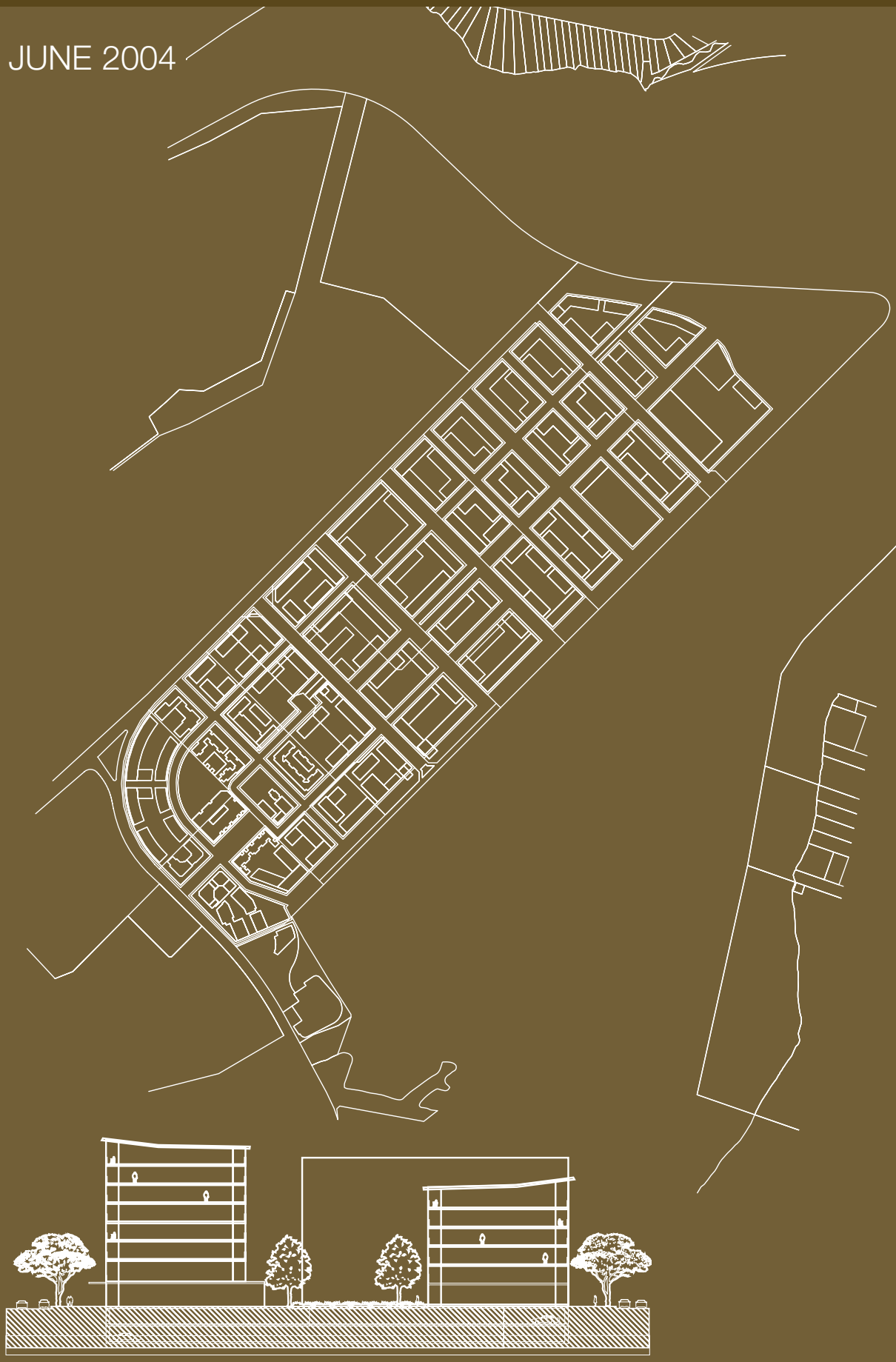
DCP

Department of
Infrastructure, Planning and Natural Resources

urban | design | ADVISORY SERVICE

JUNE 2004



Homebush Bay West
DEVELOPMENT CONTROL PLAN

Prepared by
Urban Design Advisory Service

For
Department of Infrastructure,
Planning and Natural Resources

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Printed June 2004
ISBN 0 7347 0439 9
03-135C

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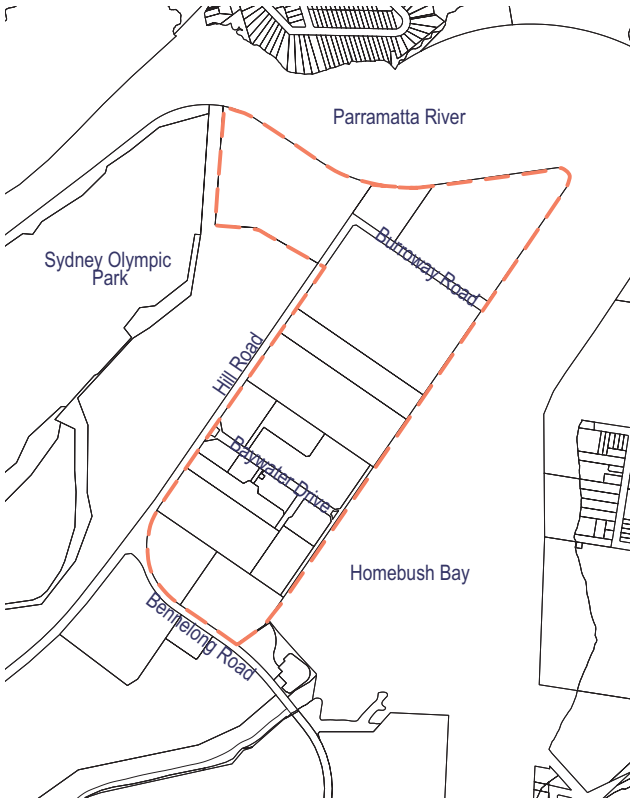
1.1 INTRODUCTION

The Homebush Bay West precinct is an area of marked change. Much of the peninsula is land reclaimed for the industrial uses which have characterised the precinct for the last 50 years. The 1999 Homebush Bay Development Control Plan established a broad direction for the urban structure and design controls which identified the site as suitable for a mix of uses including residential and commercial. After the staging of the 2000 Olympic Games and with the continuing development of Sydney Olympic Park as a regional recreational resource, the Department of Infrastructure, Planning and Natural Resources (DIPNR) acknowledged the need to review that document.

The Urban Design Advisory Service (UDAS) was commissioned to prepare a Structural Design Framework and a new precinct Development Control Plan (DCP). The Environmental Partnership was commissioned to prepare a Public Domain Manual. The Structural Design Framework establishes the key principles for coherent, whole of place development of the whole precinct. It forms a background document to the DCP and the Public Domain Manual. The Public Domain Manual forms volume 2 of the DCP and is required to be considered in the design of public domain elements.

All three documents have been developed through extensive consultation with stakeholders, including state government agencies, local government representatives, and property owners. The controls laid down in this DCP have been developed through extensive site analysis and built form testing.

Development proposals which are deemed to comply with this DCP may waive the requirement for a masterplan.



1.2 CITATION

This plan may be cited as the '**Homebush Bay West Development Control Plan 2004**'

1.3 LAND COVERED BY THIS DCP

This DCP applies to the precinct known as Homebush Bay West, being generally bounded by Bennelong Road, Hill Road, Homebush Bay and Parramatta River, as identified in Sydney Regional Environmental Plan No. 24 – Homebush Bay Area. The precinct covers an area of approximately 63.85 hectares excluding existing public roads.

1.4 INTERPRETATION

Terms in this DCP generally have the meaning ascribed to them in the Environmental Planning and Assessment Act 1979 and the Sydney Regional Environmental Plan No. 24 – Homebush Bay Area. Where the meaning of terms differ, definitions are included in the Glossary.

1.5 AIMS AND PURPOSE OF THIS DCP

This DCP provides more detail than the Sydney Regional Enviromental Plan No. 24 – Homebush Bay Area. The aim is to guide integrated development of the peninsula within an urban framework which is well connected and accessible, provides for a range of land uses and building forms, is clearly laid out and robust enough to support future change. Over time the precinct has the capacity to become a lively, well used and vibrant urban neighbourhood which benefits from and contributes to the high quality and amenity of its location and setting.

1.6 HOW TO USE THIS DCP

The DCP, including the Public Domain Manual which forms Volume 2 of the DCP, is required to be considered in the design of all development and the public domain in the Homebush Bay Precinct.

Each level of control, as outlined in Parts 2, 3 and 4 of this DCP, must be read and understood to guide any development proposal in the study area.

1.6.1 Understanding the background/urban structure [Part- 2 of this DCP]

Part 2 of this DCP contains a summary analysis of the study area, including opportunities and constraints, guiding principles and proposed urban strategies. It is intended to show how the primary controls in Part 3, and the street-based controls in Part 4, are underpinned.

After considering the relationship between the development site and its broader urban context, use Part 3 of this DCP to determine the controls which apply generally to all sites within the study area.

1.6.2 Using the general controls [Part 3 of this DCP]

This part outlines controls which apply generally to all sites within the area. It is divided into four sections: public domain systems, streets, public open space, and built form.

1 **Identify the site** in relation to any identified transport networks, public open spaces, pedestrian and cycle routes, and the waterfront and review the controls for these systems.

2 **Review the street and open space controls** for any existing streets and to help determine the scale of built form for any planned future streets within the site. Ensure that streetscape design is related to the role of the street within the street hierarchy, and that it is integrated with the building uses and massing.

3 **Review the primary built form controls which apply to ALL sites within the precinct.**
These controls include building height, building depth, building separation, street setbacks, building articulation and density.

4 When the urban structure, formed by streets, spaces and buildings, has been determined, use Part 4 of the DCP to **guide the detailed design** of the development proposal.

1.6.3 Using the detailed design guidelines [Part 4 of this DCP]

This part provides detailed information and guidance on best practice urban design criteria and how they can be applied to buildings. Use the information in this part to guide building design in relation to the following:

- Site configuration
- Site amenity
- Site access
- Building configuration
- Building amenity
- Building form
- Building performance

Following a review of the detailed design guidelines, commence the preparation of the site analysis and development of the design proposal.

1.7 PREPARING A SITE ANALYSIS

A site analysis is necessary to ensure that the development is of high quality, sensitive to its environment and positively contributes to its context. A thorough site analysis will ensure that site layout and building design addresses existing and possible future opportunities and constraints of both the principal site and its surrounds. **This site analysis needs to be linked with the Design Framework principles for the whole peninsula.** Within the indicative massing envelopes, there are numerous ways in which a building design can be resolved.

An analysis of the site and context is a fundamental stage of the design process, and should support many key design decisions relating to the proposal. The site analysis may assist in minimising issues relating to noise, overshadowing, community safety, access, views, privacy, energy consumption and waste generation.

Site analysis and design comprises three inter-related parts. Look at the site and its surroundings, to see what is existing. This will require **mapping** the qualities and characteristic of the site and its local context. Then, develop a series of **design principles**, which in turn should lead to, and inform a number of **design responses**, any of which may be appropriate.

The Applicant must demonstrate to the consent authority that the site analysis has been utilised in preparing the design for the site and that due consideration has been given to the opportunities and constraints identified. The analysis may then be used to critically assess the success of the proposal in its response to the features of the site and its context.

A site analysis drawing must be based on a survey drawing produced by a qualified surveyor and contain a reference number and date. Site analysis should include plan and section drawings of the existing features of the site, at the same scale as the site and landscape plan, together with appropriate written material. Information required in a site analysis may include but is not limited to:

- site dimensions

- site area
- north point
- location of site in relation to shops, community facilities and transport
- form and character of adjacent and opposite buildings in the streetscape, including both sides of any street that the development fronts
- location and use of any existing buildings or built features on the site
- location and important characteristics of adjacent public, communal and private open space
- location, use, overall height (in storeys and metres) and important parapet/ datum lines of adjacent buildings
- location and height of existing windows and balconies on adjacent properties location, height and characteristics of adjacent walls and fences
- location of major trees on site and on adjacent properties
- street trees, identified by size, botanical and common names
- topography, showing spot levels and contours 0.5 metre intervals for the site, adjoining streets and land adjoining the site
- views to and from the site
- prevailing winds
- orientation and overshadowing of the site and adjoining properties by neighbouring structures and trees
- geotechnical characteristics of the site and suitability of development
- pedestrian and vehicular access points (existing and proposed)
- location of utility services, including electricity poles, stormwater drainage lines, natural drainage, kerb crossings and easements
- significant noise sources on and in the vicinity of the site, particularly significant noise, odour or pollution sources.
- assessment of site contamination, proposed remediation strategy and a statement from a recognised expert that the site can be remediated and made suitable for the proposed uses
- street frontage features including poles, trees, kerb crossovers, bus stops and other services
- characteristics of, and distance to any nearby public open space
- information on any nearby bushland or environmentally sensitive land

1.8 PRE-DEVELOPMENT APPLICATION PROCESS

Discussions with the consent authority are encouraged at an early stage in the development proposal process to discuss and agree the overall design approach before a detailed building design is developed. The intent is to have the locality analysis available so that parameters can be agreed rather than providing the analysis only at the DA stage, thus saving time and costs associated with revisions and major modifications.

The Homebush Bay (western foreshore) development assessment protocoal for State signficant development encourages Auburn Council involvement at pre-DA and DA stages. (See also 1.10 below)

For pre-development application discussions, the proposal is usually in sketch form, showing the broad design strategies for the site layout and building mass and illustrating the design issues, such as the internal layout of the building, its adjoining private and public open spaces and the opportunities and constraints of the local context. Design options may be appropriate to illustrate a variety of solutions for discussion, particularly on large or difficult sites.

Where development will be staged, it is still important that planning for the whole site, not just the subejct areas, is undertaken. This will enable a more informed assessment of the particular stage in the context of the completed development.

