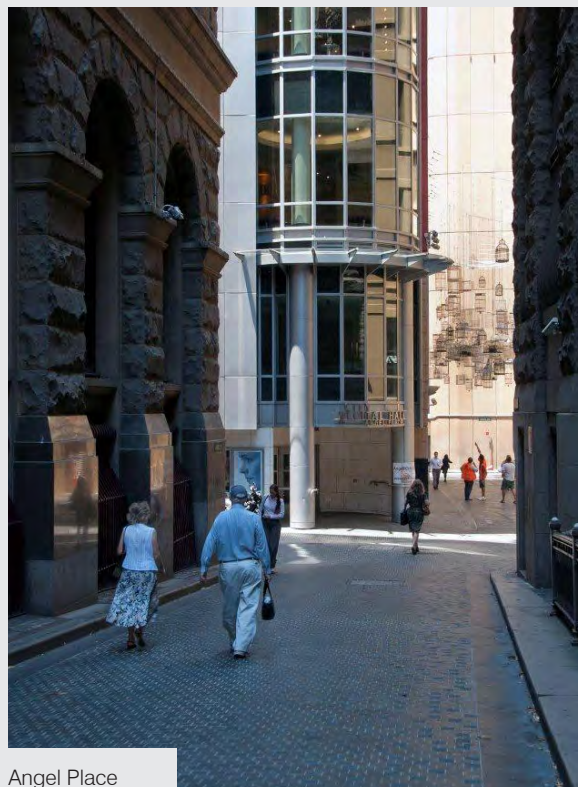


Ash Lane

Shared Zones

Shared Zones allow pedestrians, cyclists and low speed vehicles to share the same space.

These areas are often destinations for food, drink, retail and culture where public art, unique furniture design, lighting and landscaping create visual interest.



Angel Place

Slow Street Footpaths

Slow Streets are characterised by a reduced traffic speed, and a balance between pedestrian and vehicle access.

Footpaths widened to accommodate pedestrian movement as well as allowing areas of seating, cycle parking and planting.



Little Hay Street

Shared Paths

Shared Paths allow cyclists and pedestrians to use the footpath. The City of Sydney Cycle Strategy and Action Plan identifies a number of roads where it is desirable to improve safe cycling access by providing shared paths for low speed cycling on the footway adjacent to higher speed roads.

There are a number of design criteria that Shared Paths must meet, including a minimum of 2m in width and 1.2m at pinch points. They adhere to the Austroads and also require a risk assessment for all users before they are implemented. To accommodate the City's street trees and verges, the criteria varies from the guideline in that it accepts that not all of this width has to be hard paved. As long as adjoining path surfaces are in good condition and interfaces between materials are smooth, then pedestrians and cyclists can safely negotiate around each other.



Shared Path in Redfern

Footpaths

Paving and Materials

A consistent palette of paving materials creates a clear, coherent public domain structure that provides a unified, recognisable character. The key considerations include materials selection, good attention to detailing and quality installation; these components work together to form robust, slip-resistant, stable and durable footpaths.

The design principles for the choice of paving and materials include:

- Sustainable, locally sourced, high durability, low embodied energy;
- Flexible and easy to remove and re-lay;
- Create a high quality pedestrian environment with materials that are robust, durable and easy to maintain;
- Reinforce streetscape hierarchy and character;
- Reduce use of asphalt;

- Relate to streetscape context and existing pavement type; and
- Consider the use of temporary materials in street design for low-cost variations, such as paint and planter boxes.


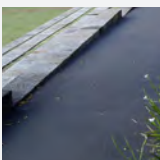


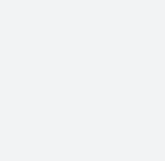
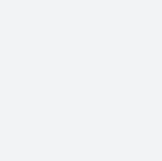
The combination of the above design principles ensures the most appropriate materials are used to maximise accessibility, are aesthetically appropriate, economically beneficial, sustainable in choice and longevity and easy for maintenance.

Key design considerations for paving and materials include:

Paving Material Transitions and Continuity

- Paving must read as a continuous, linear palette so that it is legible as a continuous pathway for pedestrian movement;

Footpath Pavement Material Swatch Examples

| | Granite Paving | Concrete Unit Paving | Brick Paving | In Situ Concrete | Ashphalt | Permeable Paving |
|--|---|---|---|---|--|---|
| Typical Application |  |  |  |  |  | |
| Special Application |  |  |  |  |  |  |
| For application of footpath material palette within Sydney streets, refer to the Streetscape Character Areas, Part C. | | | | | | |

- Where there is a transition change in the footpath, for example at the street corner from the paved pathway to the kerb, the palette will change to accommodate a kerb ramp or kerb edge;
- There will be locations within the City streetscape types, including layout, elements and materials that will vary at the corner where two streets intersect. A street with higher activity takes precedence for paving treatment, and must wrap the corner into the minor street; and
- Logical termination of paving types can be either at the radius transition point or building property line.

Paving Material Patterns

Where a shared zone, or a raised pedestrian crossing, or a driveway crossover occurs, the

pattern of the paving must run linear with the Footpath Zone.

Public vs Private Interface

Many developments within Sydney choose to use the Sydney material palette at their front door. This is encouraged. Considerations should be given to:

- Paving on private property adjacent to public footway must not extend across into the public Footpath Zone layout. The junction of materials must be physically and visually coordinated; and
- Where building setbacks provide a section of widened footpath, the materials and paving used must be integrated with the existing Footpath Zone paving, and use the City palette.

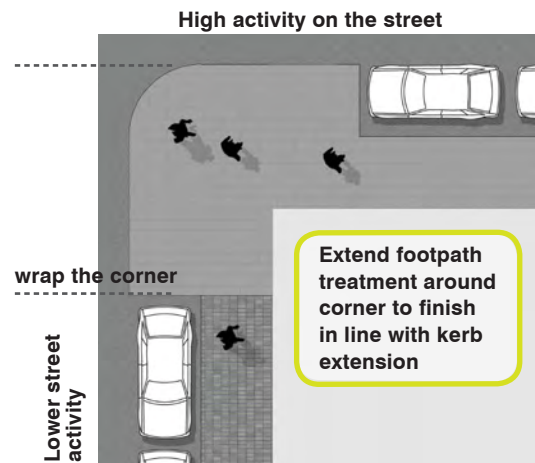
Kerb Material Swatch Examples



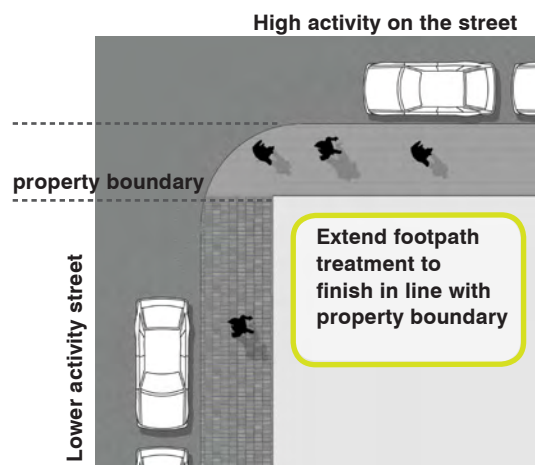
For application of kerb palette, refer to the Streetscape Character Areas, Part C.

Technical Specifications

A1, A2, B4, B5, C1, C2, C6



Footpath Material Junction with Kerb Extension



Footpath Material Junction without Kerb Extension

Footpaths

Sustainable Materials

The City is aware of the environmental impacts embodied in the quarrying of raw materials and the energy used in the manufacture of paving and furniture materials.

Key design considerations for sustainable materials include:

- The use of permeable paving treatments allow for storm water runoff to infiltrate through the material into the ground and is stored for gradual absorption into the soil or is filtered through the soil into the groundwater;
- The use of porous concrete and asphalts. They are pavements with uniformly graded coarse material which creates pore spaces to allow water flow through the pavement. These pavements will require further field testing to determine the appropriate construction specification and application with other water sensitive urban design devices;
- The use of permeable paving can be used in a broad variety of street characters. All designs must consider the drainage characteristics of the underlying soils, the depth of the water table and the slope of the adjacent land;
- Permeable pavements can be used in footpaths, parks, plazas, shared zones and medians; and
- Use of 'green concrete' reduces the emissions associated with concrete manufacture requires more efficient use of resources in concrete production including use of re-used materials and by products such as use of blast furnace slag as an aggregate substitute and fly ash as a Portland cement substitute. Since September 2009 the city has been gathering information from concrete suppliers on the stability of green star rated concrete mixes for a trialling assessment of compressive strength, tensile strength and durability.

Permeable
Paving



Eco-Trihex at Victoria Park

Permeable Paving Types

- Porous unit pavers with open joints or interlocking designs.
- Porous concrete and asphalts designed to more void spaces to allow for water penetration.
- Soft paving such as grass, mulch and decomposed granite.

Technical Specifications

A1, A2, B1, B4, B5, C1, C2

Footpaths

Driveway Crossovers

Driveway crossovers can impact the pedestrian flow of movement within the footpath area. They must be designed to a minimal width and maintain a continuous paving type, to reinforce pedestrian priority.

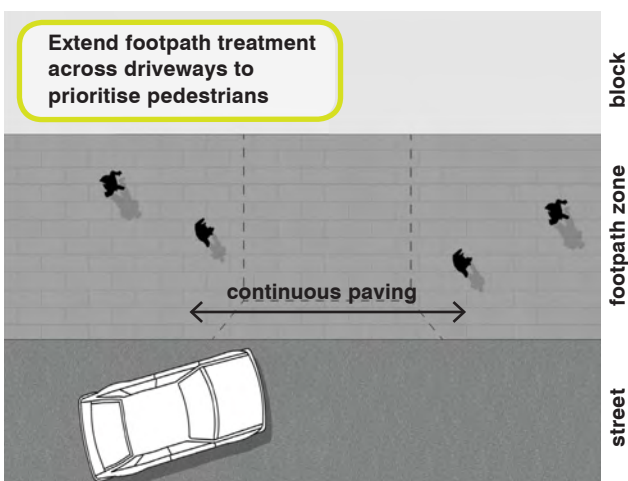
Key design considerations for driveway crossovers include:

- The location and widths of driveways on all pedestrian priority streets must be minimised to maintain footpath continuity and avoid impacts on existing or potential streetscape elements such as street trees;
- Driveways should not interrupt the pathway of pedestrian movement, footpath pavement material must be continuous across the driveway rather than emphasise vehicle priority;
- Driveways in that accommodate industrial use, must seek direction from the City of

Sydney on appropriate materials selection and detailing; and

- The slope of the ramp must be maximised to meet the Pedestrian Zone height at the kerb side of the cross section. This will reduce the impact of the driveway across the Pedestrian Zone.

Paving Details



Technical Specifications

A1, A2, A3, B2, B5, B6, C1, C2

Footpaths

Inclusive Access Applications

Inclusive access applications are required in compliance with the relevant legislation and Australian Standards (AS 1428).