1.9 PRE-DEVELOPMENT APPLICATION SUBMISSION REQUIREMENTS

For applications to the consent authority, a list of all material recommended for submission at pre-DA stage is given below:

1.9.1 Scale - Local

Submission - Local context sketch plan - 1:5000
showing:

- the site to be developed
- significant local features such as water courses, heritage items, buildings and construction areas
- existing buildings, shopping and employment areas
- traffic and road patterns, pedestrian routes and public transport nodes
- parks, community facilities and open space
- existing development controls

Submission - Streetscape elevations - 1:200 or 1:500

- photographs for at least 50m in both directions, or the three adjacent properties in both directions, whichever is the lesser
- for sites with multiple street addresses, photographs should be prepared for each separate address
- properties opposite the site should also be documented in the same manner

Submission - Aerial photograph - 1:1000 or 1:2000

- Aerial photographs of site and context, in colour

1.9.2 Scale - Site
Submission - Existing site plan - 1:500
showing:

- site boundaries
- spot levels and 1 metre contours
- existing significant vegetation , built and topographic features
- location and height of adjacent buildings, their window locations and private open space.

Submission - Analysis - 1:500

- A drawn and written explanation of the local and site constraints and opportunities revealed through the above documentation.

Submission - Sketch concept plan - 1:500
showing:

- the indicative footprint of the proposal
- site entry points
- areas of communal open space and private open space
- indicative ground plane treatment, indicative locations of planting and deep soil zones
- any proposed site amalgamation or subdivision.

1.9.3 Scale - Building
Submission - Building organisation sketch - 1:200 or 1:500
showing:

- the general location and size of vertical and horizontal circulation of lifts
- communal facilities
- servicing points
- indicative apartment location, size and orientation.

Submission - Sketch building mass elevations - 1:500 or 1:200
showing:

- basic massing of the proposal in the context of the three adjacent properties in each direction, or 50m in each direction, whichever is more appropriate, on each elevation.
- the components of the elevations (base, middle, top; primary elements) in a diagrammatic form
- building separation along the street
- the profile of any existing buildings

Submission - Sketch sections - 1:500 or 1:200
showing:

- the proposal and adjacent buildings
- the relationship of the proposal to the ground plane, streets and open spaces

Submission - Image board
showing images of precedents relevant to the proposal including:

- entry treatments
- materials used
- design of balconies
- use of landscape elements
- courtyard spaces

Submission - Schedule

- Indicative density/number of apartments or shops, etc

Submission - Brief statement

- An explanation of the proposal in terms of the 10 design quality principles set out in Part 2 of State Environmental Planning Policy No. 65

1.10 DEVELOPMENT APPLICATION PROCESS

The Applicant is encouraged to have pre-lodgement meetings with the consent authority prior to lodgement of the DA [Development Application].Once the required number of pre-lodgment meetings have been conducted, the Applicant can proceed with the lodgement of the DA (The application fee is to be confirmed with the consent authority prior to DA lodgement).

The following will be considered by the consent authority when determining Development Applications:

- Section 68 of the Local Government Act 1993 and Clause 12 of the Local Government [Approvals] Regulation;
- Section 79c of the Environmental Planning and Assess ment Act 1979;
- Relevant SREPs and DCPs;
- Council Policies and Guidelines;
- Submissions received from the public;
- Auburn Council Section 94 plans;
- Sydney Olympic Park Authority Act 2001
- relevant determinations of the Land and Environment Court; and
- approved masterplans.

A protocol is in place to ensure that the interests of both State Government and Auburn Council are adequately addressed in the assessment process and development outcomes, and must be adhered to. The Homebush Bay (western foreshore) Development Assessment Protocol for State Significant Development provides for Council involvement at pre-DA stage and throughout the Development Application process.

Applicants within the Sydney Olympic Development Area (which includes Homebush Bay West) are required to notify the Sydney Olympic Park Authority in writing of their intention to lodge a development application for major sites of not less than 10,000 m2 or resulting in not less than 20,000 m2 of built space.

Transport and traffic modelling is necessary to determine development impacts both within and beyond the peninsula, and is envisaged as a process involving contributions from all developers.

1.11 DEVELOPMENT APPLICATION SUBMISSION REQUIREMENTS

A list of all material to be submitted by the Applicant at DA stage has been given below.

1.11.1 Scale - Local

Submission - Local context sketch plan - 1:5000
showing:

- the site to be developed
- significant local features, parks and open space, heritage items and buildings
- existing buildings on site
- traffic and road patterns, pedestrian routes, bus stops and train stations
- shopping and employment areas and community facilities
- significant natural features and water courses, conservation areas, sensitive
- natural areas and their setbacks

Submission - Streetscape elevations

- Drawings or photomontage for at least 50m in both directions, or the adjacent three properties in both directions, whichever is more appropriate.
- For sites with multiple street addresses, photographs should be prepared for each separate address.
- Properties opposite the site should also be documented.

Submission - Aerial photograph - 1:1000 or 1:2000

- Aerial photographs of site and context, in colour.

1.11.2 Scale - Site

Submission - Existing site plan - 1:500
showing:

- site boundaries
- spot levels and 1 metre contours
- existing significant vegetation, built and landscape features
- location and height of adjacent buildings, their window locations and private open space.

Submission - Existing site sections - 1:500 or 1:200
showing:

- at least 50m beyond the site in 2 directions, or showing three adjacent properties in either direction, whichever is more appropriate.
- building heights
- existing vegetation.

Submission - Analysis - 1:500

- A drawn and written explanation of the local and site constraints that demonstrates the opportunities and constraints of the site supporting the broad site planning principles and design decisions, and responding to reports relating to traffic, site drainage, daylight access, environmental design, etc.

Submission - Site plan - 1:500
showing:

- the indicative footprint of the proposal
- site entry points and areas of communal open space
- private open space, indicative locations of planting
- indicative ground plane treatment and deep soil zones
- any proposed site amalgamation of subdivision.

Submission - Shadow diagrams
showing:

- solar access to the site and adjacent properties at summer solstice (Dec 21), winter solstice (June 21) and the equinox (March and September 21) at 9.00am, 12.00 midday, 3.00pm and 6.00pm.
- shadows across key elevations
- shadows cast by approved and/or existing development.

Submission - Landscape plan - 1:200 or 1:500
accurately showing:

- building footprint of the proposal
- proposed site entries
- ramps, stairs and retaining wall levels
- lines of fencing, security and access points
- built elements (pergolas, walls, planters, water features)
- details of public, communal and private open space
- trees to remain and proposed trees/planting including species and size. Trees to be removed shown dotted
- deep soil zones and/or adequate soil depth for planting on structures
- detailed ground plane treatment with general materials and finishes
- indicated site lighting.

Submission - Terrain model

- An electronic model of the site at an appropriate scale demonstrating the existing and propsed RLs for the subject site and all other sites within the precinct. The model should include the RLs for the Millenium Marker, Hill Road and Burroway Road. The purpose of the terrain model is to assess how proposed ground levels relate to adjacent sites and to the peninsula as a whole.

1.11.3 Scale - Building

Submission - Floor plans - 1:100 or 1:200
showing:

- apartment layouts, corridors, lifts and stairs
- pedestrian accessibility and entries
- vehicle and service access
- parking
- communal facilities, services
- fenestrations, balconies etc.

Submission - Elevations - 1:100 or 1:200
showing:

- height and key datum lines
- building length and articulation
- the composition of the façade
- roof design
- existing buildings on the site
- building entries (pedestrian, vehicular and service)- profile of buildings on three adjacent properties in each direction or for 50m in each direction, whichever is most appropriate.

Submissions - Sections - 1:100 or 1:200
showing:

- adjacent buildings
- the relationship of the proposal to the ground plane, the street and open spaces
- the location and treatment of car parking
- building separation within the development and between neighbouring buildings
- ceiling heights.

Submission - Materials and finishes board
showing:

- representative materials, samples and colours of the proposal.

Submission - Photomontages

- Photomontages or similar rendering or perspective drawings illustrating the proposal in its context.

Submission - Schedules
schedules on a floor by floor basis providing information on:

- density of development
- number of apartments and aspect
- apartment sizes
- apartment types

Submission - Statement of Environmental Effects

- In written form, a table of description of the compliance of the development proposal with the objectives and controls laid down in this DCP.
- A written explanation of the proposal's response to the 10 design quality principles set out in Part 2 of SEPP 65.

Submission - Architectural Models - 1:100 or 1:200
Architectural models are required:

1. In residential development where the proposed development has a value of work exceeding $600,000.00 or a minimum of 6 dwellings (single storey developments excluded).
2. In commercial development where the proposed development has a value of work exceeding $2 million.

Models are to show:

- development on adjoining land (at least 3 adjacent properties in each direction and on the opposite side of the road), in block form
- architectural details of proposed development
- materials and finishes used
- landscaping details

1.12 RELATIONSHIP TO OTHER DOCUMENTS

This DCP should be read in conjunction with the provisions of the EP&A Act 1979, SEPP 56 - Sydney Harbour Foreshores and Tributaries, and of SREP 24 - Homebush Bay Development Area. SREP 24 contains land use objectives and controls for the precinct, and requires that Master Plans be in place prior to lodging a Development Application. The relevant instruments which apply can be confirmed by obtaining a Section 149 Certificate. The onus is on any prospective Applicant to check with if there are any additional or updated documents relevant to Homebush Bay West that should be considered when making a development application.

This DCP repeals the Homebush Bay Waterfront DCP (1999). Should there be any inconsistency between the provisions of this DCP and any other Development Control Plan, Policy or Code, the provisions of this DCP shall prevail, unless otherwise stated.

Masterplans prepared under SEPP 56 or SREP 24 are required to be consistent with the provisions of this DCP.

SEPP 65 – Design of Residential Flat Buildings, and the associated Residential Flat Design Code, apply to residential development within the precinct. The detailed design guidelines in this DCP supersede those in the Design Code where there is an inconsistency.

The controls in this DCP are derived from the design guidelines in the Structural Design Framework (July 2003) and supersede them.

1.13 THE CONSENT AUTHORITY

Subject to the nature and scale of development, consent may be either by Auburn Council or by the Minister for Infrastructure and Planning. Applicants are advised to refer to the relevant environmental planning instruments at the time of lodgment to confirm the appropriate authority.

1.14 ADOPTION OF THIS DCP

This Plan was adopted by the Director General of the Department of Infrastructure, Planning and Natural Resources on 3rd September 20004 and came into effect on 28th September 2004.

2.0 Introduction

The Homebush Bay West peninsula is strategically located near the geographic heart of metropolitan Sydney. It is poised to take advantage of its position adjacent to Sydney Olympic Park, with myriad recreational opportunities offered by the Park facilities as well as by the Parramatta River and Homebush Bay. The area is highly visible, though historically not physically well connected, from the northern shores of the river (Meadowbank), the eastern side of Homebush Bay (Rhodes peninsula), and from within the Parklands.

The DCP area forms the northern and eastern part of the peninsula. The area is bounded by Parramatta River to the north, the shore of Homebush Bay to the east, generally by Hill Road to the west (extending west to transmission line bordering Sydney Olympic Parklands) and Bennelong Road to the south.

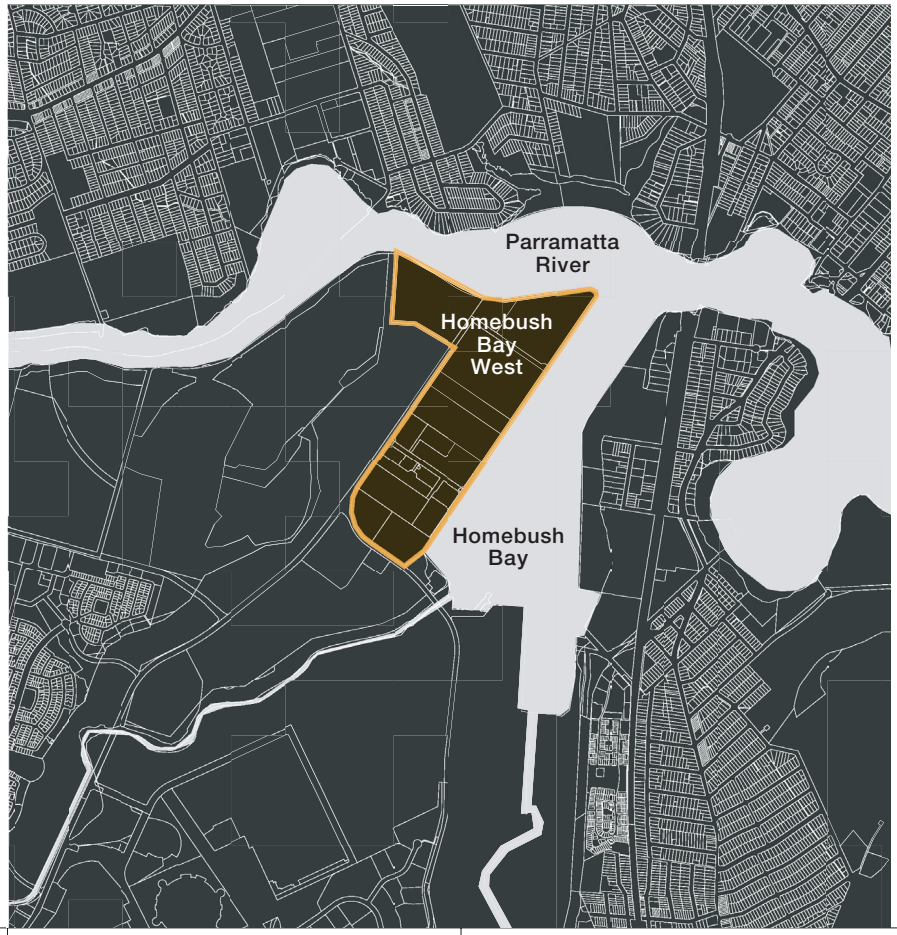
Homebush Bay West is adjacent to the Sydney Olympic Parklands and connected to them by existing pedestrian and cycle access. This strong relationship is embodied and enhanced in the principles underpinning the Structural Design Framework and in the guidelines and controls in this DCP.

PART 2 **BACKGROUND**

2.1 Regional Context

Homebush Bay West is a peninsula isolated from other developed areas by its water and parkland edges: Parramatta River and Homebush Way, and Sydney Olympic Parklands and Millenium Park. It is not well linked to existing services, neighbourhoods or public transport infrastructure, having only one road connection into the precinct. However, its proximity to regional open space, the water, and to Rhodes peninsula, contribute to its potential to sustain residential development. In particular, a physical connection across Homebush Bay linking to Rhodes Rail Station would enable and encourage use of rail transport for residents commuting to work and for visitors to the precinct and the Parklands.

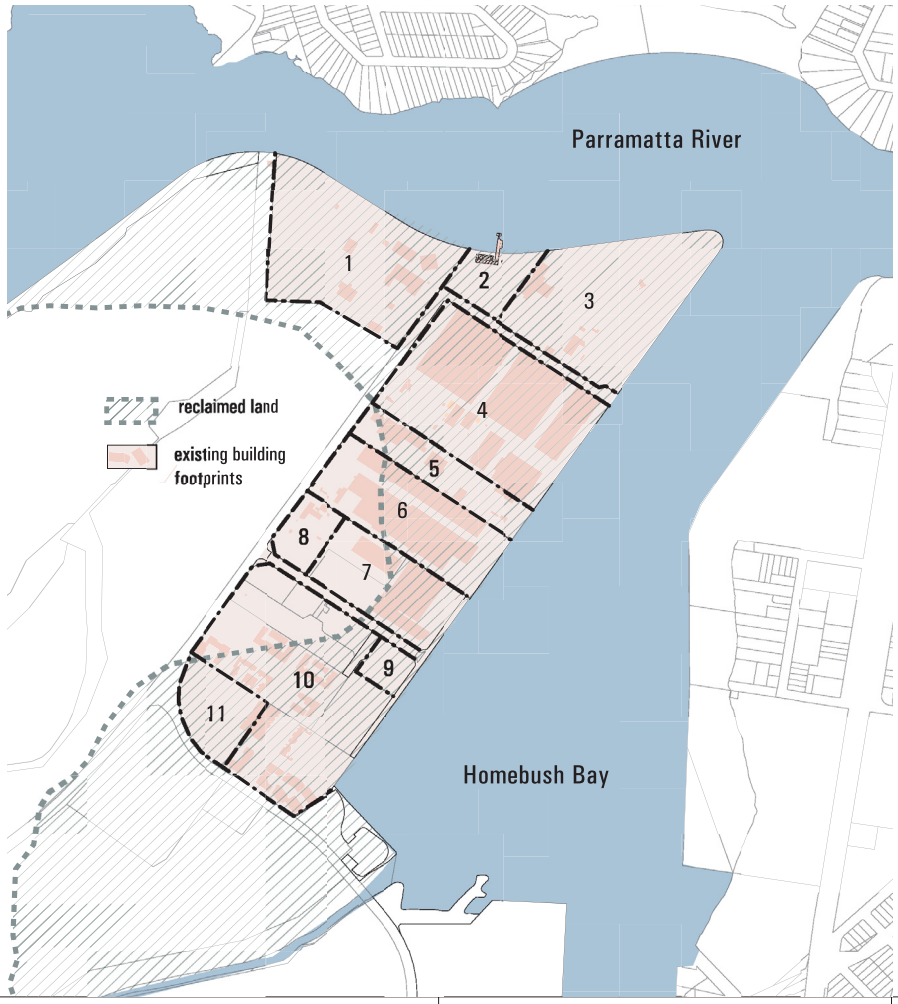
Some residential development has been undertaken at the southern end of the peninsula.. The existing low scale industrial development is visually relatively unobtrusive. The peninsula includes waterfront lands in the ownership of two authorities: Sydney Olympic Park Authority and NSW Waterways. The existing Water Reclamation and Management System (WRAMS) may be extended to new developments around Sydney Olympic Park, including Homebush Bay West. There is an opportunity for an integrated approach to managing the waterway.



2.2.1 DEVELOPMENT PARCELS & STAGING

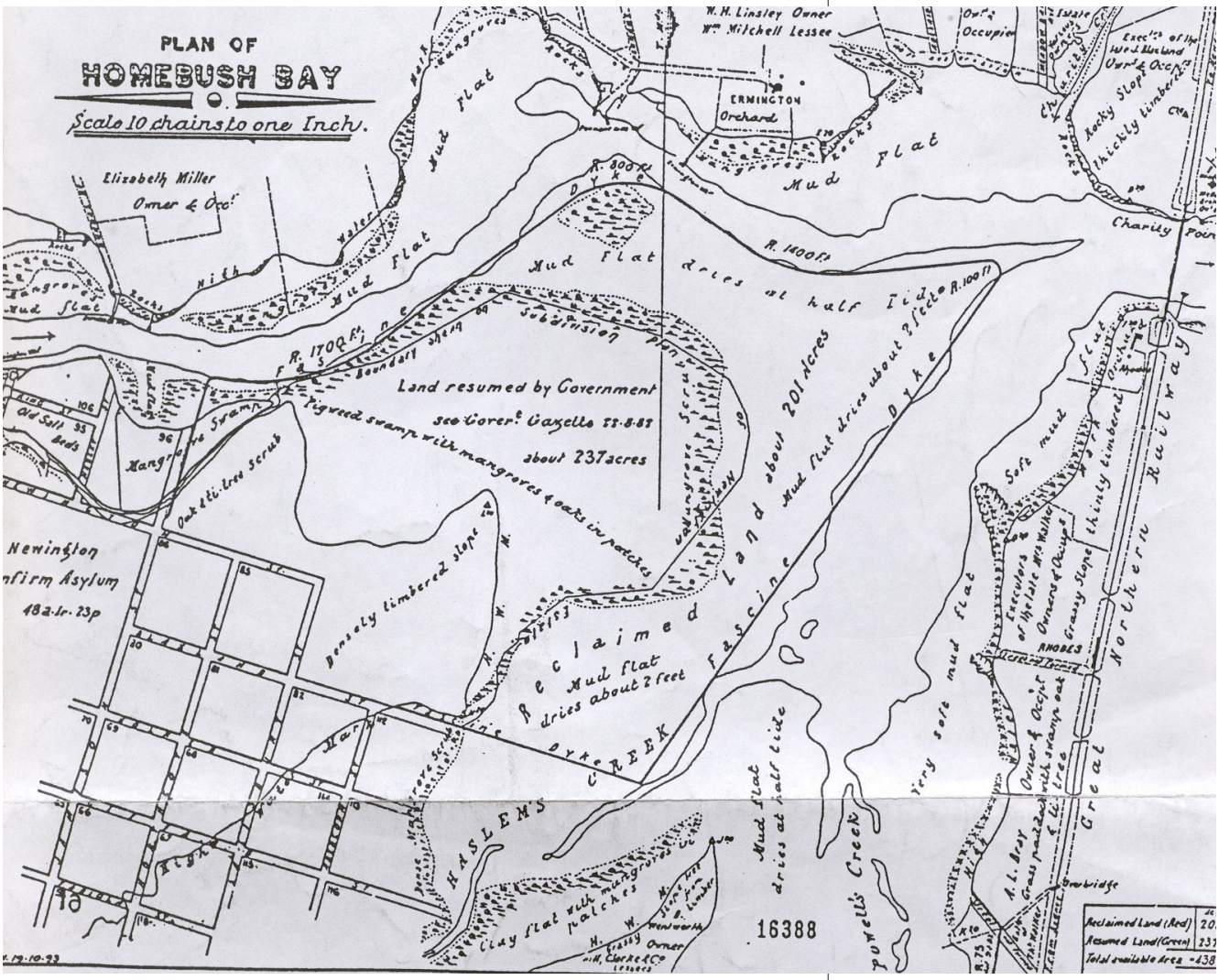
Homebush Bay West was created as a new precinct during the 1930s for industrial uses. Subsequent subdivision was into large, regular parcels running from the water's edge to Hill Road, constructed to access the site. Today, new residential development is beginning to create a new character for the precinct, particularly at the southern end of the peninsula, and is breaking up the large scale established by the existing industrial, warehousing and service uses. Land ownership changes have resulted in a series of subdivisions and new amalgmations, but the size and shape of the development parcels still lend themselves to an efficient street and block structure oriented to the lot boundaries.

The development parcels shown take ownership and leasing arrangements into account. Floor space and open space controls in Section 3.4.1 of this DCP are calculated on the basis of these development parcels, except where existing development or approvals, or particular constraints due to parcel size or shape, require that the provision of floor space and open space be calculated for an amalgamated area (for example parcels 8,9,10 and 11 together make up precinct F). Where there are existing developments or approvals, development of parcel is not constrained, so long as it can be demonstrated that the overall (amalgamated) controls are supported.



2.2.2 RECLAIMED LAND

Reclamation has significantly extended and 'regularised' the shoreline of the original peninsula. Almost all of the Homebush Bay West peninsula is on reclaimed land and as such is subject to particular geotechnical constraints which affect the siting and massing of buildings, particularly in regard to basement car parking. Reclamation of Rhodes peninsula in the same period and for the same uses as Homebush has created long, straight edges to Homebush Bay which give it a unique character. The edge condition is a particular challenge to the principle of contributing to public amenity through foreshore promenade design.



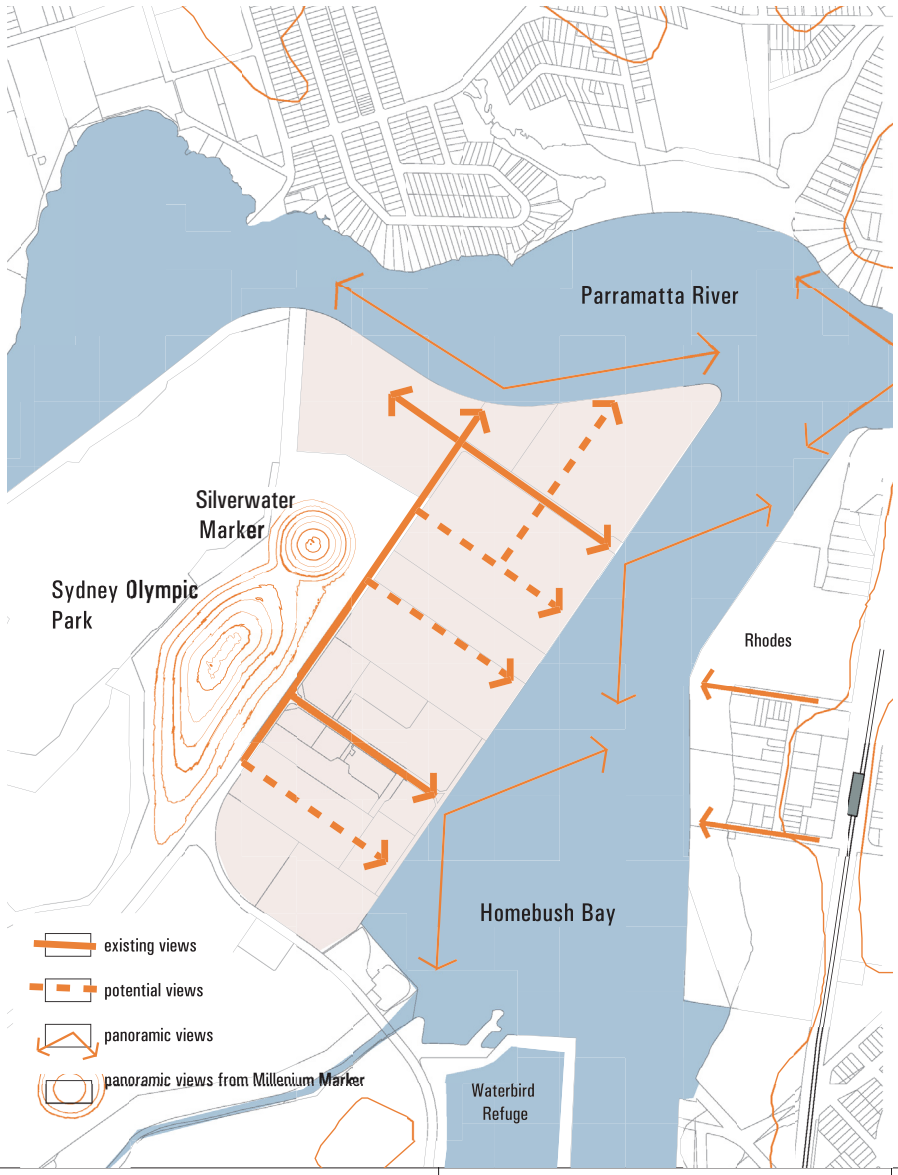
This 1893 plan provided by the Waterways Authority anticipates the eventual reclamation of Homebush Bay West by over 50 years.

2.2.3 TOPOGRAPHY AND VIEWS

The topography of the precinct is flat, with the water table little more than 800mm below ground level. Although the flatness of the land reduces the visual impact of the water, there are striking views: across the bay to Rhodes (mangroves, foreshore park and point park) along east-west streets; south to the green edge of Bicentennial Park and the Waterbird Refuge, and the barge hulks: and north to the shores of Parramatta River from Hill Road. The existing road pattern consists of a few long straight streets which allow distant views to the water and opposite shores, and enable people to orient themselves in relation to the area context. This characteristic is one of the strongest contributors to a unique 'sense of place' at Homebush Bay West.

The construction of the Millenium Marker for the Sydney 2000 Olympics has provided a new western edge to the precinct as well as an opportunity for panoramic views out and over Hombush Bay and Sydney Olympic Parklands.

Important views towards the precinct also include from the John Wotton rail bridge over Parramatta River, from Rhodes peninsula, from the water (including public ferry) and from Meadowbank on the northern shores of the river.



2.2.4 PUBLIC OPEN SPACE

The open space network is typically made up of open space along the river foreshores, particularly on headlands and in flood plains associated with river and creek systems. A regional cycle / pedestrian route runs along the northern bank of the river and crosses to the Rhodes peninsula via a dedicated lane on the railway bridge. The precinct is adjacent to a regionally significant area of environmentally sensitive open space, the Sydney Olympic Parklands, with the potential for strong links with significant public open spaces at Sydney Olympic Park. There is provision for continuous pedestrian and cycle access along the foreshore, linking the Parklands with Bicentennial Park.

While surrounded by a rich and varied open space experience, the historic uses within the precinct have not been suited to any open space provision except for road access. The exception is Wentworth Park, which while artifically constructed nevertheless echoes the typology of other point parks on the foreshores of Sydney Harbour.

2.2.5 EXISTING SITE FEATURES

The site is dominated visually by constructed rather than 'natural' features: the Millenium Marker, the transmission line, the radio masts (particularly at Wentworth Point), and most of all the 1.2 kilometre straight built edge to the Bay. West of the ferry wharf the built edge is softened by mangroves as the precinct gives way to the Wanngal Wetlands of Sydney Olympic Parklands. The subdivision pattern which is an important component of the cultural history of the site is reflected in the few existing streets. There are few significant trees. The intended continuous foreshore promenade and cycleway exists in part.