Key design considerations for inclusive access applications in the streetscape includes:

- Design inclusion for all abilities access elements, such as tactile pavement indicators or a change in surface pavement are required if kerb edge is removed (commonly used for Shared Zones).
- Provision for sure lines at the building edge;
- Provision of luminance contrast at stairs and fall as well where public domain furniture is located;
- Provision of bollards and safety railing;
- Provision of stainless steel markers, tactile paving treatments;
- Provision for pram ramps;
- Alignment of path of travel and pram ramps;
- Shared Zone treatments;
- Tactile Ground Surface Indicators (TGSIs) where appropriate; and
- Suggest including 'Slip Resistance' here.



Use of tactiles and bollards in the City Centre

Technical Specifications
B5, B9, C2, C4, C6

Footpaths**Utilities**

Utilities in the streetscape consist of utility poles, overhead wires, surface pits and electricity/communication kiosks.

- City will strive to work with relevant utility authorities to achieve least streetscape impact solution for utility placement.

Key design considerations for utilities include:

- Utilities should be efficiently located to minimise impacts on other existing or potential streetscape elements, maintain basic access and maintenance requirements;
- Undergrounding of overhead services should be carried out where feasible to main streets to reduce visual intrusion and provide optimum conditions for street trees. Aerial Bundled Cable is also appropriate for other streets to reduce impact on tree canopy;
- Pit lids should consist of paving inserts consistent with the paved footpath finish in the City Centre and on all main streets; and



Use of granite pit lids in the City Centre

Technical Specifications
B5, B8, C2, C5

Footpaths

Outdoor Dining

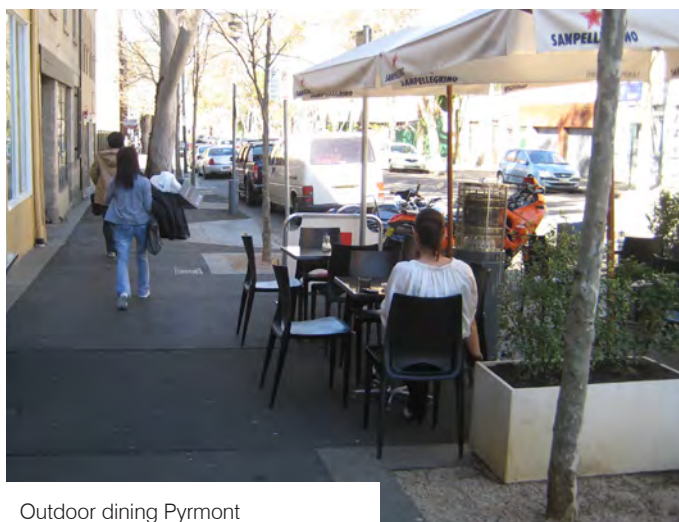
The City encourages outdoor dining as a key component of a delivering a lively and engaging city. The City is currently updating guidelines for outdoor cafe seating and barriers that considers inclusive access and design quality (refer to the The City of Sydney Outdoor Cafe Policy 2001, or as amended).

Key design coordination considerations include:

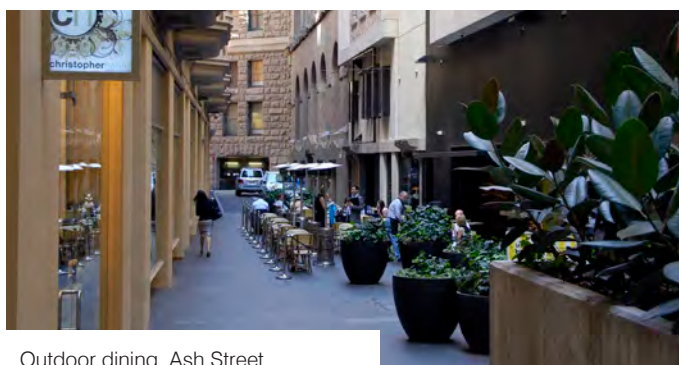
- Locating all outdoor dining furniture in the Street Furniture Zones or as directed by the City; and
- Maintain a clear unobstructed footpath zone for pedestrian through movement.



Extended kerb allows for outdoor dining on a Village Street



Outdoor dining Pyrmont



Outdoor dining, Ash Street

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Street and Intersection Geometry

Well-designed intersections are crucial to create safe, efficient and multinodal intersections. The City of Sydney aims to reduce the risks of turning conflicts with fast moving vehicles by removing slip lanes where possible and extending kerbs to allow for reduced corner kerb radii. This presents greater opportunity to enhance pedestrian safety by increasing pedestrian visibility, shortening crossing distances, slow turning vehicles, and visually narrowing the roadway.

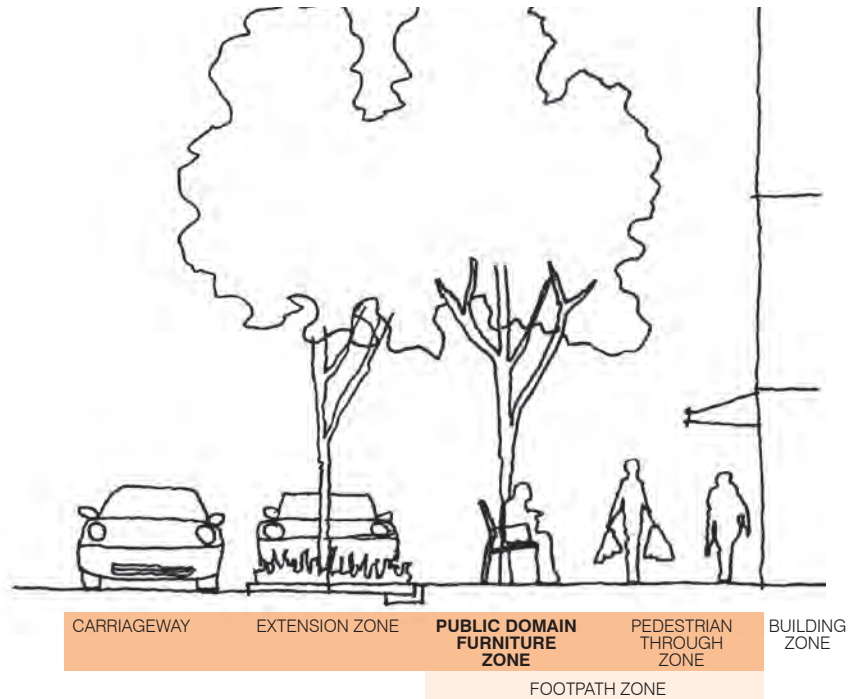
Changes in geometry can help to reduce traffic turning speeds and increase pedestrian comfort and safety. One of the key considerations is the location of pedestrian crossing kerb ramps and raised pedestrian crossings.

All upgrades or intersection geometry must be in accordance with the Australian Standards for Access as defined in AS 1428.1-1428.4 for pedestrian access on footpaths.

The following guidelines for design consideration are detailed this section for:

- Pedestrian, Cycling and Traffic Calming;
- Shared Zones;
- Corner junctions and interface treatments;
- Continuity Treatments;
- Footpath Extensions;
- Kerbs;
- Kerb Ramps;
- Kerb Radii;
- Raised Pedestrian Crossings; and
- Inclusive Access applications.





Street and Intersection Geometry

Pedestrian, Cycling and Traffic Calming

Traffic calming creates a better balance between function and place for a street.

One of the key project ideas that arose from the directions set in the Sustainable Sydney 2030 is the Liveable Green Network. The network plan identifies continuous green corridors that provide:

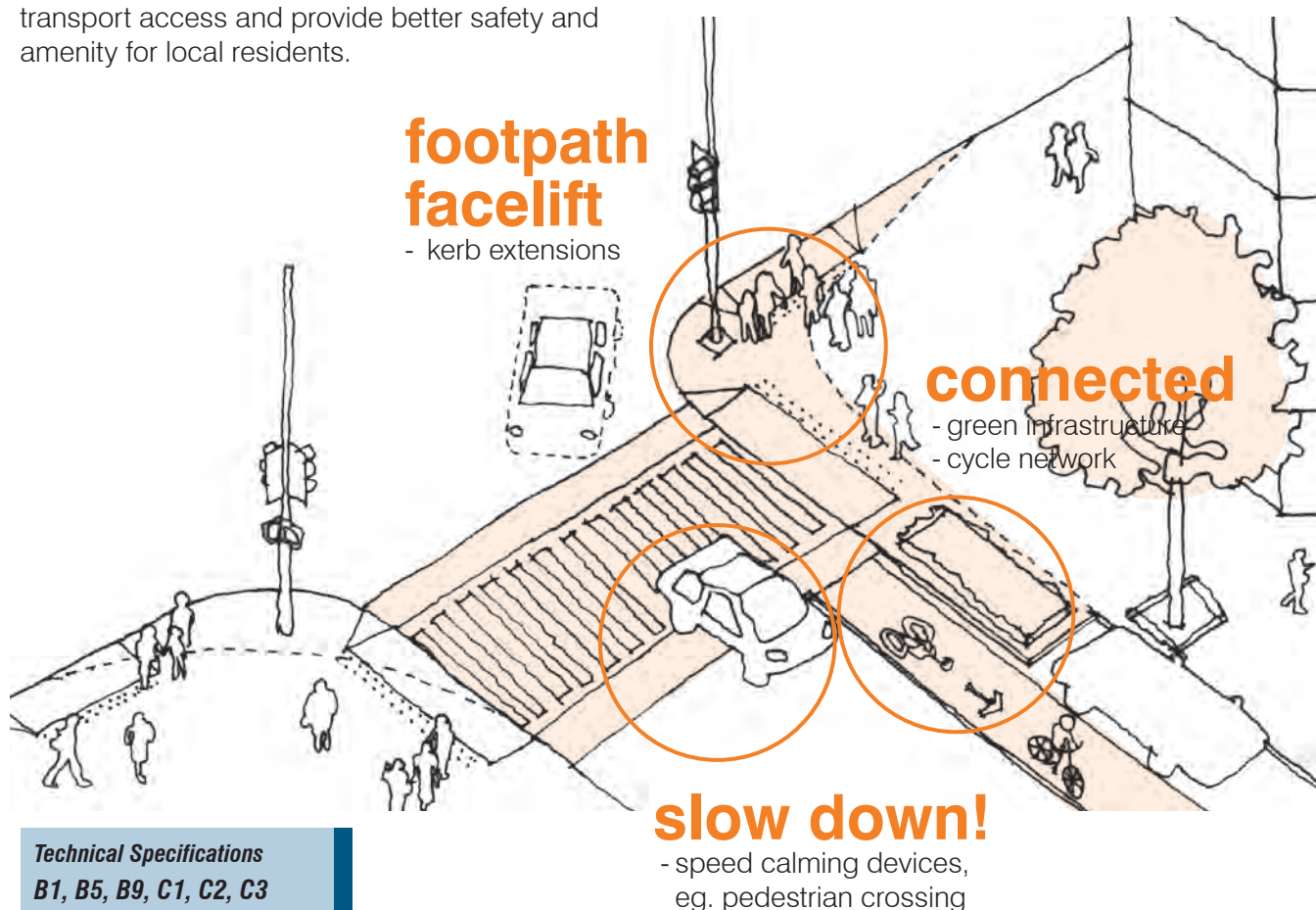
- safe;
- high quality; and
- continuous routes for pedestrian and cyclist activity.