PART 2 **BACKGROUND**

2.3 DCP Objectives

The Homebush Bay West DCP establishes objectives and controls for new development to deliver an attractive, appropriate, high amenity and high quality environment for residents, workers and visitors. The DCP also acknowledges the visual and physical impacts of this precinct on the bay and the river, on Rhodes Peninsula and surrounding foreshores, and on Sydney Olympic Parklands, and is concerned to integrate new development in the public and private domains with its wider context.

A Structural Design Framework (SDF) was prepared as a background document to this DCP. The SDF addresses structural planning, urban design and development issues for the precinct as a whole. It was prepared in consultation with all landholders and sets out key principles for the urban structure: land uses, streets and blocks, public open spaces and built form.

The SDF and DCP conform to the requirements of SEPP 56 and the planning objectives of SREP 24.

2.3.1 IDENTITY –
Create an identifiable character for Homebush Bay West

i Retain and enhance views to water, opposite shores and ridges, including vistas along existing and future major east-west streets to the Bay and Rhodes, views from within the precinct north to Parramatta River, west to the Sydney Olympic Parklands and south to the wetlands and Powells Creek

ii Optimise the waterfront location by providing continuous foreshore access and links to open space within and surrounding the precinct

iii Design streets and public open spaces appropriate to the conditions of the site, particularly in relation to the waterfront, and to the uses

iv Retain and enhance the key elements of the urban structure: existing streets, established trees, the formed eastern edge of the peninsula, and the maritime focus to Parramatta River

v Build on the structure formed by the site's industrial character by aligning new streets with a grid formed by the subdivision pattern and the Hill Road and waterfront edges

vi Acknowledge the visual primacy of the waterfront by stepping building heights down from Hill Road to the water

vii Retain and enhance Wentworth Park as a public park typical of other point parks on Sydney Harbour

viii Design building heights and massing to enable views to the Millenium Mound as a backdrop to the precinct, and to protect views from within Sydney Olympic Parklands (ie. to the east) to the Mound as the highest element on the horizon.

2.3.2 LAND USES –
Accommodate and locate appropriately a range and mix of uses within Homebush Bay West

i Create a maritime precinct with boating and associated commercial and retail uses north of Burroway Street

ii Provide two neighbourhood nodes including commercial, retail and community uses: one associated with the transport interchange and maritime precinct; and a smaller one in the southern part of the precinct.

iii Provide small scale retail and leisure uses adjoining and opposite foreshore parks and plazas, including cafes / outdoor dining, clubs, boatsheds and facilities for water-related recreational activities

iv Provide for active ground floor uses on major east-west streets through flexible building design

v Provide adequate local open space for precinct residents and workers, and encourage use of regional open space within Sydney Olympic Parklands.

2.3.3 STREET AND BLOCK STRUCTURE –
Create a street and block structure that optimises legibility, permeability and efficiency

i Lay out streets to support the underlying subdivision pattern by aligning east-west streets with property boundaries and north-south streets perpendicular to them

ii Strengthen Hill Road as the major connector between the water and Sydney Olympic Park and an urban edge to the parkland areas

iii Design a street hierarchy that clearly distinguishes between the role and scale of major and secondary streets, to orient people within the precinct

iv Design the major east-west boulevards as 'green fingers' to help break down the scale of the precinct

v Provide a major north-south street that creates a new opportunity to link the interior of the precinct to the river visually and physically

vi Locate streets to capitalise on and enhance views to the Bay, the river and other surrounding areas, and any landmark features (including the Millenium Marker)

vii Encourage multiple movement choices for people, cyclists and vehicles by optimising the connectivity of the street network and minimising dead end streets

viii Optimise the accessibility of the foreshore promenade by connecting it with trafficked streets and pedestrian and cycle ways

ix Design block size and shape to increase permeability for pedestrians and cyclists, by generally limiting their length to 150 metres. On major streets where a continuous street frontage is required to contribute to commercial and retail activity and blocks are longer, provide through-block pedestrian links at maximum 100 metre intervals.

x Optimise the number of north-facing apartments by orienting blocks east-west; that is, with their longer dimension to the north.

xi Design streets to accommodate a mixture of transport modes, including pedestrians, cycles, buses where relevant, and moving and parked vehicles.

2.3.4 OPEN SPACE NETWORK –

Create a network of public open spaces that is strongly linked to Sydney Olympic Parklands, the foreshore edge and the water, and provides for a range of recreational activities

i Enhance the waterfront character of Homebush Bay West by designing the setback to the waterfront to allow for a variety of spaces and uses, including water-related uses

ii Protect and enhance the amenity of foreshore access by linking the foreshore promenade to streets, urban plazas and pocket parks

iii Contribute to the regional open space network by providing continuous pedestrian and cycle access linking Homebush Bay West to Sdyney Olympic Parklands, Bicentennial Park and existing foreshore access routes

iv Contribute to the regional pattern of point parks on the harbour and river foreshores by retaining Wentworth Park as public open space

v Offer a range of opportunities for recreation and relaxation, and to give 'breathing space' within urban areas, by providing a range of open spaces, including a park at Wentworth Point, three local parks spaced throughout the peninsula, and pocket parks and plazas

vi Design major east-west streets as generously planted boulevards which frame views to the water and create 'green fingers' linking the foreshore and water-related activities to the interior of the precinct.

vii Establish the importance of the foreshore promenade by designing it as 'one place', with a character established by tree and materials selection which is consistent with landscape initiatives for the wider context of the Sydney Harbour Foreshores

viii Provide a sequence of spaces along the promenade that each relate to a major east-west street and provide an activity focus at the water's edge

ix Design streets, parks and plazas with high amenity and high quality.

2.3.5 ACCESSIBILITY –

Increase and enhance the opportunities for pedestrians and cyclists to access the precinct and to move safely and comfortably within the public domain

i Consolidate publicly accessible facilities including any new community uses within the vicinity of the ferry / bus interchange

ii Create a maritime precinct with associated commercial and retail uses north of Burroway Street, linked to the foreshore and open space network

iii Create a neighbourhood node including commercial, retail and community uses in the southern part of the precinct

iv Design streets to accommodate a future bus route through the centre of the precinct

v Minimise the potential for conflicts between vehicles, pedestrians and cyclists through the design of footpaths, bicycle lanes, through block links, streetscape design, medians and kerb ramps, and by minimising the number of vehicular crossings over footpaths.

vi Encourage activity in and surveillance of streets by providing for active ground floor uses on major east-west streets

vii Locate and design buildings to provide passive surveillance of all public spaces

viii Provide publicly accessible facilities and small scale retail adjoining and opposite foreshore parks and plazas, including cafes / outdoor dining and facilities for recreational activities relating to the water

ix Provide a pedestrian and cycle bridge between Homebush Bay West and Rhodes Peninsula subject to determination in transport studies and appropriate funding arrangements.

2.3.6 ENVIRONMENTALLY SUSTAINABLE DESIGN –

Incorporate ESD principles into all stages of design, including the design of public spaces, block and site layout and built form

i Design blocks to deliver efficient subdivision and optimise north orientation for buildings, to minimise overshadowing and the negative impacts of wind on the public domain, to mitigate the visual impact of large scale development on Homebush Bay, and to define and appropriately frame parks and plazas

ii Control the quality of water entering Homebush Bay through the use of integrated water management strategies

iii Conserve water by minimising stormwater runoff, planting appropriate indigenous species with low irrigation needs, matching water quality with its intended use and using water saving devices

iv Promote ecological outcomes including shade and habitat by dedicating a significant proportion of the waterfront setback to riparian planting with a mix of species

v Control potential impacts on air quality by minimising car dependency, encouraging pedestrian and cycle movement and promoting the use of public transport

vi Minimise energy consumption by designing for daylight access and natural ventilation, passive heating and cooling and alternative energy sources

vii Retain the embodied energy in buildings by designing them as 'long life loose fit' that can be readily adapted for changing uses and are easily maintained.

viii Minimise resource depletion by selecting environmentally sustainable building materials in both the public and private domains, and by providing facilities for recycling

2.3.7 BUILT FORM –
Provide sensitive and high quality architectural and landscape design that contributes positively to the character of the public domain

i Distribute and design built form to define and enhance the spatial quality of streets, open spaces and the foreshore by aligning buildings to streets and to the edges of parks and plazas

ii Optimise sun access to streets and to public open spaces by minimising building bulk, ensuring adequate building separation, and orienting built form appropriately

iii Encourage high quality landscape design of public spaces, of the interface between public spaces and private development, and within new development

iv Encourage high quality architectural design of all new development

v Promote a series of public open spaces related to the waterfront setting which provide a high level of amenity for users, an attractive setting for adjoining development, and which visually and spatially link the public domain of Homebush Bay West with its context, including the foreshore of Rhodes Peninsula

vi Enhance the visibility and usability of foreshore public space both from within the precinct and from the water by designing the termination of major east-west streets as parks or plazas connecting to the foreshore promenade and water-related activity nodes.

2.3.8 HOUSING CHOICE –
Support opportunities for a diverse community by promoting workplace and housing choice

i Encourage long life loose fit buildings with a high level of adaptability over time as uses change, particularly on major east-west streets

ii Accommodate changing needs of the resident population by designing flexible apartment layouts

iii Provide accessible working and living environments for people with disabilities, older people and for prams and strollers

2.3.9 RESIDENTIAL AMENITY –
Provide a high level of residential amenity, including outdoor spaces as well as within apartments.

i Support the amenity and privacy needs of their occupants by providing apartments of appropriate size and configuration

ii Optimise the number of apartments, their living spaces and private outdoor spaces which benefit from sun access

iii provide attractive and comfortable communal open space areas by designing them to accommodate a range of different uses and be easily accessed from buildings

iv Integrate planting in internal courtyard areas with podium structures to optimise opportunities for large trees for shade, outlook and privacy

v Promote privacy from the street, particularly for ground floor apartments, by providing landscaped garden spaces within the setback zone.

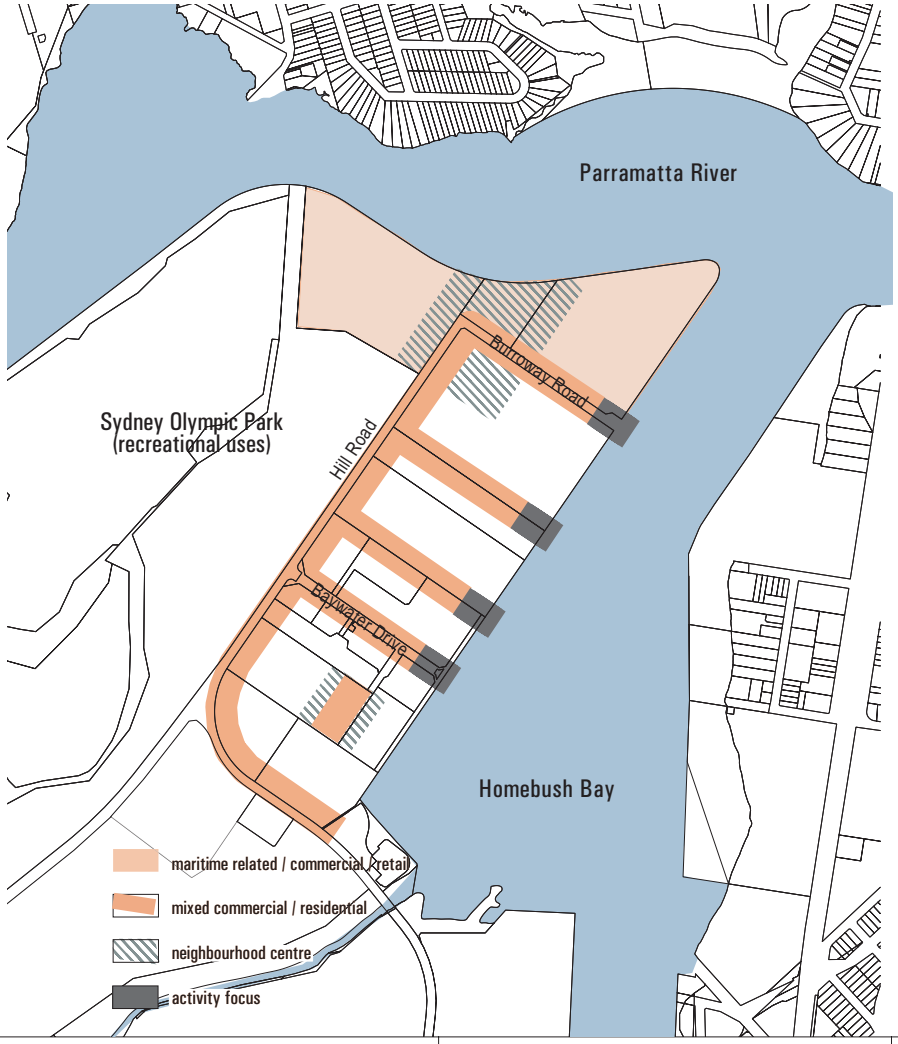
2.4.1 LAND USES

Homebush Bay West is uniquely placed to provide a high quality, high amenity environment with strong connections to the water and water-related uses. The Structural Design Framework acknowledges the increasing pressure of Sydney's growing population for accommodation within the metropolitan area by providing for higher residential densities. The SDF also supports the potential for the precinct to become an active and well used destination in its own right.

A maritime precinct on Waterways land at the northern tip of the peninsula may include retail and commercial-related maritime as well as boating uses and an educational facility on the eastern part of the Waterways site. Major roads will support a mix of commercial and residential uses, particularly ground floor commercial / retail uses. The termination of major east-west streets at the foreshore offers the potential for focal activity areas for leisure and / or outdoor uses. Where water access for small non-motorised craft is permitted along the foreshore, it is to be located in line with the major east-west streets.

An existing commercial zone within the southern part of the precinct will be supplemented by a neighbourhood centre focussed around the ferry terminal / bus interchange. Mixed commercial, retail and community uses, together with the water-related uses, will provide an attractive destination for recreational users of the precinct as well as servicing residents and workers.

The impact of surrounding land uses and potential conflicts between uses in the DCP area are important considerations for any new development.