The City is promoting the use of Pedestrian, Cycling and Traffic Calming (PCTC) devices on roads to develop an improved pedestrian and cycle environment and enhance vehicle awareness.

Pedestrian, Cycling and Traffic Calming (PCTC) devices are used to manage and calm traffic on roads, increase pedestrian, bicycle and public transport access and provide better safety and amenity for local residents.

The design considerations include:

- Slower speed limits and creation of slow points, including central medians and kerb extensions;
- Tighter turning radius on roundabouts, and on corner kerbs;
- Raised pedestrian thresholds and crossings;
- Creation of shared traffic zones including continuing the pedestrian surface treatment across intersections;
- Widening footpaths and creating kerb extensions;
- Creating well connected cycle networks;
- Revitalising City Centre laneways through the Laneways Revitalisation Program; and
- Locating dish drains between the carriageway and parking bay to reduce the visual appearance of the vehicle through zone.



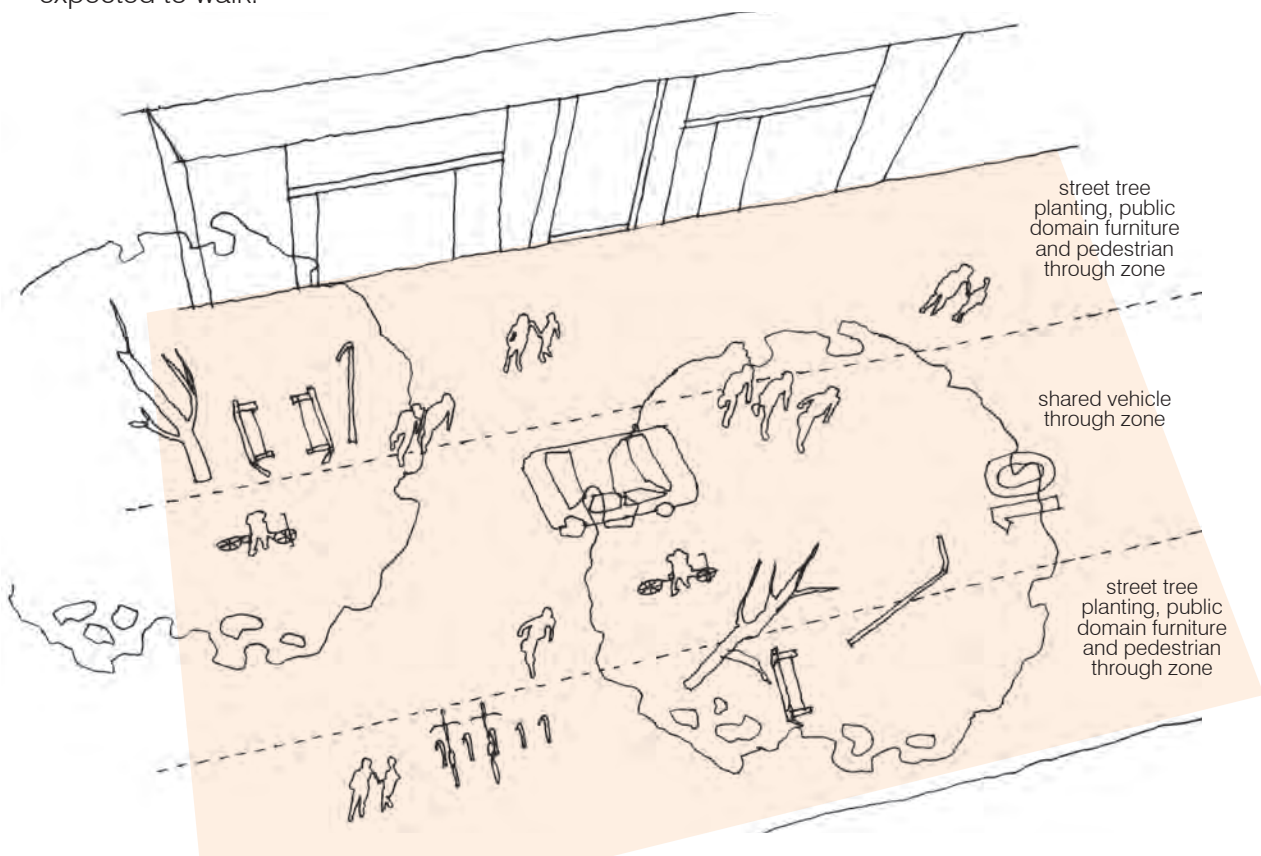
Street and Intersection Geometry

Shared Zones

The Shared Zone is a dedicated shared traffic environment for pedestrians, cyclist and vehicle movement.

When there are low volumes of traffic assessed, and a lack of space separation for balance between pedestrian and vehicle movement, a change in street type can be considered, to a Shared Zone. The design coordination considerations include:

- Siting and location of elements within the shared zone;
- Visual and physical changes such as pavement and material changes.
- Kerb and gutter should be removed from a shared zone where possible to remove any ambiguity as to where a pedestrian is expected to walk.
- An entrance treatment (at the start of the zone) is required if kerb and gutter is retained to ensure the motorist is aware that they are within a significantly different road environment.
- A self-enforcing road environment should be created to support the implementation of a shared zone and reinforce that pedestrians have the right of way.
- Ensure that the safety of pedestrians and their priority is maintained, traffic volumes must be below the designated volume as stated in the RMS Policy.



Technical Specifications
B1, B6, C2, C3

Refer to RMS Standards for Shared Zones,
www.rta.nsw.gov.au.

Street and Intersection Geometry

Corners and Kerb Radii

The design of corners and kerb radii are essential to enable safe, convenient pedestrian travel access. The corners and kerb radii vary within the different street types and form a significant impact on how well an intersection serves the diversity of carriageway users.

The City reviews intersections for function and safety and will support smaller kerb radii to benefit pedestrians by increasing the size of the pedestrian waiting areas - allowing for:

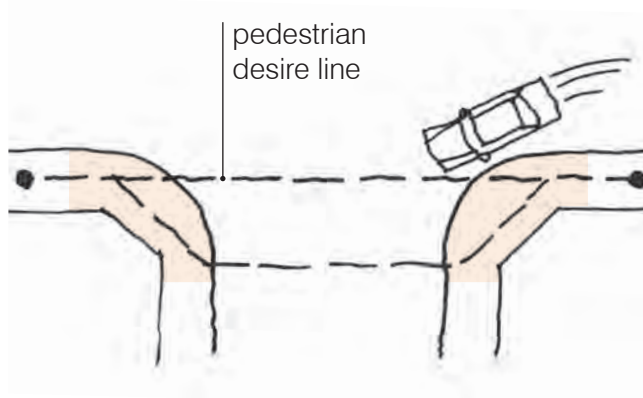
- greater flexibility in placement of kerb ramps; and
- reducing pedestrian crossing widths.

The following design considerations for corners and kerb radii are:

- corner designs must balance the needs of pedestrians and vehicle movement;
- corner designs should maximise pedestrian safety, and comfort by minimum kerb radii

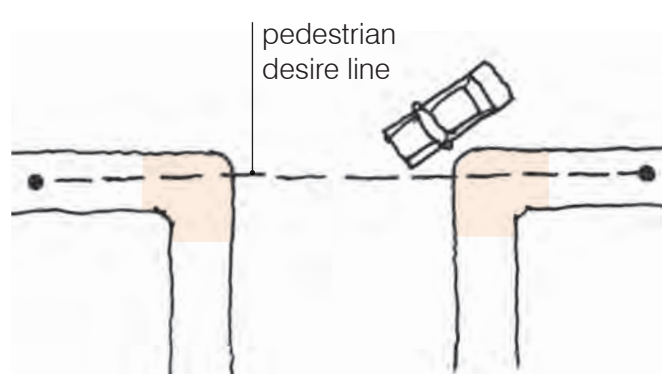
of the corner while providing adequate accommodation for vehicles;

- Kerb radii should be minimised while accommodating the turning movements of vehicles anticipated to shorten crossing distances, increase pedestrian visibility and slow turning traffic;
- The specific kerb radii is assessed on specific project works, due to differing vehicle access requirements and street existing conditions. Where designated bus and heavy vehicle routes the max. design vehicle is the 9.25; and
- With the small corner radii, large vehicles may need to use the full carriageway width to turn. Swept path analysis can be used to determine the minimum dimensions required. The footpath widths may need to be strengthened locally in order to allow for larger vehicles occasionally overrunning the corner.



large radius

- pedestrian desire line is deflected
- detour required to minimise crossing distance
- vehicle turning angle is reduced, therefore vehicles turn faster



small radius

- pedestrian desire line is maintained
- vehicle turning angle is increased, therefore vehicles turn slowly

Technical Specifications
B1, B4, B5, C1, C2

Street and Intersection Geometry

Footpath and Kerb Extensions

Footpath or kerb extensions are an expansion of the footpath and kerb line into the carriageway for a portion of a block either at the corner or mid-block. The increase pedestrian presence on the street and have a significant effect on its user pattern and visual character of the street.

Key design coordination considerations for footpath and kerb extensions include:

- Must be constructed according to an overall street plan that takes into account the relevant urban design, heritage, and traffic issues;
- Generous kerb extensions may allow opportunities for landscaping, seating, outdoor dining, cycle parking and stormwater management as well as enhance pedestrian safety by increasing pedestrian visibility,

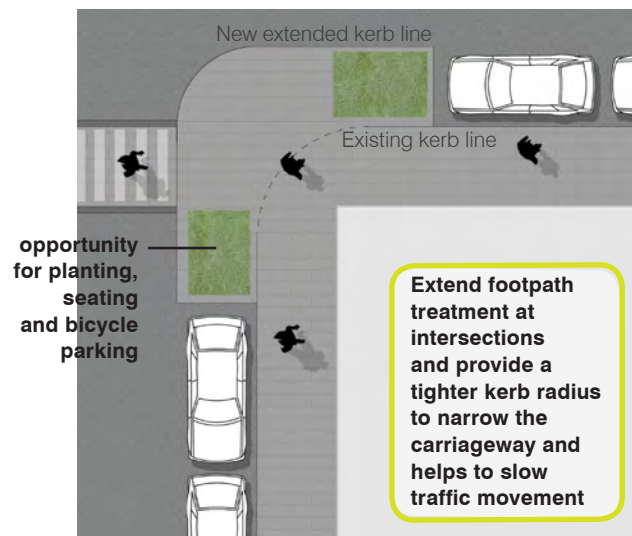
shortening crossing distances, slow turning vehicles, and visually narrowing the roadway;

- Materials should form a seamless whole matching existing features and materials of the existing footpath; and
- The length of footpath extensions vary and depend on the different conditions of the intersection and must be assessed on project case basis by the City.

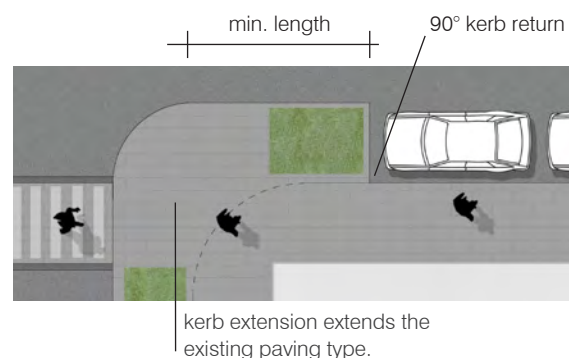


Extended kerb at intersection showing a continuous paving treatment and space for cycle racks in a Village Centre street.

Technical Specifications
B1, B2, B4, B5, C1, C2



Raised Pedestrian Crossing and Kerb Extension



Street and Intersection Geometry

Kerbs

Heritage Considerations

The City of Sydney has a legacy of heritage stone kerbs in trachyte, bluestone and sandstone that makes an important contribution to the streetscape character and sense of place.

Key design coordination considerations for use of heritage kerbs use include:

- Where possible retain and consolidate existing stone kerb in-situ;
- Lift/repair/reset existing servicable stone kerbs during upgrade works;
- Where possible replace damaged sections from the City of Sydney stockpile of trachyte and sandstone; and
- Where possible (dependant on availability) retain and provide additional sandstone, trachyte, austral verde or bluestone kerb to match adjoining to create continuous sections of stone kerb material that is not interrupted by concrete kerbing.

Kerb Ramps

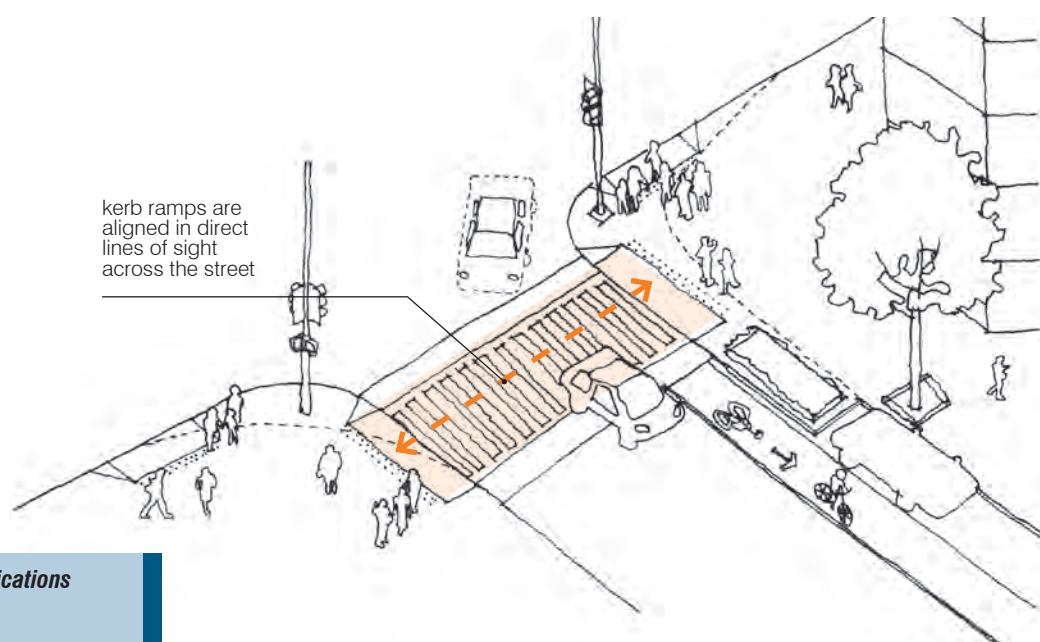
The kerb ramps must be appropriately designed for providing access across intersections for people of all ages and abilities and meet AS1428 standards – with respect to tactile ground surface indicators and kerb ramp alignment.

Kerb ramps must be installed:

- in the direct line of travel;
- at all intersections and pedestrian crossings; and
- at mid block locations where pedestrian crossings exist.

Key design coordination considerations for kerb ramps include:

- Orientation of ramps must meet accessibility standards to ensure safe passage of persons with visual or physical impairments across the street.
- At footpath corners and street intersections, kerb ramps should be located within the corner area of the footpath, aligned with the street wall, and set at a straight angle to the street alignment.
- For visual consistency, kerb ramps should appear as subtle depressions in the pavement, the depth of the kerb ramp must be minimised to reduce insertion into the footpath environment.
- Where conflict occurs between the direct line of travel and existing physical elements such as a stormwater pit, the pit must be relocated clear of the crossing point. Where this is not possible, the alignment of the kerb ramp must be located clear of obstructions and maintain a direct line of sight to the opposite side of the street.



Technical Specifications
B1, B4, C1, C2

Street and Intersection Geometry

Pedestrian Crossings

Pedestrian crossings create an easier and safer crossing for pedestrians by increasing the visibility for drivers and requiring vehicles to slow down. When used in combination with kerb extensions the crossing width can be reduced further.

Where pedestrian crossings occur they:

- Improve drivers awareness of intersections and crossing locations by enhancing visibility and helping define locations where pedestrians are expected to be and are prioritised; and
- Increase awareness for vehicle speed, making it physically difficult for vehicles to speed.

Key design coordination considerations for pedestrian crossings include:

- The use of raised crossings are valuable at unsignalised midblock locations;
- Include a change in paving unit or colour enhancing the contrast between the carriageway and raised crossing;
- Utilise raised crossings as gateway treatments into Village centres and slow zone areas.
- Paving applications must be consistent with the Streetscape Character Area palettes, Part C.



Flush pedestrian crossing in Village Centre context area



Raised pedestrian crossing Crown Street, Surry Hills

Technical Specifications

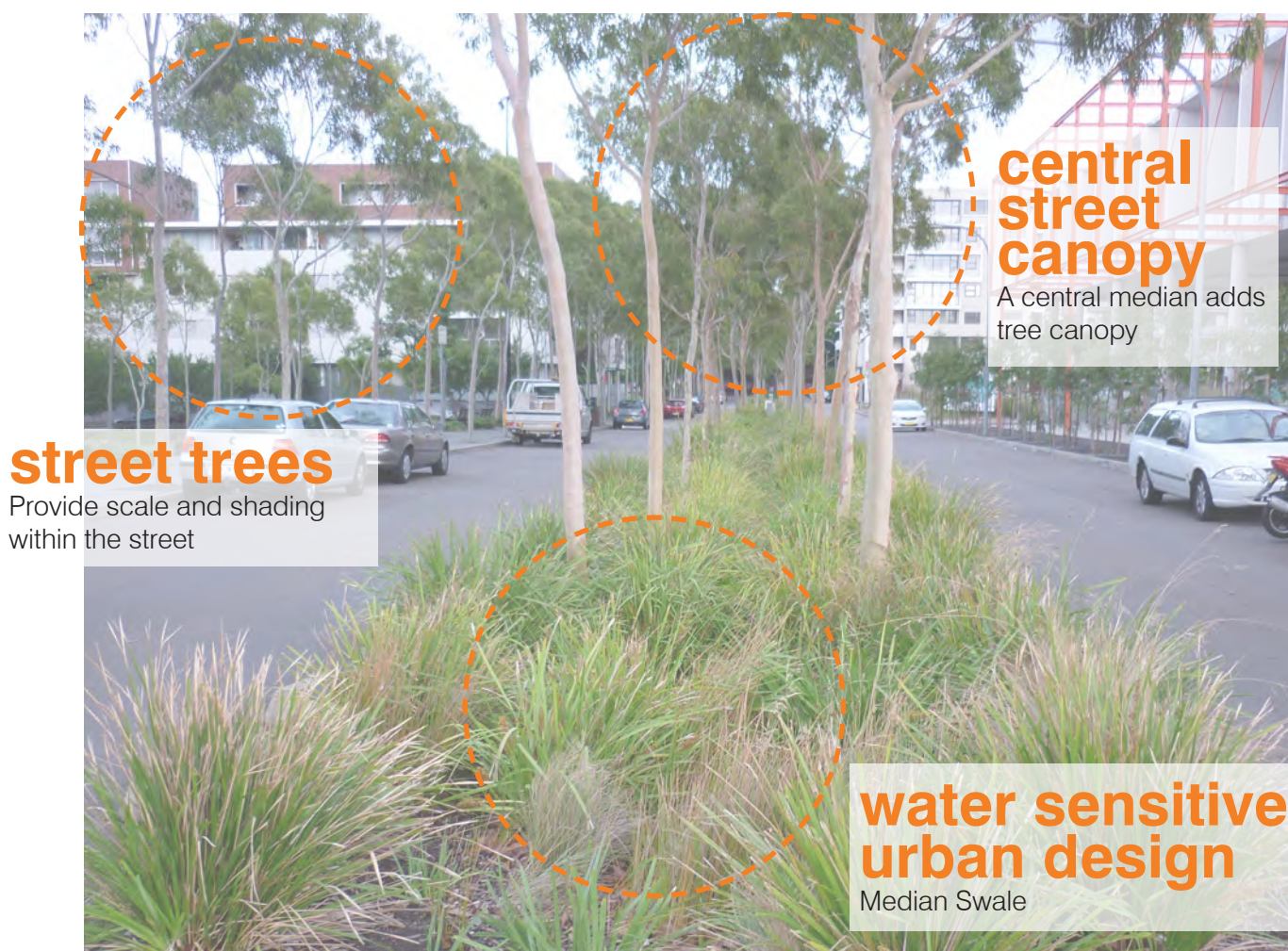
B1, B5, B8, B9, C1, C2, C3, C5

Street Trees and Landscaping

Landscape treatments including ground-level understory planting and containerised (above-ground planting) complements street trees and adds vibrancy and diversity to the street. Part of the City's *Greening Sydney Plan* is to maximise public domain areas of the City that can be planted with trees, gardens and turf. Permanent planting should be provided within the street Furniture Zone or central median.