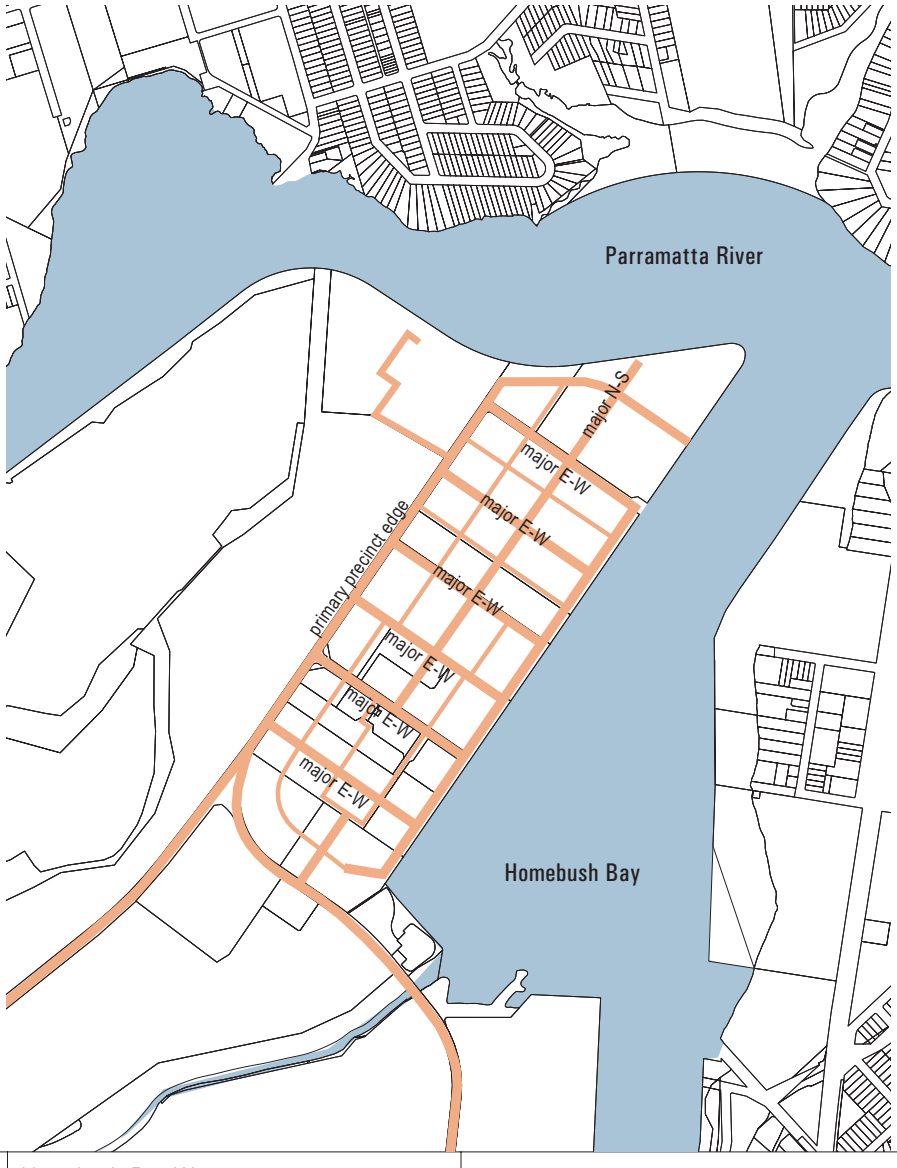
2.4.2 STREETS AND BLOCKS

The Structural Design Framework establishes an efficient and functional street and block structure with a well connected, legible and fine urban grain. Where possible, blocks are designed with the long side oriented north (along the east-west streets) to optimise solar access to buildings. Block sizes are to be optimal for their intended use.

New streets on the boundaries of major landholdings should be wholly within a boundary to facilitate staged development, except where adjoining owners jointly propose otherwise

The street hierarchy distinguishes between major and secondary streets. Major streets are wider, with more diverse uses encouraged and greater building height permitted. Secondary streets are narrower, with residential uses and lower building heights. All streets are publicly accessible.

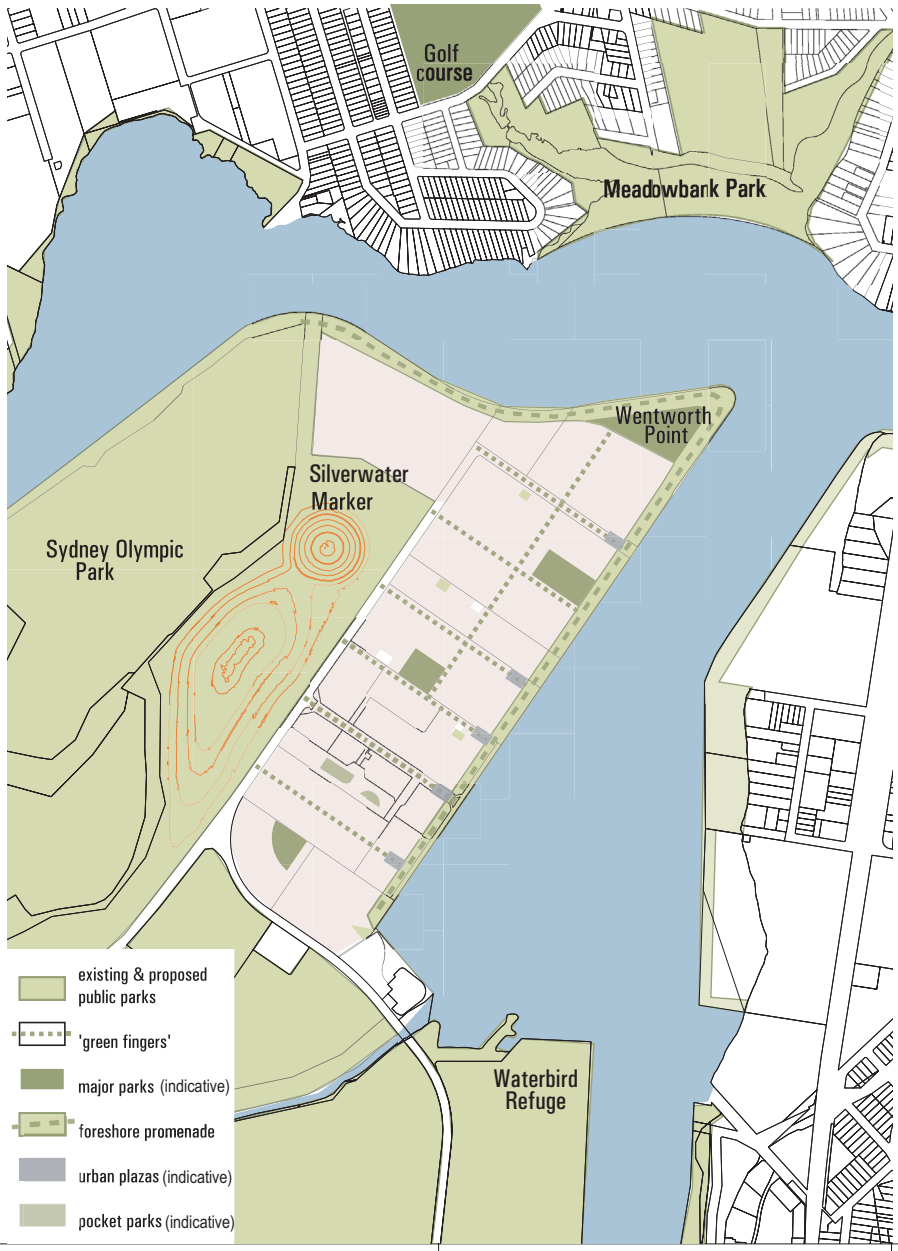
See Section 3.2 Street Hierarchy.



2.4.3 OPEN SPACE NETWORK

The precinct is surrounded by recreational open space and by water. This setting contributes to its unique character. Continuous foreshore access for walking and cycling will connect the precinct to Sydney Olympic Parklands. Additional future walking / cycle paths within the Parklands will enhance an already high level of amenity for users of the precinct and its surrounds. There is a richness and diversity of open space in the immediate vicinity, from foreshore walks to elevated views (from the Millenium Marker), to woodlands and wetlands. The waterways also constitute part of the open space network, used for recreational boating and fishing.

Within the precinct, increased density will require increased amenity, in the form of 'breathing space' for new development. Public open spaces are proposed along the promenade and in the form of medium-large parks, pocket parks and plazas. The open space should be distributed and designed to be used by as many people as possible. Pocket parks are encouraged to increase the amenity of areas within the precinct which are more than 200 metres from the water.

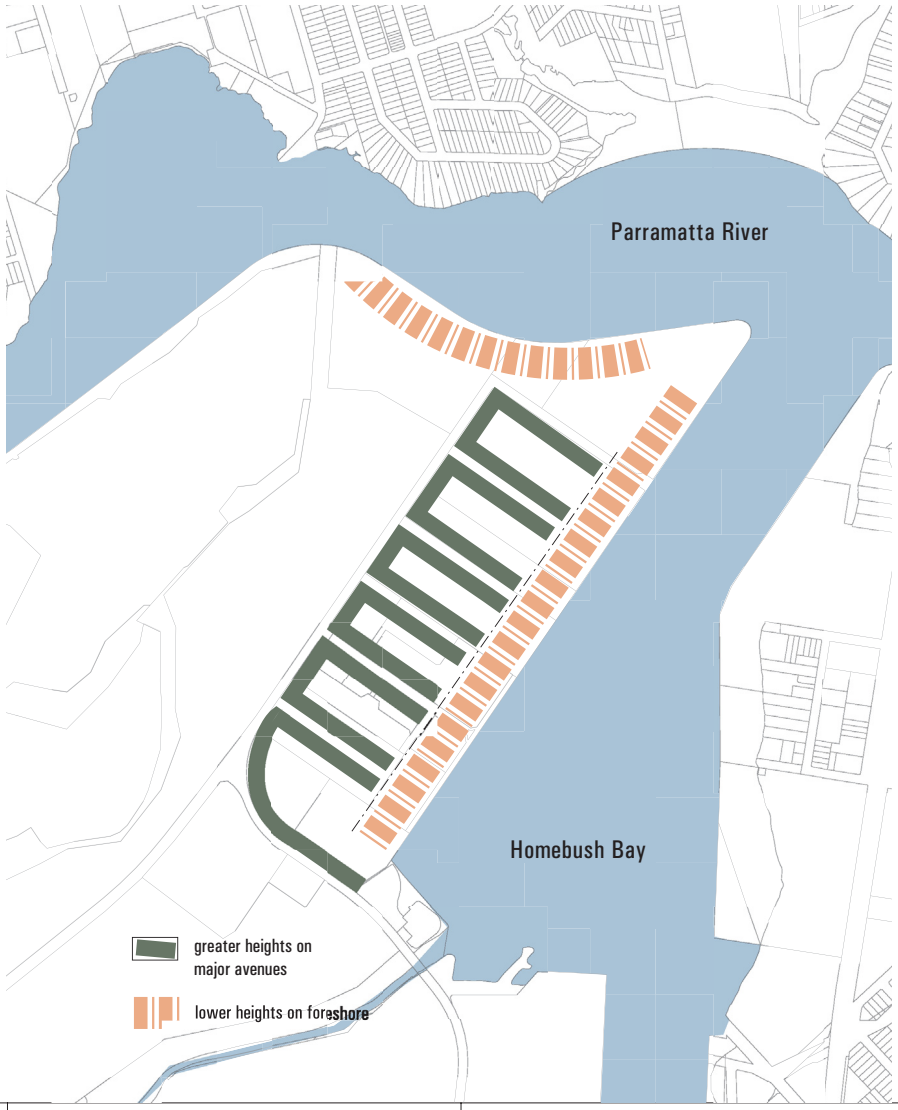


2.4.4 BUILDING HEIGHT AND MASSING

A key principle in the Structural Design Framework is that building heights relate to the street hierarchy and to broad design principles for the Sydney Harbour foreshore. Higher buildings on major streets are appropriate for the intended function, width, and design of these streets. This approach is also closely related to the principle of minimising the visual impact of built form from the waterfront. Higher buildings, associated with major streets in the hierarchy, are ranged perpendicular, not parallel, with the waterfront in order to break up building massing and to frame views along these east-west streets from and to the water, and from the water and Rhodes Peninsula to the Millenium Marker.

A transition in height to lower buildings on the foreshore is important to give the waterfront visual prominence, to allow for view sharing, and to retain a pedestrian scale for the foreshore promenade and associated public spaces.

The size, shape and orientation of blocks is important in providing for built form which contributes to the public domain and ensures high amenity for the private domain. Indicative blocks shown on the SDF have been developed and tested in relation to parking needs, pedestrian access, the desired spatial relationship of buildings and the public domain, building separation, solar access and views.

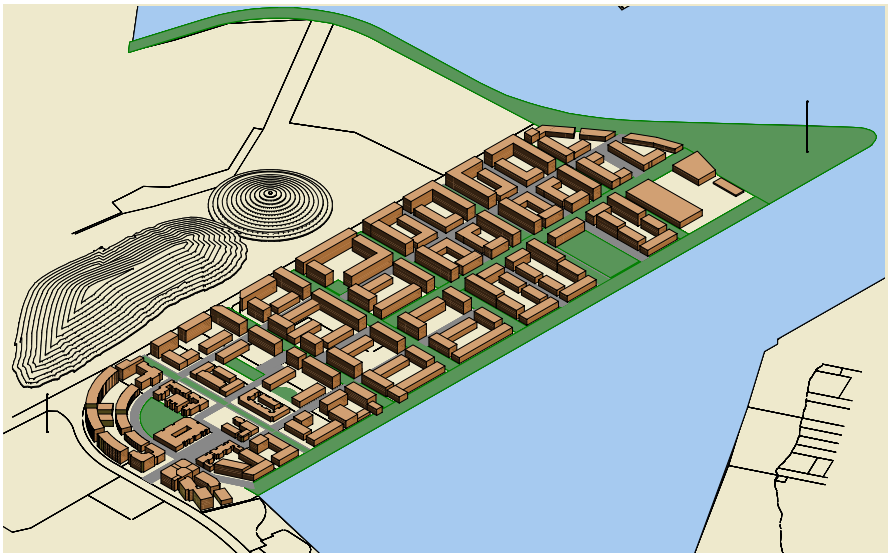


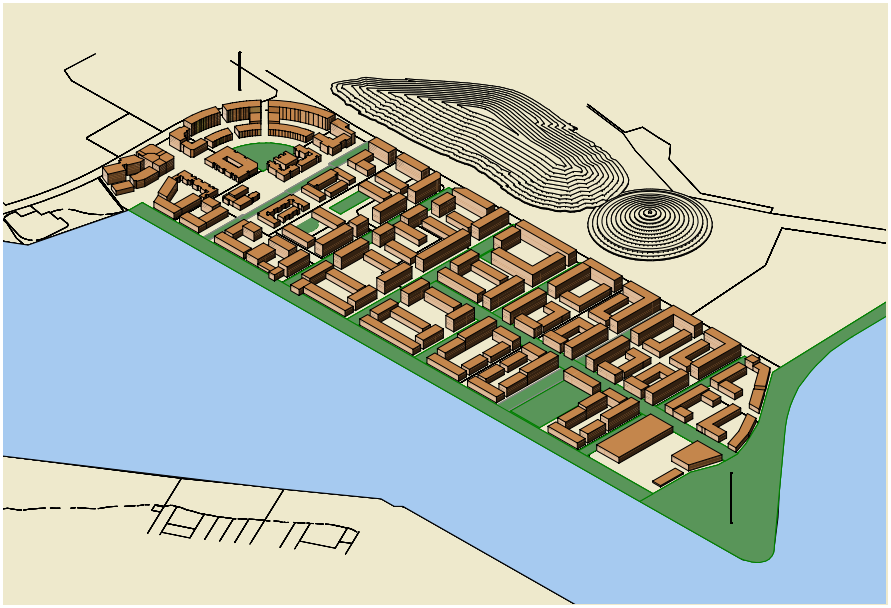
2.4.5 PRECINCT STRUCTURE

In summary the Design Framework has the following key structuring elements:

- An **open space network** based on clear and accessible connections between foreshore promenade, foreshore parks and plazas, major 'green' streets, and linear parks, pocket parks and urban plazas within the precinct
- A **street hierarchy** which establishes a major spine / edge, major east-west streets connecting to the water, a significant north-south street, and secondary streets.
- A **foreshore street** which may be discontinuous along the waterfront but which links into the street system as loop roads
- **Streetscape design** which reflects the street hierarchy and character
- Two **neighbourhood centres** to serve the new residential community: a minor activity focus in the south of the peninsula and a major neighbourhood centre at the north, optimising the relationship with the river
- **Built form** which has higher buildings on major streets, and a transition to lower building heights on the foreshore
- Building alignment to street frontages to create internal open spaces and adequate **building separation** for sun access, privacy and view sharing

2.4 Design Framework Principles





These envelope massing diagrams do not represent actual buildings. They show the broad principles of a perimeter block approach; higher buildings along Hill Road and on major streets running east-west to the water; and green fingers connecting these streets to park and promenade.

The location of new streets is indicative. There may be 4-6 major east-west streets distributed along the pensinsula.

3.1 Public domain systems

This section of the DCP should be read in conjunction with the Public Domain Manual, which supports the strategies and controls in this document. The Manual has been prepared to help guide implementation of improvements with a coordinated set of design and material principles for key public domain elements.

3.1.1 PEDESTRIAN NETWORK

The flatness of the topography means that the whole precinct is potentially easily accessible by foot, bicycle, with wheelchairs or strollers. The proposed street hierarchy and block structure provides clear visual and physical connections, and clear and inviting links to the waterfront from within the precinct. There is potential to link Homebush Bay West with the regional public transport system by way of a pedestrian and cycle bridge across Homebush Bay. This would create access to the Rhodes Railway station, and to other services, within 5 minutes' walk from the Homebush waterfront and 10 minutes' walk from the ferry. Conversely, this connection would also put the recreational and commercial facilities of Homebush Bay West within a walk of the Rhodes peninsula. The pedestrian network should be legible and well connected, offer high amenity and quality design, be safe and secure, and be accessible to everyone.

Performance criteria

i Provide a continuous pedestrian network through the precinct, along streets and through open spaces, conencted with and including the foreshore promenade

ii Optimise the number of possible journeys between destinations with an efficient and regular block layout

iii Enhance connections to the regional pedestrian network by linking to the Sydney Olympic Parklands path system at the north western foreshore boundary of the precinct, and to the Bicentennial Park path system and Powells Creek at the southern end of the peninsula foreshore

iv Provide a continuous foreshore promenade. Implement management strategies consistent with masterplan conditions to minimise potential conflicts between continuous pedestrian access and boat movement between dry stack area and the Bay within the maritime precinct

v Provide a clear alternative route for those times when continuous foreshore access is interrupted

vi Locate a pedestrian / cycle bridge linking Homebush Bay West and Rhodes peninsula as indicated on the plan

vii Locate pedestrian crossings to support pedestrian movement between destinations

viii Consider pedestrian movement when designing major building entries and through-block links

ix Provide paved footpaths in accordance with the street design guidelines in the Public Domain Manual

x Ensure that publicly accessible parks and plazas are contiguous with and fully accessible from pedestrian routes

xi Provide pedestrian routes which benefit from high levels of casual surveillance (overlooking from buildings, from the water, from adjacent well-trafficked areas)

xii Provide clear and direct pedestrian routes by designing them with good lines of sight to minimise concealment

xiii Design appropriate lighting for publicly accessible areas for their level of night-time use.

xiii Provide kerb ramps at all intersections in accordance with the Public Domain Manual.

3.1.2 CYCLE NETWORK

The cycle network at Homebush Bay West will provide links to existing regional cycle routes. It will extend and enhance the recreational network within the Sydney Olympic Parklands by completing a missing foreshore link between Sydney Olympic Parklands and Bicentennial Park with a dedicated cycle and pedestrian way. The foreshore cycleway will attract significant use and requires to be designed to a suitably high standard of amenity and appearance to represent Homebush Bay West to its visitors. At the northern tip of the peninsula the dedicated cycle route will travel along Burroway Road and around the outside edge of the boat yard to reconnect to the foreshore on Parramatta River. This is because of potential conflict with water-related uses within the maritime precinct and the need to control foreshore access at certain times.

Cycle use is encouraged. A well designed cycle network increases the convenience of access to neighbourhood facilities within an area as well as to services and facilities outside it. All public streets should be designed for safe and convenient cycle access. Dedicated cycle lanes will be provided on Hill Road, the primary vehicular entry to the precinct. There are connections for both cycles and pedestrians from Hill Road to pathways within Sydney Olympic Parklands.

There is potential to link Homebush Bay West with the regional public transport system by way of a pedestrian and cycle bridge across Homebush Bay.

Performance criteria

i Provide a cycle network through the streets

ii Provide dedicated cycle lanes along Hill Road in both directions

iii Design intersections and crossings along dedicated cycle routes that prioritise cyclists' safety and convenience

iv Provide a recreational shared pedestrian and cycle path along the foreshore promenade at a minimum width of 3.5 metres

v Connect the foreshore cycle path to cycleways within the Sydney Olympic Parklands and enhance access to the connection at the southern end of the peninsula

vi Provide a road cycle lane on the major east-west street from Hill Road to link with the proposed pedestrian bridge

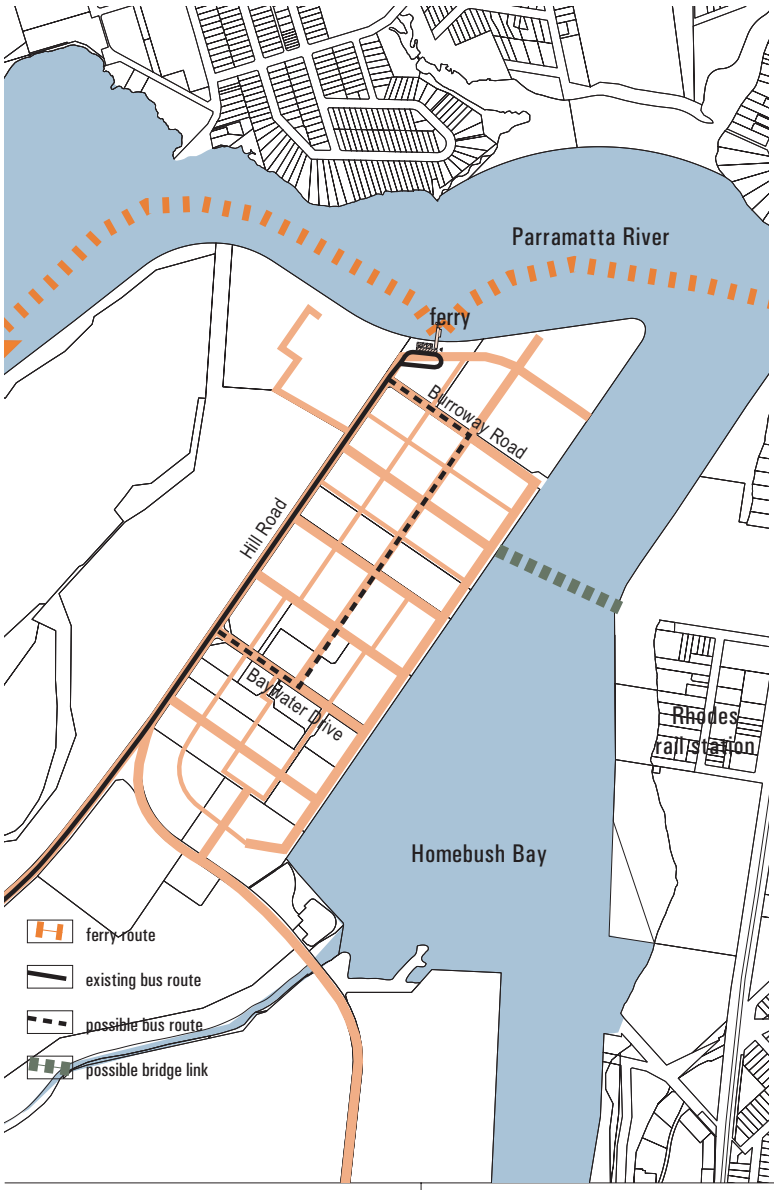
vii Separate cycle and pedestrian routes through Wentworth Park

viii Provide lockable bicycle storage at neighbourhood / maritime centres and in publicly accessible facilities including at the waterfront

ix Design cycle paths and parking to minimum Austroads design standards

3.1.3 PUBLIC TRANSPORT

Homebush Bay West is served by bus and ferry services. It is isolated from the regional rail network, with the closest rail station (by road) at Sydney Olympic Park. The Rhodes rail station across Homebush Bay is within 800 metres of the Homebush ferry stop, though currently unconnected to it. Connecting the two peninsulas by way of a pedestrian and cycle bridge across Homebush Bay would signifcantly improve access to the Rhodes Railway station, and to other services for pedestrians and cyclists. Increased use of the train would in turn reduce the reliance on the road network and thus on car dependency. The proposed road network provides the opportunity to extend the bus route into and through the precinct. The major north-south street should be designed to accommodate this route.



Performance criteria

i Provide convenient pedestrian connections to the Homebush ferry wharf and bus interchange from streets and through public open space

ii Locate bus stops at or near activity nodes, including the two neighbourhood / commercial centres and to serve major pedestrian / cycle entries to the Parklands from Hill Road

iii Enhance the amenity and safety of the interchange by providing shelter, seating, lighting and signage

iv Design subdivision layouts and building designs that encourage and are supportive of walking, cycling and the use of public transport

v Consider travel demand management mechanisms and features that will minimise the demand for travel and the use of cars, including:

- parking requirements designed to discourage car use in areas with good public transport access
- provision of adequate end-trip facilities for cyclists (such as secure bicycle storage and shower facilities in commercial buildings)
- suitable provision for taxis

vi Ensure designated streets for proposed bus route are designed for adequte turning by buses

vii Provide a pedestrian / cycle bridge located generally in the area and on the alignment illustrated.

3.1.4 VEHICLE NETWORK AND PARKING

The street hierarchy establishes a convenient and legible vehicle network which distributes traffic appropriately through the precinct. The most heavily trafficked streets are Hill Road (precinct entry) and the major east-west streets while a network of secondary streets serves residential uses and provides a choice of routes through the precinct. Streets should accommodate the level of parking suitable for their use and for their proximity to public transport nodes, activity centres and the foreshore.

Performance criteria

i Support the principles of permeability and legibility for vehicles, cyclists and pedestrians which are embodied in the Structural Design Framework street and block layout

ii Provide at least one major east-west street within each major landholding to break up the large scale of the precinct and enable streetscape treatment which makes different areas distinct and legible

iii Provide vehicle access to the foreshore, including foreshore streets and areas of parking where possible

iv Ensure that the street network offers a choice of routes and promotes good circulation, by minimising discontinuities and dead ends

v Provide for public car parking on streets or within buildings, except for limited parking associated with boating activity within the maritime precinct.

vi Where areas of parking are proposed on Hill Road, limit them to areas where they relate to pedestrian entry points to Sydney Olympic Parklands.

vii Provide a high level of amenity and quality streetscape design, including planting of street trees, consistent with convenient vehicle access, parking and turning.

viii Refer to Section 3.2 for detailed design guidelines for streets

3.1.5 LAND AND WATER CONNECTIONS

The Homebush Bay West foreshore extends for 1.2 kilometres in a straight line. As part of a wider pedestrian and cycle network it offers recreational opportunities for people to access and appreciate the peninsula and its setting on the harbour in a variety of ways. The importance of the relationship between the land and water can be strengthened by locating and designing interface areas along the foreshore that optimise access and water-related activity for the users of those spaces. The sequence of these areas will serve to break up the long unbroken edge both visually and experientially. Riparian plantings provide habitat and corridors for avifauna. Vegetation overhanging the water creates habitat for fish and other aquatic organisms. Habitat sea walls maximise the potential for colonisation by intertidal species.

The Structural Design Framework established principles for terminating major east-west streets with plazas at the foreshore: these streets and associated public spaces form 'green fingers' which connect the Bay with Sydney Olympic Parklands. While there are opportunities for people to experience the water all along the foreshore, priority should be given to aligning any viewing decks, pontoons or jetties on axis with these green streets and contiguous with plaza spaces to further reinforce the street hierarchy and enhance the water-park connections.

Performance criteria

i Provide opportunities for land-water interface at the end of major east-west streets.

ii Design activity nodes and recreational areas to consider views from the water and opposite shores.

iii Provide a range of public open space types:
- promenade
- waterfront riparian vegetation area
- point park
- urban plazas and pocket parks
- three larger parks, two of minimum 2000m^2 and one of minimum 1000m^2

iv Integrate water management into the design of foreshore spaces.

v Design sea walls to absorb wave energy and to maximise the habitat for the greatest possible range of local intertidal organisms.

vi Refer to the Public Domain Manual for specific character guidelines and controls for

foreshore areas.