Key design considerations for street trees and landscaping include:

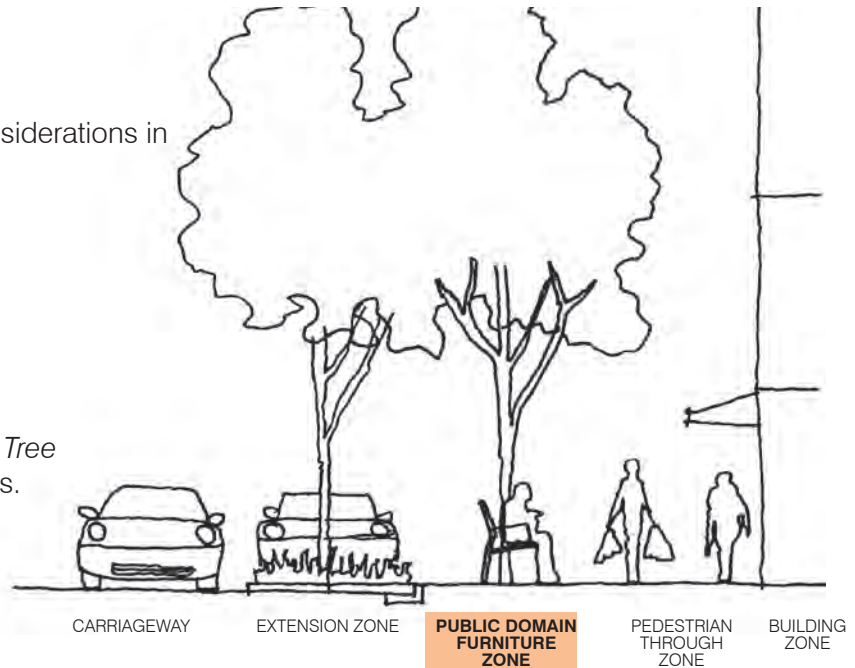
- Street trees provide environmental quality, enhance visual continuity and unity, and reinforce local identity and character.
- Tree planting in roadways provides the opportunity to increase the tree canopy particularly in situations where awnings or overhead wires constrain the establishment of medium to tall trees on the footpaths.
- Special applications for tree surrounds can be designed to incorporate Water Sensitive Urban Design to receive water runoff from surrounding roads and footpaths, and to treat stormwater for reuse and/or discharge. For all landscaping applications, City of Sydney approval is required for tree surrounds that incorporate Water Sensitive Urban Design to determine feasibility and applicability for use.



Street Tree and Landscaping considerations in this section following, include:

- Siting and Spacing;
- Street Trees Selection;
- Tree Base Treatments;
- Verge Treatments; and
- Water Sensitive Urban Design.

Refer to the City of Sydney *Street Tree Master Plan 2011* for further details.



Street Trees and Landscaping

Siting and Spacing

Street trees should be planted within the Public Domain Furniture Zone and the Extension Zones of the street. Subject to an assessment, in median or parking bays they can also be included within the Carriageway.

Key design considerations for street tree siting and spacing include:

- Street trees should be planted in conditions applicable to the species selection, with appropriate sunlight provisions;
 - Street tree planting should be spaced to create a continuity of tree canopy along the corridor to provide a visually attractive setting. Adjacent land uses may influence the pattern of spacing to accommodate active street entries and areas of parallel parking for
- access. The spacing of the tree must take into consideration the distance from other street elements, such as lighting;
 - Where trees are planted in coordination with parallel parking bays, the size of the tree pit and the location of the central planting must consider car overhangs and allow for enough space so not to disturb the tree; and
 - Street trees must be located within the Public Domain Furniture Zone, and located a minimum of 600mm from the kerb edge.



Tree planting on Marriott Street provides a continuity of tree canopy



Tree and verge planting on Bourke Street

Technical Specifications
B2, B5, B6, C2

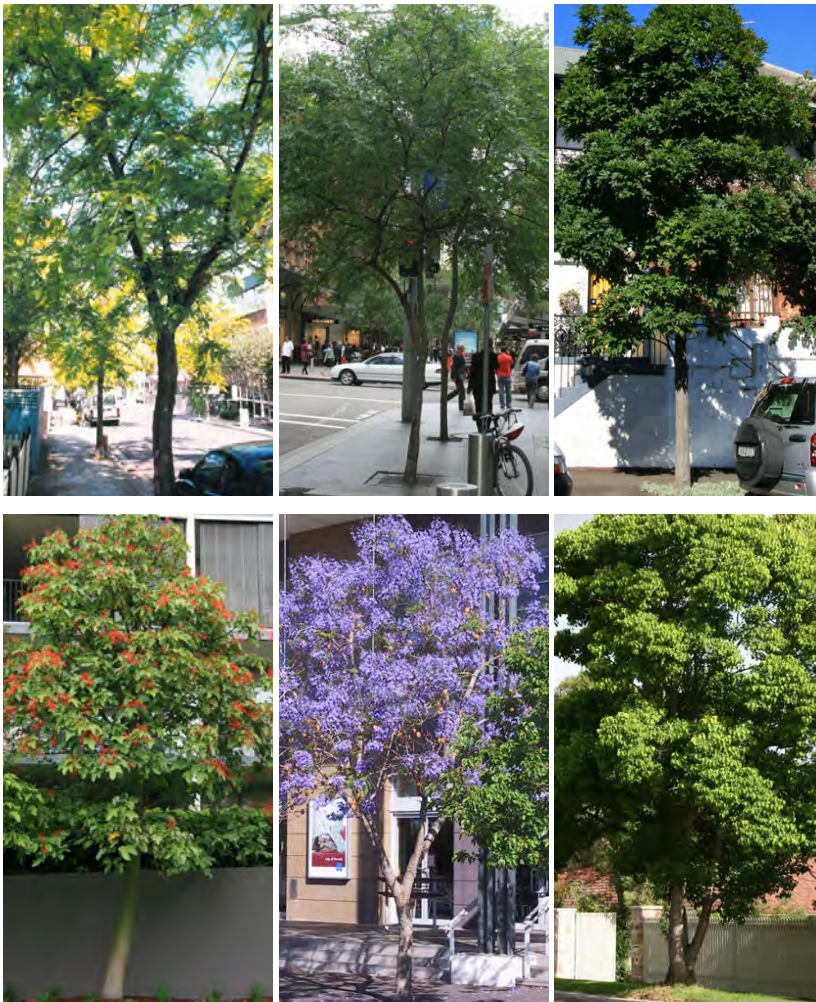
Refer to the City of Sydney Street Tree Master Plan 2011.

Street Trees and Landscaping

Street Trees Selection

Appropriate tree selection, location and installation treatment will ensure the healthy growth and long term benefits for the streetscape. Selection of tree species will be in accordance with the City of Sydney *Street Tree Master Plan 2011*.

For all street tree species selections refer to the *City of Sydney Street Tree Master Plan*, www.cityofsydney.nsw.gov.au.



Planting Applications

The choice of the street tree is dependant on many factors in particular environmental conditions and functional requirements will be prime

Colour

To bring life and vitality to the street, flowering tree species selections can be made based on aesthetic criteria.

Refer to the City of Sydney Street Tree Master Plan 2011.

Street Trees and Landscaping

Tree Base Treatments

Tree base treatments will vary according to the locations and context area. Typically, for more urban situations covered tree pits occur. Within residential areas open tree pits will be planted with under-storey planting. The applicable tree base material palette selections for areas are detailed in Part C.

Key design considerations for tree based treatments include:

- Standard tree base treatments include granite setts with porous fill (for City Centre and Gateway Areas), concrete pavers with porous fill (for Village Centre and Activity Strip Areas), decomposed granite and mulch in turf (for Local Areas).
- Special applications include tree grates, mass planting, water sensitive urban design tree pits and tree guards.

- Tree base treatments should be optimised to ensure tree health, minimise root interference and consider providing trafficable area around tree base through use of porous pavements and grills to capture stormwater runoff;
- Tree guards are to be used only in situations where the protection of the tree is necessary and is a temporary measure only until the tree is established. The use of tree guards is subject to the City's discretion;
- Mass planted and turf tree base options should be used where possible to increase vegetation in the streetscape; and
- Water Sensitive Urban Design tree pits (infiltration) should be used where appropriate levels and drainage fall occurs to receive water runoff from surrounding roads, properties and footpaths and to treat stormwater for reuse and/or discharge to receiving waters.



Galvanised Steel Tree Grate



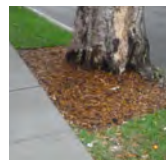
granite surrounds with porous fill



concrete pavers with porous fill



decomposed granite



mulch in turf



trees in mass planting



tree in parking bay, steel grate with frame



rain garden



tree guard

Technical Specifications
B2, B10

Refer to the City of Sydney Street Tree Master Plan 2011.

Street Trees and Landscaping

Verge Treatments

Planted or turf verge treatments are promoted to reduce the extent of paved surfaces and provide separation between the footpath and the roadway.

The location of planted verges needs consideration to ensure access to parked cars and utilities is maintained.

The City supports the use of verges for food production and community gardening in certain areas, and interested community groups should approach the City for approval in accordance with the *Greening Sydney Plan* and the *City's Community Gardens Plan*.

Key design considerations for verge treatments include:

- **Containerised Treatments**

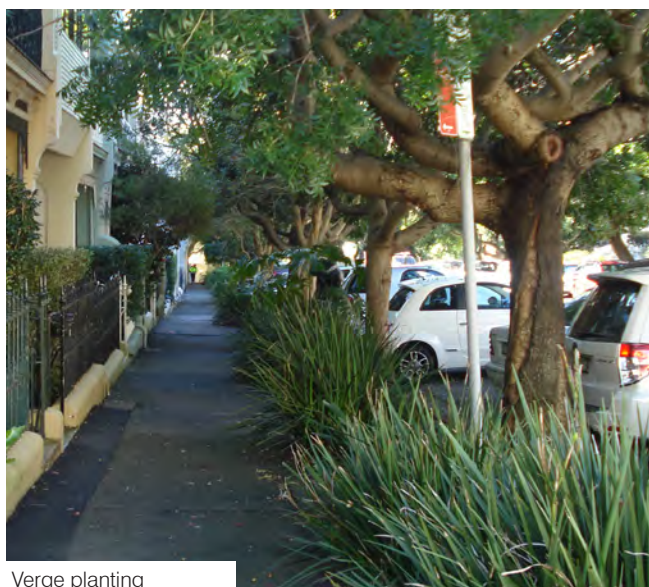
The City's Living Colour program contributes to the public domain by providing annual floral displays and hanging baskets in areas that cannot support permanent landscaping or planting. This planting provides an unique detail and identity to a street and neighbourhood.

The City supports permanent in-ground planting over containerised planting in most cases, and containerised treatments should be limited to Village Centre main streets and important civic or ceremonial locations only.

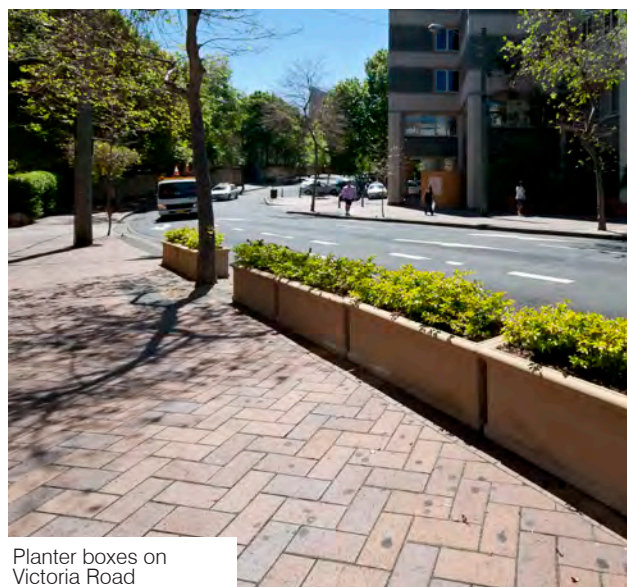
- **Footpath Gardening Planter Policy**

The City has developed a Footpath Gardening Planter Policy to guide residents and businesses through the assessment and inclusion for planter boxes or nature strip gardens. Design considerations include:

- The placement of planter boxes must not obstruct the pedestrian accessibility of the Pedestrian Zone;
- Planter boxes on the pavement should be positioned in the Public Domain Furniture Zone;
- allow enough clearance between the kerb, services and utilities; and
- Planter boxes may have to be moved to allow access by utility service providers and the roads authority.