3.1.6 LANDSCAPE

The landscape of Homebush Bay West will contribute positively to the vitality, amenity and attractiveness of the precinct. The design of streets and spaces should support the structuring principles of street hierarchy and streetscape character. Streets and spaces that provide an inviting, generous character that responds to the physical context of park and water will facilitate and encourage community use of the public domain. In particular, landscape treatment of the public domain should redress the general lack of a 'green' identity throughout the precinct.

Tree planting enhances the functional and visual amenity of the public domain and can ameliorate microclimate conditions through the provision of summer shade and winter sun. Lower level planting can enhance the layout and function of open spaces and assist in screening poor views. Simple, robust and bold street tree and open space planting is proposed to create a consistent and recognisable identity. Reinforcing major east-west streets with significant boulevard planting will create green fingers through the precinct to the water which will also help break up the scale and massing of future built form.

Performance criteria

i Design and manage the public domain and adjoining uses to recognise, facilitate and encourage active use of the public space at appropriate times.

ii Provide a landscape framework which reflects the different scale and function of public streets. and functions by using species and spacing in accordance with the street sections in Section 3.2 of this DCP and Section DF of the Public Domain Manual.

iii Contribute to a sense of identity for the precinct as a whole by recognising and reflecting the linear and generally flat quality of the peninsula.

iv Provide visual continuity with the context by:

- designing and selecting materials that complement other areas, particularly foreshore areas, in Homebush Bay
- planning vegetation to complement the habitat qualities of the adjoining Millenium Parklands.

v Enhance the amenity of footpaths by designing street layouts and selecting trees to recognise seasonal shade and solar access needs.

vi Within waterfront setbacks, dedicate minimum 30% of the 30 metre setback to riparian planting for ecological outcomes. Elsewhere, limit lower level planting to plazas and parks and to the central median of east-west streets.

vii Optimise sustainable selection and deployment of materials, management of waste and stormwater in the public domain, and biodiversity benefits of plant selection.

Refer to Sections 2.2.6 and 4 of the Public Domain Manual.

viii Design and construct streets to create conditions favourable to tree planting and for the long term health of trees in accordance with the Public Domain Manual.

3.1.7 PUBLIC DOMAIN ELEMENTS

The design of the public domain is critical to providing a high quality of amenity for people using streets, parks and open spaces, as well as to providing an attractive and appropriate setting for new development. The elements form a 'family' of integrated products and materials which will reinforce the vision for the public domain:

> *Public domain in Homebush Bay West responds to and facilitates community uses, activities and experiences through development of a legible framework of stimulating spaces that reinforce local and regional linkages incorporating sustainable and coordinated design in complement to the bay and park context. (from the Public Domain Manual)*

Performance criteria

Footpath / pedestrian area pavement

i Provide a hard wearing, cost effective and practically maintainable surface that reinforces the continuity of public domain access and is compatible with the context of Homebush, Sydney Olympic Parklands and Millenium Park.

ii Provide a hierarchy of pavement surfaces reflecting the pedestrian significance of different public spaces

Vehicular pavement

iii Provide a safe and hard wearing surface for vehicle movements

iv For shared vehicle / pedestrian zones, provide a suitable surface that denotes shared priority

Kerbs and gutters

v Apply a standard kerb and gutter treatment over the whole precinct to provide consistency in defining the pedestrian / vehicular junction of roads and footpaths

Street and park furniture

vi Select furniture which is robust, easily maintained, coordinated, and appropriate to its context. The Public Domain Manual nominates a palette established in the Homebush Parklands Elements for use through the Millenium Parklands and non-urban core areas of Sydney Olympic Park.

vii Locate furniture as part of a coordinated design scheme for the public domain component in question, according to principles set out in Section 4 of the Public Domain Manual.

Lighting

viii Provide vehicular street lighting to RTA and Austroads standards as specified in the Public Domain Manual.

ix Provide an appropriate level of pedestrian lighting to ensure security and contribute to the legibility of streets and through block links.

x Coordinate pedestrian lighting in streets throughout the precinct.

xi Design lighting for path accessways through parks in response to the level of use and safety considerations.

xii Minimise the impact of lighting on residential dwellings.

xiii Design lighting to highlight public art elements and significant trees in individual plazas or parks, and provide for lighting major avenues for special events or festivals.

Fences, barriers and level changes

xiv Reinforce connectivity and maximise visual continuity by minimising the use of fences and barriers.

xv Optimise opportunities to use the sea wall edge for seating, while also providing 'gaps' for viewing by wheelchair users.

Signage

xvi Locate information signage in accordance with the Parklands Elements Manual to include orientation, circulation, destination, regulation and interpretive signs.

xvii Use street signage in accordance with Auburn Council's requirements for public streets.

3.1.8 SERVICES INFRASTRUCTURE AND STORMWATER MANAGEMENT

Services provision can have a significant impact on the quality of the street environment. The immediate appearance of services or service lids is often exacerbated by damage to road and footpath pavements caused when random authorities' works are carried out. Services and infrastructure elements should be integrated with the design of the public domain to reduce maintenance and the cost of repairs.

The design of streets and parks can have a role in controlling and improving the quality of stormwater entering Homebush Bay.

Performance criteria

Services infrastructure

i Reduce visual intrusion and enhance aerial amenity for street trees by undergrounding overhead services to major street corridors

ii Integrate undergrounding of services and infrastructure in new development

iii Minimise the impact of service corridors and service access covers by:

- Liasing with service authorities to determine renewal or amplification requirements and incorporating these works into programming prior to pavement renewal
- providing common texture and shape to electricity service covers (i.e. during upgrade projects)
- providing lids to Telstra pits with paving infill to match adjoining pavement

Stormwater drainage

iv Integrate stormwater drainage with streetscape design by

- providing a common theme to all stormwater inlet sump and channel lids / grates to paved areas
- connecting rooftop downpipe to underground stormwater in public domain upgrade works
- incorporating natural disposal and surface drainage techniques, including porous paving, where possible to urban spaces and open spaces
- incorporating water sensitive urban design and technology to treatment of road stormwater runoff
- incorporating porous pavements and onsite detention to off-street at-grade carpark areas to reduce urban stormwater runoff

Stormwater Management

v Enable water to re-enter the groundwater system by designing the central medians of major east-west streets and the major north-south street (northern zones) as infiltration zones for road runoff

vi Protect the aquatic habitat of Homebush Bay from de-oxygenisation by preventing leaf transport from deciduous trees during autumn months.

vii Provide for re-use of water, for example by incorporating a water body capable of inflitration or slow release detention in major plaza spaces.

STREET HIERARCHY

A clear and legible street hierarchy promotes ease of access and orientation. The street and block layout developed in the Structural Design Framework will provide strong east-west visual and physical connections from the major Hill Road 'spine' to the water, together with a network of secondary streets and pedestrian and cycle paths throughout the precinct.

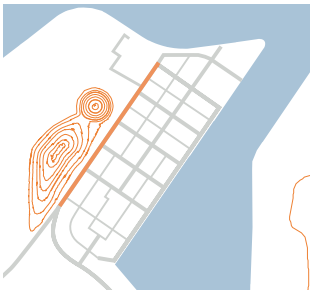
All primary and secondary streets shall be dedicated public roads, and roads, kerbs and footpaths shall be built to Auburn Council standards.

Primary streets
Hill Road is the western edge and primary vehicular entry to the precinct. Major east-west streets (existing and new) link Hill Road with the waterfront. Each major landholding provides at least one major east-west street to optimise the number of breaks in built form presentation to the waterfront and the potential for tree planting in the public domain. A new major north-south street parallel with the waterfront is designed as a wide street with a generous median to create a view corridor north to Parramatta River.

Secondary streets
The secondary streets connect the primary streets and enable a wider range of travel choices, particularly for pedestrians and cyclists. Secondary east-west streets may also connect to the foreshore. A foreshore street is encouraged to link major east-west streets and increase the opportunities for waterfront access, including limited provision of parking. This street may be discontinuous.

Foreshore street and promenade
The benefit of a foreshore street in providing a more public feel and higher level of activity to the foreshore needs to be balanced with retaining a functional, comfortable and appropriately vegetated promenade. Each major landholding should provide, at a minimum, a loop road which allows public vehicular access to and along the waterfront.

3.2.1 HILL ROAD



Uses
Mixed: focus commercial uses close to northern neighbourhood centre and at intersections with major east-west streets

Height
max 8 storeys

Street setbacks
8 metres

Right of Way (ROW)
15-20 metres (varies to accommodate extended parkland edge)

Carriageway
2 travelling lanes, 2 separated dedicated bicycle lanes and 1 parking lane

Footpath
3.5 metres with 1 metre grass verge, east side only

Landscape character
Asymmetrical treatment with regular street tree planting in the verge on the east (building) side and 'casual' plantings of large trees on the west side to reflect the parklands character.

Species in accordance with the Public Domain Plan and Sydney Olympic Park Parklands 2002 & Plan of Management

Hill Road is edged to the west by the Sydney Olympic Parklands and Millenium Marker. Its straightness and length enable orienting views of Meadowbank on the north side of Parramatta River, and in the other direction back to the Olympic site. There is potential to build on these views by creating a more direct visual link to the water at the ferry / bus interchange.

Though it has a standard 20 metre road reserve, Hill Road has a large apparent scale due to low buildings on one side only, set back 15 metres from the street. Change in building use from industrial to mixed used will mean a reduction in the setback to 8 metres. This, together with a larger scale of building, will reduce the scale of the street. The street design therefore aims to retain the openness which is an important characteristic of Hill Road. Detailed design of Hill Road should take account of Sydney Olympic Park objectives for its public open spaces and for the regional role of the Olympic Parklands.

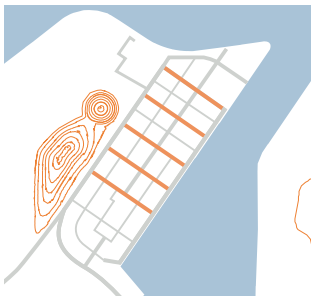
Hill Road has an important role as the main entry to the Homebush Bay West precinct and has the potential for a greater component of commercial uses in its land use mix.

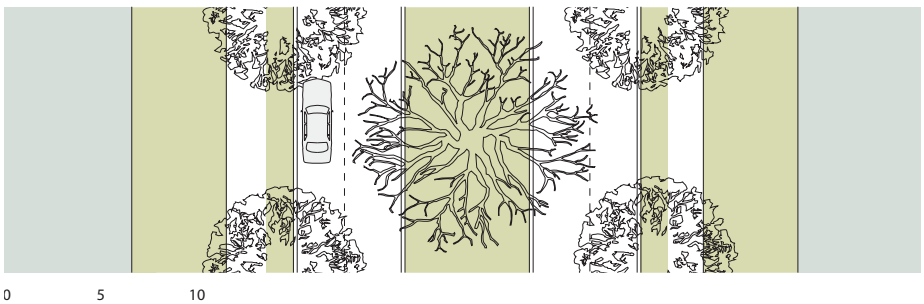
3.2.2 MAJOR EAST-WEST STREETS

East-west streets link the park and the bay and are critical to the open space network and precinct character. These major streets will be 'green fingers', with significant street trees to create avenues which are highly visible from the water and from Hill Road. With Hill Road, these streets will be primary streets in the hierarchy. Their importance will be reinforced by taller buildings, creating strong edges to the public domain. Towards the water a transition in height to lower scale buildings on the foreshore will reduce the visual dominance of new development.

Major east-west streets will have a critical role in connecting the vehicle, cycle and pedestrian open space network. They will link to the foreshore road and promenade, and, in future, to a proposed pedestrian bridge to Rhodes.

Major through streets will help orient the resident, worker and visitor by providing views to the bay and opposite shores. They are important to 'break up' the large scale of the precinct as a whole, and each one is likely to become identified with a smaller sub-precinct or neighbourhood. To reflect neighbourhood character and create a sense of identity, the use of different landscape treatment for each major street is recommended.





Uses
Mixed: ground floor commercial required in designated neighbourhood centres (see 2.4.1 Uses principles and 3.4.6 Density and uses controls)

Height
- max 8 storeys to within one block (approximately 100 metres) of the waterfront;
- 6 storeys with 2-storey pop-ups in the final block before the waterfront;
- 4 storeys on the waterfront.

Street setbacks
5 metres

ROW
25 metres (min)

Carriageway
1 travelling lane and 1 parking lane in each direction

On-street bicycle lane on the street linking into the pedestrian bridge

A wide median

Footpaths
3.5 metres with 1 – 1.5 metre grass verge, both sides

Landscape character
A boulevard treatment, with trees in verges on both sides of the street and in the median. Consideration should be given to differentiating east-west streets from each other, for example by using different species in each median.

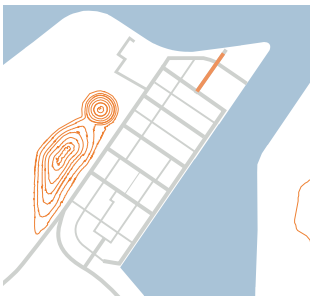
Species in accordance with the Public Domain Plan

natural ground
commercial / retail
commercial / residential
residential

3.2.3 MAJOR NORTH-SOUTH STREET – NORTH OF BURROWAY ROAD

There is a unique opportunity to create a green link of generous width through the precinct north to Parramatta River, connecting Billbergia and Waterways land to the water both visually and physically. This new street will also connect the maritime precinct with residential neighbourhoods within Homebush Bay West.

North of Burroway Road, this relatively short stretch of street is close to both the proposed neighbourhood centre and maritime precinct. Because this part of the peninsula is likely to become a destination in its own right, this street is designed with more capacity for on-street parking, to serve recreational and water-based activity users as well as people shopping and visiting.