Verge planting



Planter boxes on Victoria Road

Technical Specifications
B2, B4, B5, B10, C1, C2, C7

Refer to the City of Sydney Community Gardens Plan, City of Sydney Living Colour program, Footpath Gardening Planter Policy.

Street Trees and Landscaping

Water Sensitive Urban Design

Sustainable Sydney 2030 calls for a Water Sensitive Urban Design (WSUD) approach to planning and delivering urban forms including streetscapes. WSUD not only addresses the issue of stormwater pollutants being discharged to our waterways but also provides the benefits of contributing to cooler micro climates and biodiversity of plant species.

There are several devices and means that can be used to achieve water sensitive urban design objectives. Examples of such devices include;

- Permeable pavers;
- Verge gardens and nature strips;
- Infiltration units;
- Wetlands; and
- Raingardens (bio-retention units and filtration).

Out of the above, raingardens (also known as bio-retention devices) are preferred WSUD

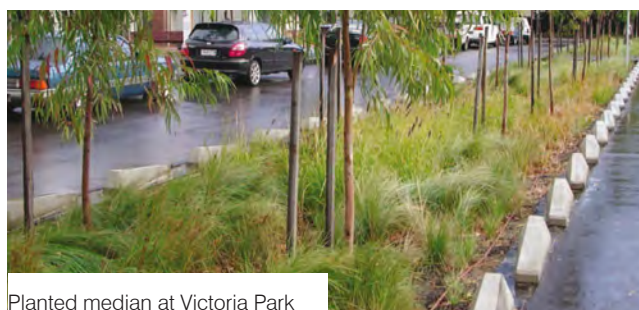
streetscape devices because;

- They are simple and resilient WSUD elements as they incorporate physical, chemical as well as biological breakdown of pollutants;
- They are practical devices to integrate in streetscapes and the public domain; and
- They provide the multiple benefits of filtering stormwater along with enhancing the biodiversity and contributing to cooler microclimate.

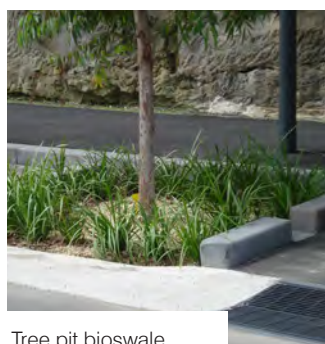
WSUD tree pits (infiltration pits) should be used where appropriate (design levels and drainage permit) to receive water runoff from surrounding roads, properties and footpaths and to treat stormwater for reuse and/or discharge to receiving waters.



Raingarden, Chippendale



Planted median at Victoria Park



Tree pit bioswale

Technical Specifications

B2, B4, B6, B10, C1, C2, C3, C7

Street Trees and Landscaping

Planted Medians

A central planted median can increase the streets aesthetics as well as narrow the carriageway, to reduce vehicle speeds and improve pedestrian amenity. They provide opportunity to further enhance the streetscape by introducing green elements, and provide additional stormwater control.

Key design coordination considerations for planted medians include:

- Median widths must accommodate appropriate widths depending on street tree type and size, root control and drainage;
- Footpaths should not be reduced in width to provide space or additional width for medians; and
- Permeable surfaces, street trees, and under-storey planting, drought tolerant plant materials should be used wherever safe and feasible.



Maddison Street central median

Technical Specifications
B2, B4, B10, C1, C7

Public Domain Furniture

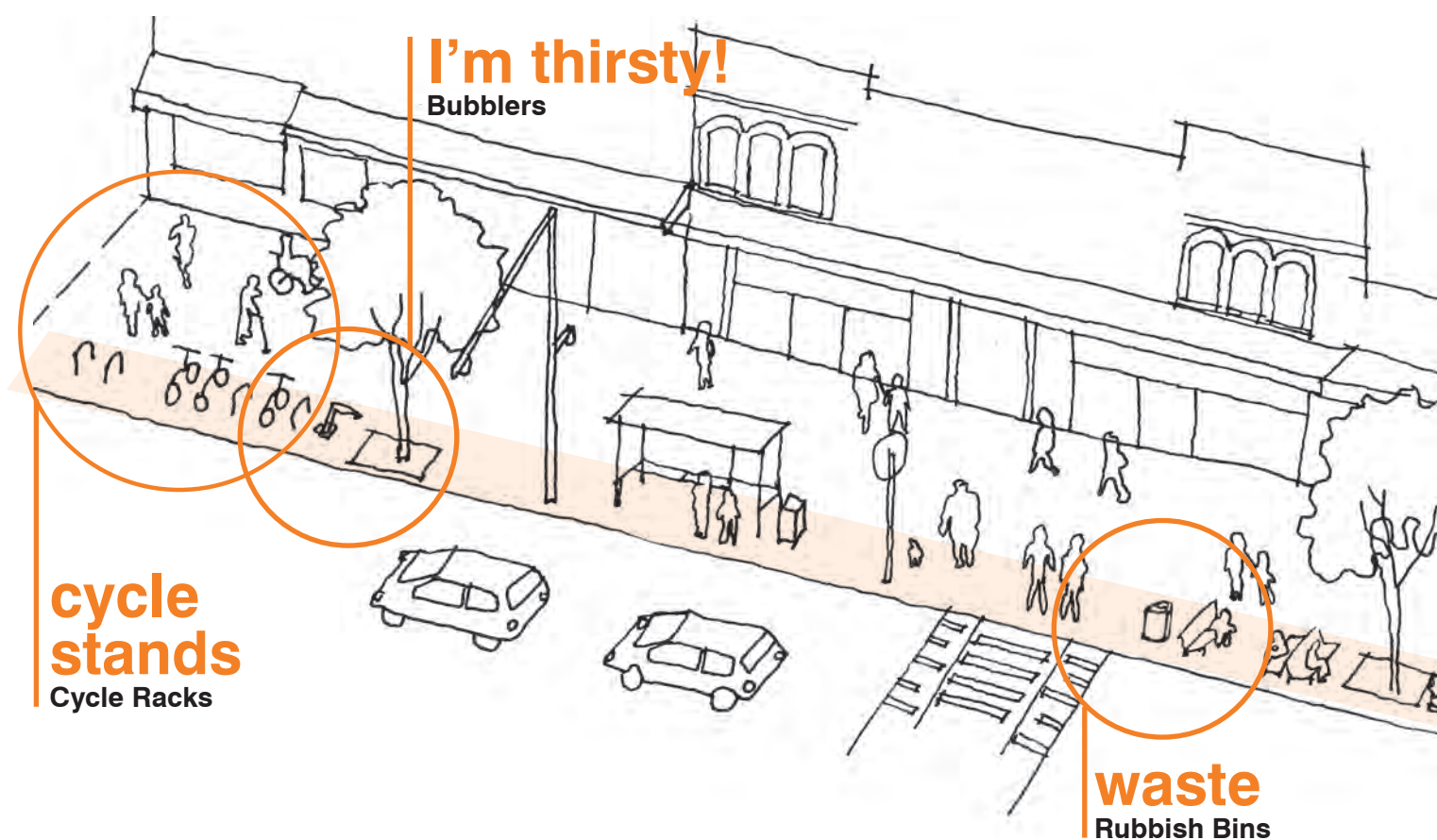
Public Domain Furniture and elements form an integral part of the public domain identity, reinforce the public domain character, provide important amenities for pedestrians and add functionality and vitality to the public realm. They include seats, bubblers, bicycle racks, bollards, kiosks, rubbish bins, parking meters, public art, streetscape signage, traffic and parking sign.

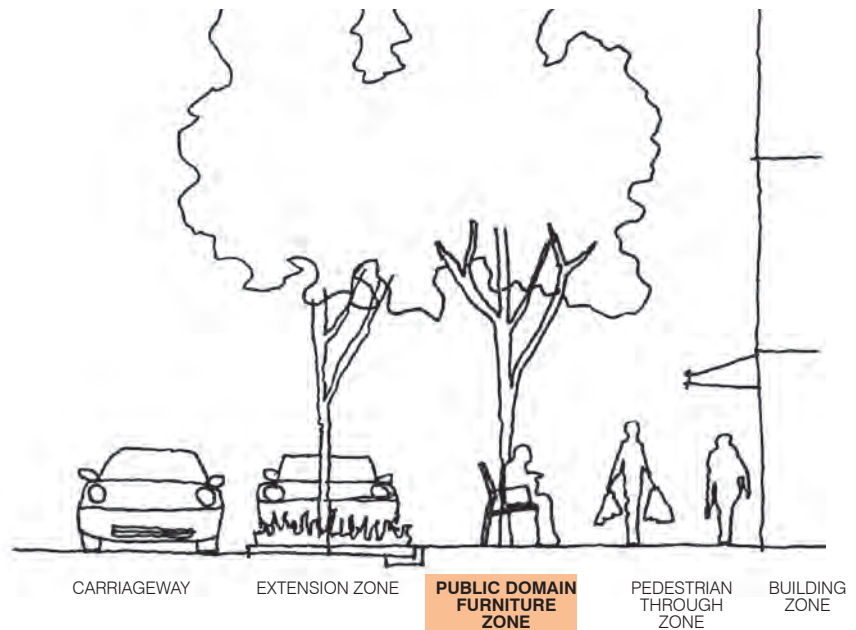
To read as a coordinated family of elements and achieve a coherent streetscape character, the public domain furniture needs to use a consistent design language including colour, form and detailing.

For furniture palettes refer to Part C. For all detailing, fixing and technical specifications, refer to the companion document, *Sydney Streets Technical Specifications*.

Key design coordination considerations for public domain furniture following include:

- Siting and Spacing; and
- Signage.





safety

Bollards

- Bollards are primarily a safety element to separate pedestrians from vehicles.

where am I?

Wayfinding Signage

a place to relax

Seating

- Incorporation of seating and related amenities supports activity and use of the public domain and provides users with amenity.

Public Domain Furniture

Liveable Green Network

The Liveable Green Network is the City's pedestrian and cycling network that connects people to the City Centre, Village Centres and local neighbourhoods as well as to public transport, education and cultural precincts, major parks and recreation facilities.

The *Liveable Green Network Strategy and Master Plan Report June 2011* provides the overall master plan principles and route assessments while the *Liveable Green Network Implementation Plan 2012* provides a framework and process to prioritise and co-ordinate existing and proposed works.

As well as improving connections and access, amenities such as seating, bubblers, lighting and public toilets are also important components to provide a comfortable public domain so as to encourage pedestrian and cycling activity.

Liveable Green Network Amenity Provision Principles

Pedestrian Node Concept

Pedestrian facilities ideally should be co-located at gathering and resting places rather than haphazardly spread out along a street.

Location

Facilities should be located within the existing Street Furniture Zone or creation of additional space by widening footpaths or extending kerbs particularly at intersections or mid-block.

Considerations include:

- Required setbacks from kerb;
- Clear paths of travel for equal access;
- Group facilities together in simple compositions; and
- Use of kerb extensions to co-locate facilities to maintain clear path of travel where footpath width is constrained.

Refer to the *Liveable Green Network Implementation Plan 2012* and the *Greening Sydney Sydney Plan*.

Public Space

Use of adjacent public space including street closures, parks and urban spaces that have good presentation to the street provide opportunities to provide facilities without limiting access along the footpath.

Frequency of Provision

| | LGN Walk Priority Routes |
|------------------------------|---|
| Seats | Generally every 100–250m with max 30–50m spacing along main Village Streets. |
| Bubblers | Every 500-800m. Optimal co-located with adjacent open space and street closures. |
| Bins | As required at identified gathering areas including major bus stops and on commercial and retail strips. |
| Bike Parking | At identified destinations such as main Village Streets and public transport hubs. |
| Bollards | As required. |
| Public Toilets | Optimally should be associated with adjacent public space. Locations as identified in City of Sydney Public Toilet Strategy. |
| Lighting | As required. |
| Landscape Treatments | Greening Sydney program Street tree, verge landscape treatments. Village Main Streets – include Living Colour/ Flower hanging baskets |
| Water Sensitive Urban Design | As required. Tree irrigation pits/ rain gardens. |
| Wayfinding | As required at decision making locations. Include use of node and directional signage elements. |
| Public Art | As identified by City of Sydney <i>City Art - Public Art Strategy 2011</i> . Nodes / intersections to assist legibility. |

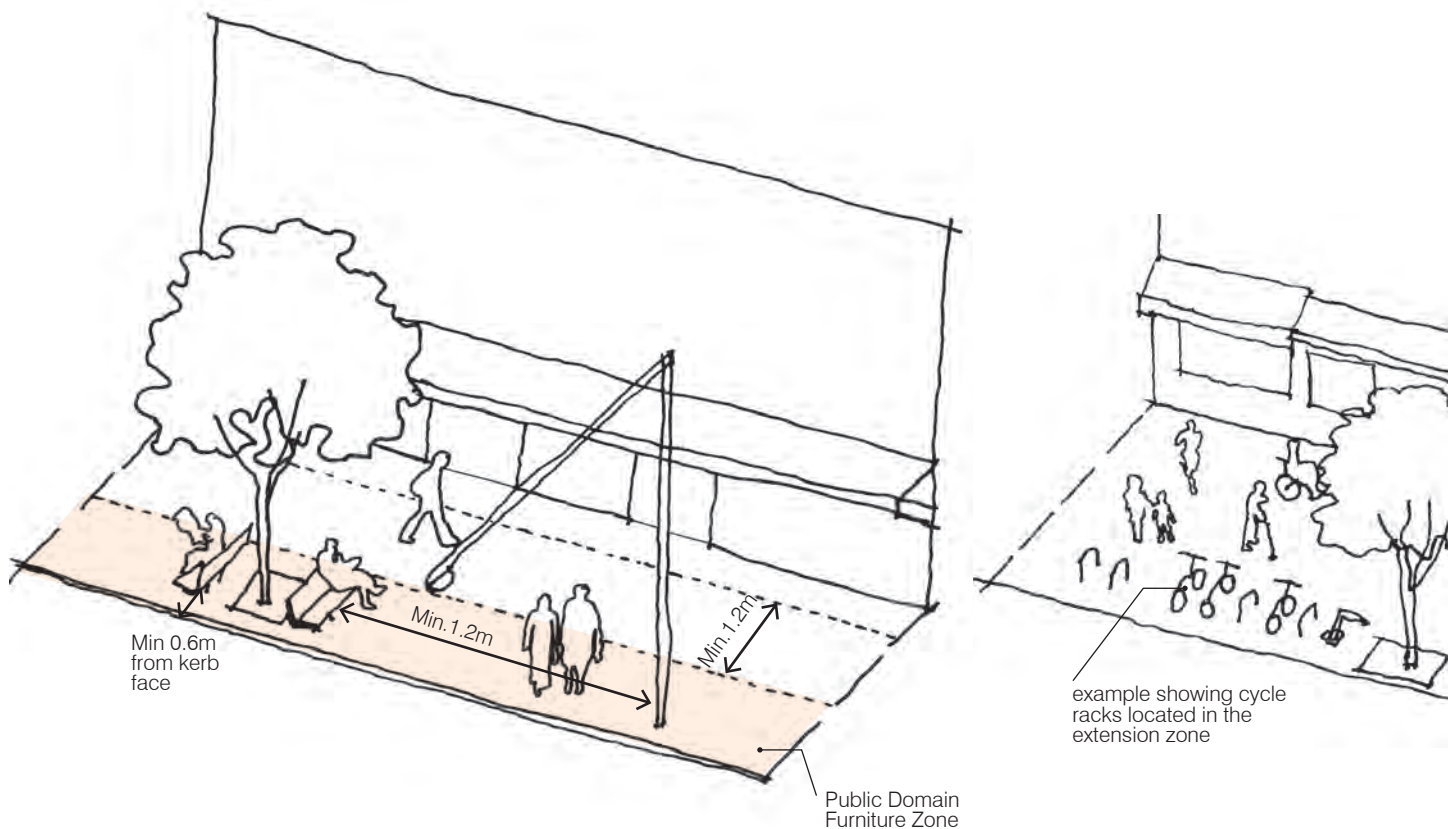
Public Domain Furniture

Siting and Spacing

All elements of public domain furniture must be sited within the Public Domain Furniture Zone.

Key design coordination considerations for the siting and spacing of public domain furniture include:

- All furniture must be located a minimum of 600mm from the street kerb face, seating is preferable to be located 1m from the kerb face for safety;
- Spacing between elements;
- Seating can be located as units or as singular elements and can be located near street trees for public amenity;
- Bollards must be limited in use to minimise visual clutter on the street and should be used only where necessary, subject to City approval and must comply with access and safety requirements;
- Where there is room, cycle racks should be located within clusters on the street; and
- Shelters and Kiosks must be sited with consideration for facilitating pedestrian movement and must not conflict in location with high levels of pedestrian movement.



Technical Specifications
B7, C4

Public Domain Furniture

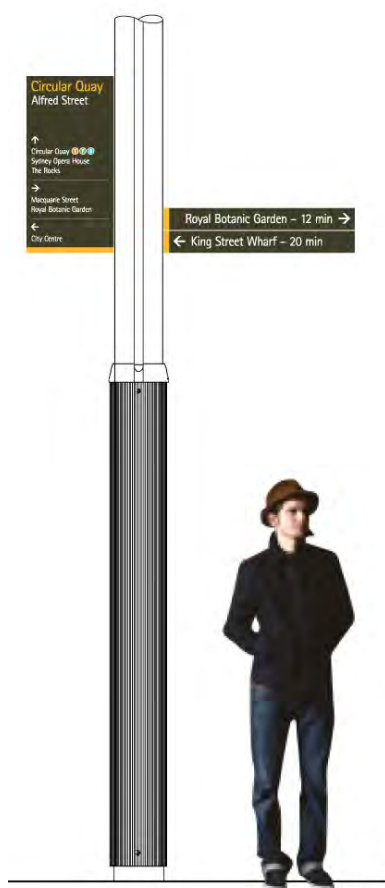
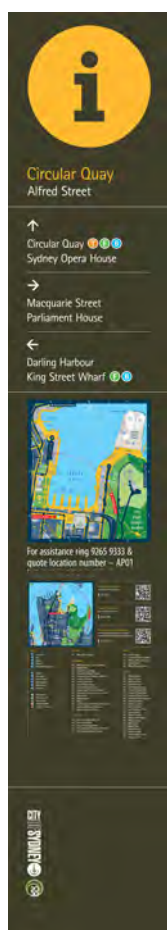
Signage and Wayfinding

A coordinated suite of signage is an important component of achieving a legible and quality public domain. The City has adopted a Wayfinding Strategy 2012, as is currently reviewing the Signage Code and policies to achieve a reduction of clutter as a result of unnecessary and incoordinate signage.

There are two types of public domain signage;
1. wayfinding information displays that map key locations within the city; and
2. regulatory signage.

Key design coordination considerations for signage include;

- All signage must be located within the street furniture zone, and with consideration for facilitating pedestrian movement around all sides; and
- Attach signage where possible to existing poles and structures to reduce proliferation of additional poles in the streetscape.



Indicative illustrations of the City's Wayfinding sign

Technical Specifications B7, B9, C6

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Street Lighting

Street lighting works in conjunction with street trees as an organising element to establish the rhythm of the streetscape. Street lighting including roadway, pedestrian and cycleway lighting helps define a positive urban character and supports night time activities.

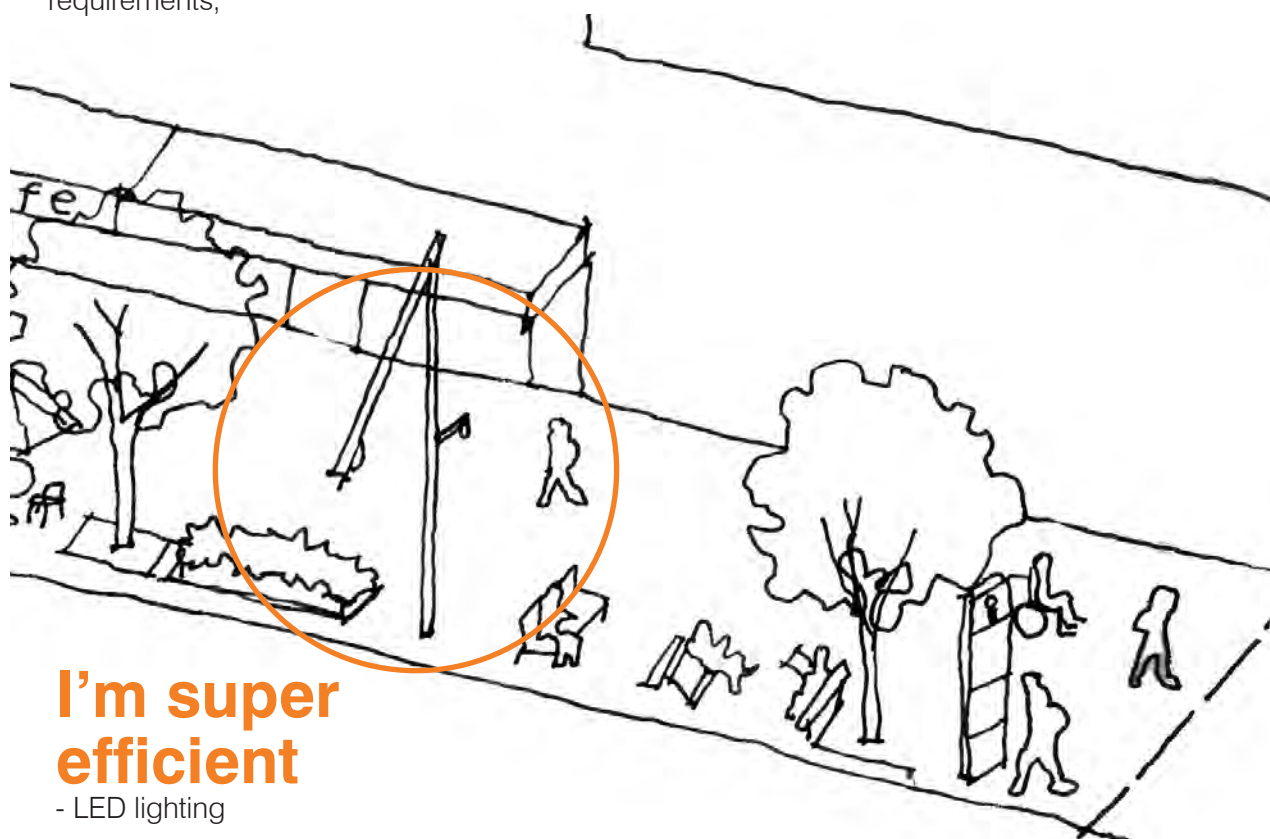
The City has prepared an *Interim Sydney Streets Lights Code 2006*, which plans and details the application for lighting across the city. The City of Sydney is currently reviewing the standard light fittings with regard to energy efficiency and amenity on footpaths.

The key design consideration outcomes are:

- Improve pedestrian amenity through lighting footpaths and cycleways;
- Choose highly energy efficient light fittings such as LED, to City specifications and requirements;

- Reduce visual clutter in streets by locating on existing poles or undergrounding cabling where possible;
- Choose a light fitting that is an appropriate pedestrian scale to City specifications and requirements;
- Comply with Australian Standards for footpath lighting.

Refer to *Interim Sydney Streets Lights Code 2006* (currently being updated) for further details on the lighting palette, spacing technical specifications of light fittings and required lighting levels and technical applications for lighting luminaires and required lighting levels.



I'm super efficient

- LED lighting

Technical Specifications
B8, C5

**Refer to the Interim City of Sydney Street
Lights Code 2006 (or as amended).**

Street Lighting

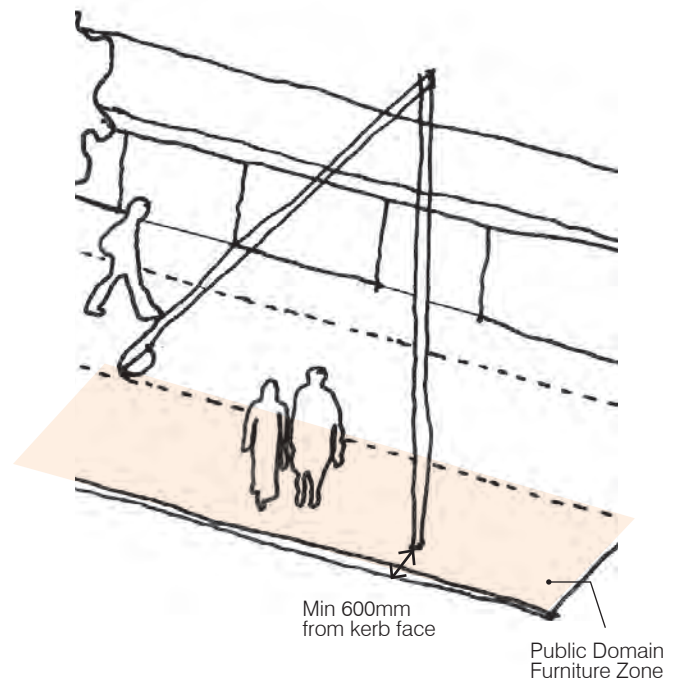
Siting and Clearance

Light poles must be located within the Public Domain Furniture Zone, and should not impede into the Pedestrian Zone. Refer to the *Sydney Streets Code Technical Specifications* for all construction details.

The locations must be coordinated with other street elements such as street trees, landscaping, utilities and street furniture. Appropriate clearances must be maintained between all other street elements including street trees and public domain furniture.



Appropriate distance between street trees and public domain furniture must be considered.



Technical Specifications
C5

Refer to the Interim City of Sydney Street Lights Code 2006 (or as amended).

Cycleways

The City of Sydney is developing a comprehensive bicycling network to provide facilities for cyclists of all abilities.

The level of provision for different route types will depend on local conditions, issues, constraints and traffic management. The selection of an appropriate treatment types for routes is a function of a number of parameters including carriageway width, anticipated bicycle volumes, vehicle traffic volume and local conditions.

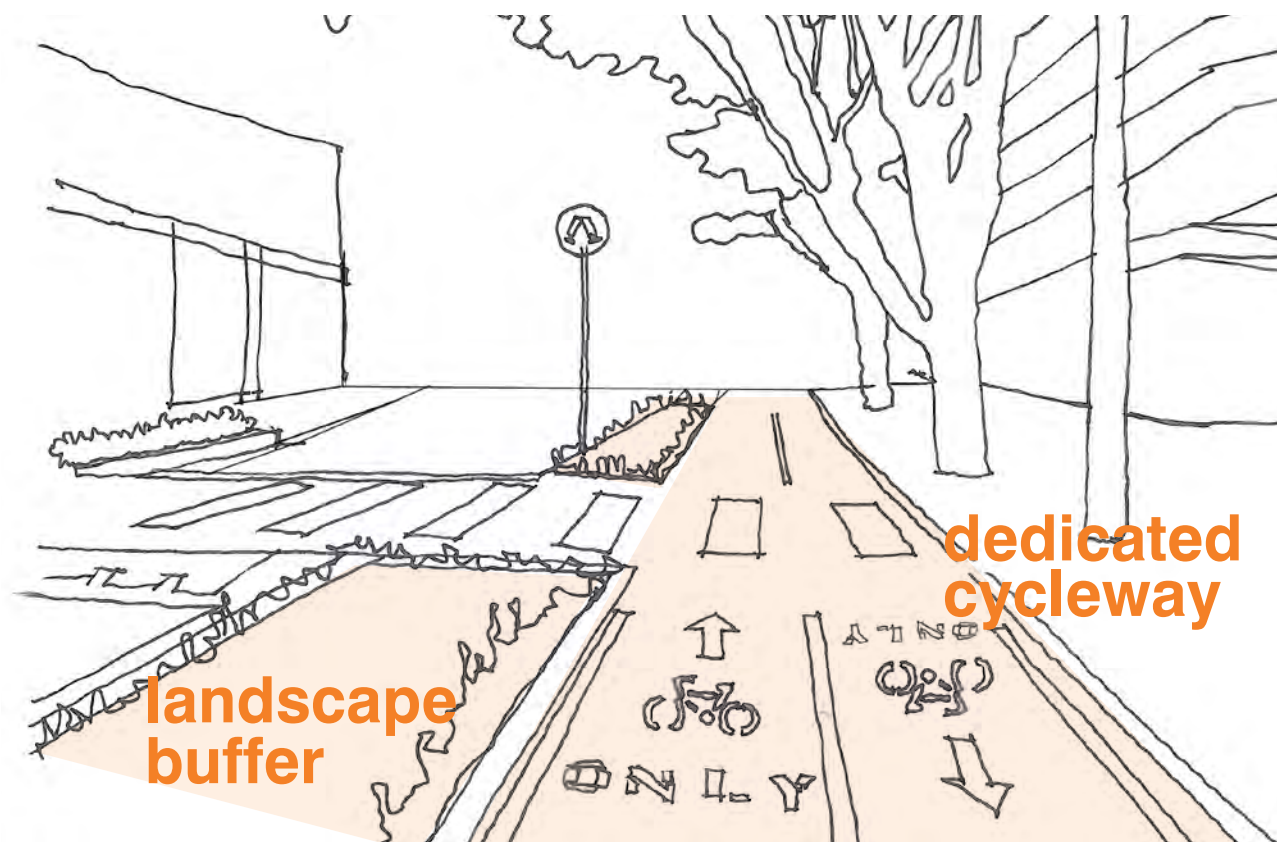
The range of bicycle infrastructure that is being rolled out that has implications on street layout and design includes:

- Separated bi directional bicycle lanes;
- Shared paths;

- Marked lanes on roads; and
- Bicycle parking; future hire schemes site planning, use of kerb extensions and parking areas.

The long term vision for bicycle paths in the City is that they will integrate seamlessly in the street fabric, and that measures such as green identification paint, will not be required.

A dedicated cycleway is only considered for streets that are designated for such treatments under the City's *Cycle Strategy and Action Plan 2007-2017* and subsequent cycle planning . This document will outline specific details in future revisions when details become available. Refer to the City of Sydney Cycle Strategy and Action Plan and contact Council for further information.



Technical Specifications
B5, B7, B9, C2, C6

**Refer to the City of Sydney Cycle Strategy and
Action Plan 2007-2017**

Public Art

Public art is an important aspect of major streetscape design projects. On a large scale, public art has the ability to unify a district with a theme or identify a neighbourhood gateway. At a pedestrian scale it can assist in wayfinding and provide visual interest for pedestrians.

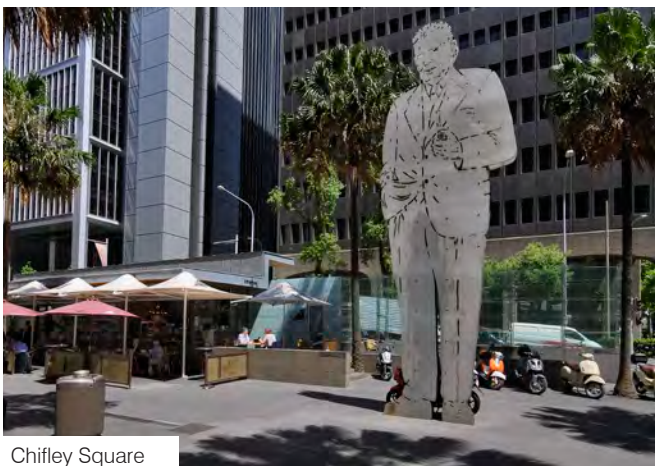
Public art can imbue beauty and symbolic meaning as both independent installations and into functional objects such as seats, grates, railings, to create a sense of place and identity.

Public art proposals will be subject to a City of Sydney approval process outlined in the City of Sydney *Public Art Policy and Guidelines 2010*. The *City Art - Public Art Strategy 2011* sets out a clear vision for

public art in Sydney. The Draft Public Art in New Development Policy and Guidelines 2013 should be referred to for all private sector and government projects.



Underworld, Taylor Square



Chifley Square



Angel Place, Bird Cages