Uses
Residential

Height
max 6 storeys

Street setbacks
3-4 metres (can vary)

ROW
25 metres (min)

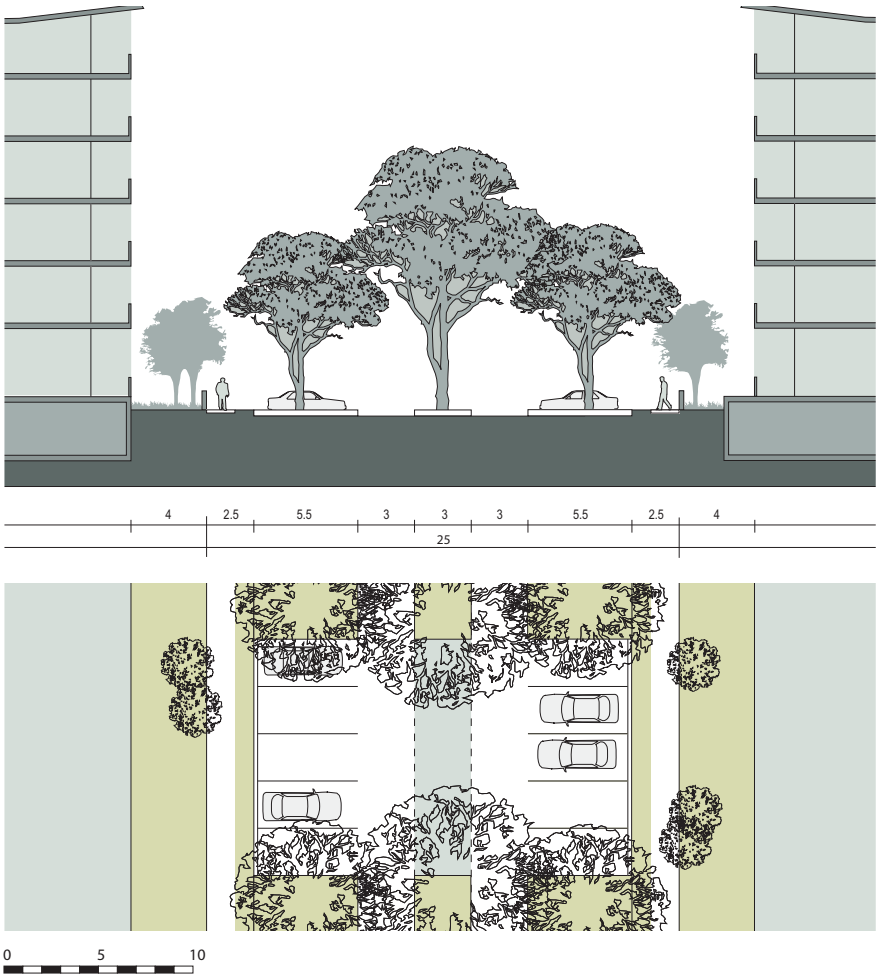
Carriageway
1 travelling lane and 1 angle-parking lane in each direction

Narrow median, treated in two ways: for planting and to enable vehicle manoeuvring when car parking

Footpaths
2.5 metres with 1 metre grass verge

Landscape character
Trees are planted in and break up parking bays on both sides of the street, and are also located along the median, at approximately 15 metre spacing. Tree species in the median may differ from the edge species.

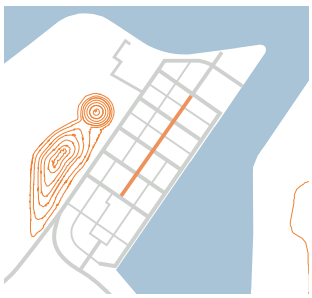
Species in accordance with the Public Domain Plan

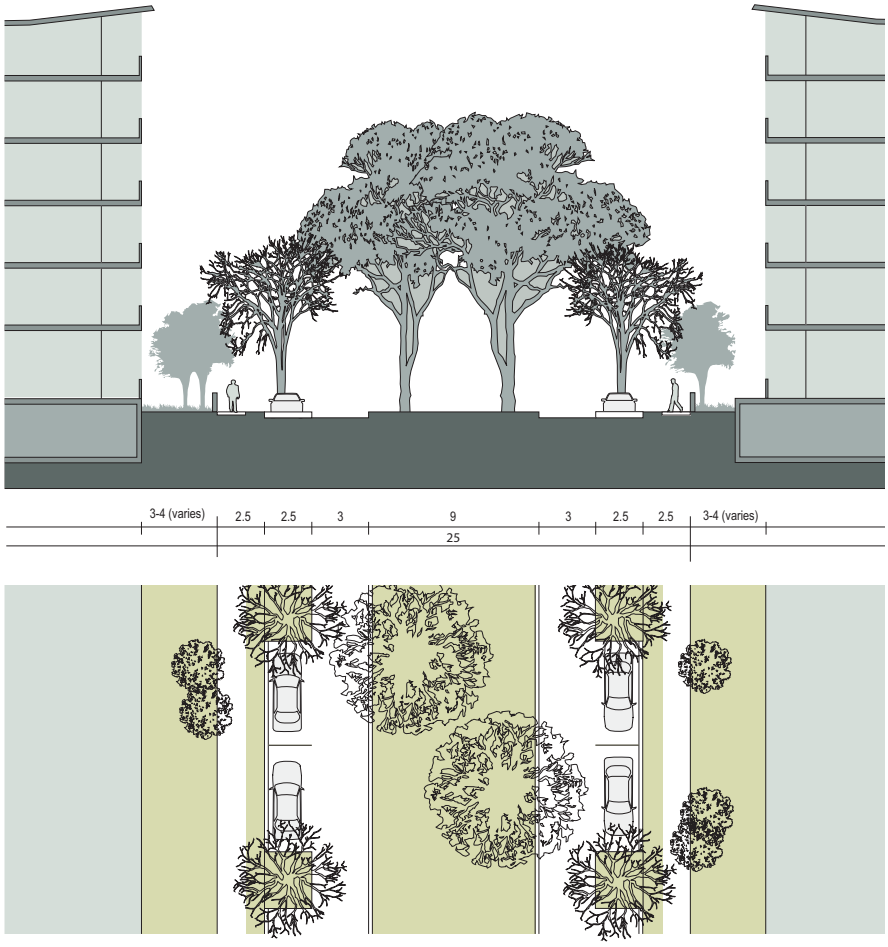


3.2.4 MAJOR NORTH-SOUTH STREET – SOUTH OF BURROWAY ROAD

There is a unique opportunity to create a link through the precinct north to Parramatta River, connecting the land parcels on each side of Burroway Road to each and to the water both visually and physically. This new street will also connect the maritime precinct with residential neighbourhoods within Homebush Bay West. South of Burroway Road, there is less requirement for on-street parking. This allows for a generous median which functions as a linear park.

The location and extent of the major north-south street is not 'fixed' except through the above mentioned sites. It is indicated to continue as far as Baywater Drive to reflect the potential future continuous alignment. South of Baywater Drive there is potential to link to the approved street structure and continue further south into the precinct.





Uses
Residential

Height
max 6 storeys

Street setbacks
3-4 metres (can vary)

ROW
25 metres (min)

Carriageway
1 travelling lane and 1 parallel parking lane in each direction

Wide median / linear park

Footpaths
2.5 – 5 metres to accommodate parking extensions, 1 metre grass verge

Landscape character
Trees are planted in and break up parking bays on both sides of the street at approximately 15 metre spacing. The median is planted with large trees, spaced irregularly, and potentially with drifts of native grasses.

Species in accordance with the Public Domain Plan

3.2.5 SECONDARY EAST-WEST STREETS

Secondary streets help define an accessible and legible urban structure by breaking up the large land parcels between major east-west streets in smaller blocks. These streets are intended to have a pleasant, pedestrian-scale character and are therefore designed at a lower scale to reflect their role in the street hierarchy. Road widths are narrower to slow traffic and contribute to pedestrian amenity; building heights are lower, and parking is provided on one side only of the street and interspersed with street trees. These streets may run all the way from Hill Road to the foreshore but they do not need to do so.

The diagram represents Stromboli Strait in the southern part of the preinct as a secondary street in response to the existing built form scale. Stromboli Strait is a 25m wide street and may be treated as a major east-west street (See 3.2.2 for built form controls for major east-west streets).

Uses
Residential

Height
max 4 storeys

Street setbacks
3 metres

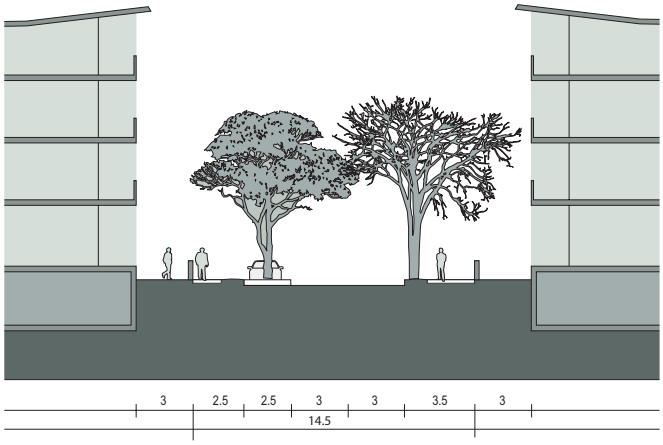
ROW
14.5 metres (min)

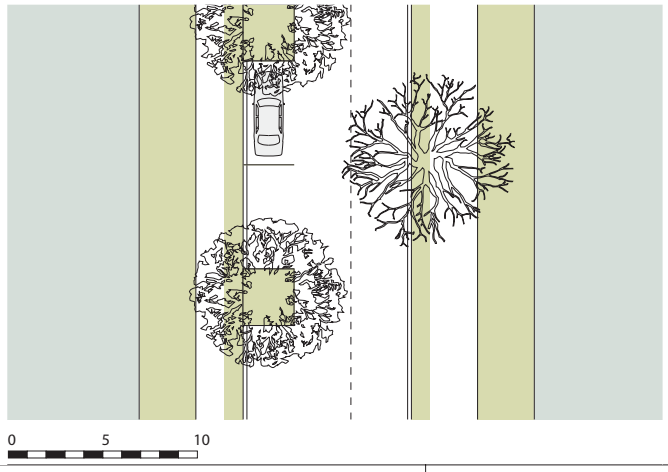
Carriageway
2 travel lanes and 1 parking lane

Footpaths
2.5 – 3.5 metres with 1 metre grass verge – 5 metres to accommodate parking extensions

Landscape character
An asymmetrical planting scheme is proposed in response to the street orientation, which results in different sun conditions for the north and south sides of the street and impacts on the growth pattern of deciduous trees.. A different species of tree is used on each side of the street. Evergreen trees break up parking bays on the north side at approximately 15 metre spacing. On the south side deciduous trees are planted at the same spacing but offset, with centres between the parking bays.

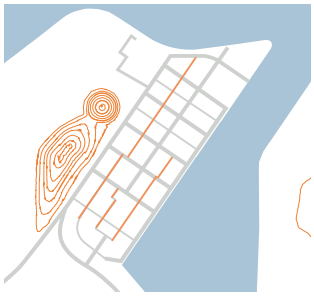
Species in accordance with the Public Domain Plan

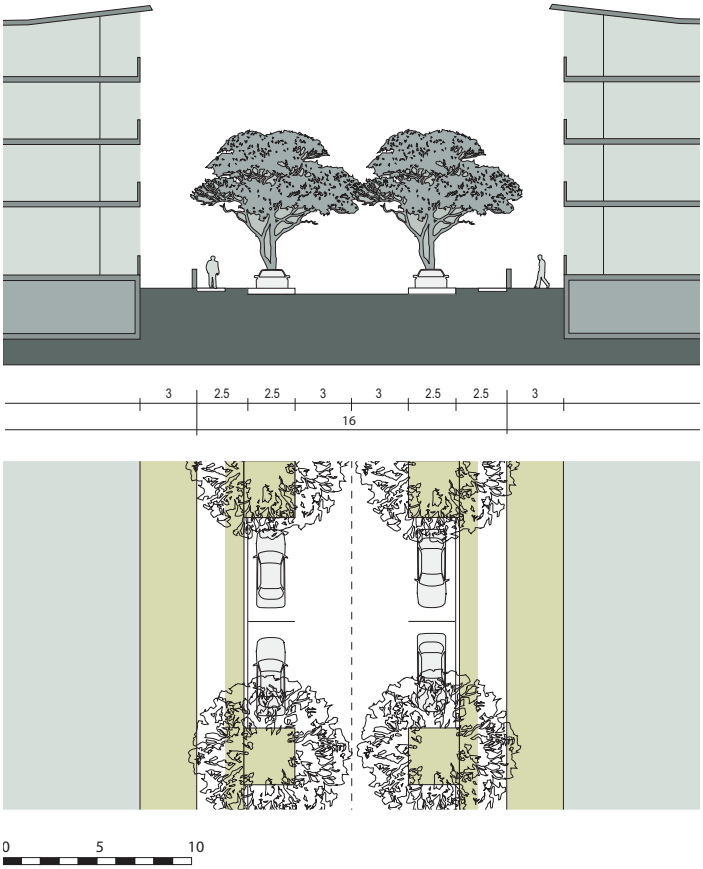




3.2.6 SECONDARY NORTH-SOUTH STREETS

Secondary streets help define an accessible and legible urban structure by breaking up the large land parcels between Hill Road, the major north-south road and the foreshore road into smaller blocks. These streets are intended to have a pleasant, pedestrian-scale character and are therefore designed at a lower scale to reflect their role in the street hierarchy. Road widths are narrower to slow traffic and contribute to pedestrian amenity; building heights are lower, and parking is interspersed with street trees.





Uses
Residential

Height
max 4 storeys

Street setbacks
3 metres

ROW
14.5 metres (min)

Carriageway
2 travel lanes and 1 parking lane *or* 2 travel lanes and 2 parking lanes

Footpaths
2.5 metres with 1 metre grass verge – 5 metres to accommodate parking extension

Landscape character and requirements
Street trees are planted in parking bays at intervals of 2 parking spaces to provide shade for footpaths and to visually narrow the street.

Species in accordance with the Public Domain Plan

3.2.7 FORESHORE STREET – ONE WAY

Uses
Mixed, predominantly residential

Height
4 storeys

Waterfront setbacks
30 metres

Street setbacks
can vary from zero for commercial / retail / leisure (cafe/dining) uses at the end of major east-west streets to minimum 3 metres for residential

ROW
8.5 – 10 metres

Carriageway
1 travel lane and 1 parking lane on the west side

Footpath
3 metres with 1 metre grass verge

Landscape character and requirements
Street trees in the verge on the west side of the street are planted at approximately 15 metre spacing

30% of 30 metre waterfront setback is to be dedicated to riparian planting for ecological outcomes. Riparian planting is to be located as far as possible to the property boundary but may extend to the promenade verge.

Vegetation overhanging the waterway is to be provided along the foreshore in clumps, having a width of between 1–2 metres, length of no less than 10 metres and spacing at 40 metre centres.

Planting is to support structural diversity, provide a continuous vegetated linkage and use native species in accordance with the Public Domain Plan.

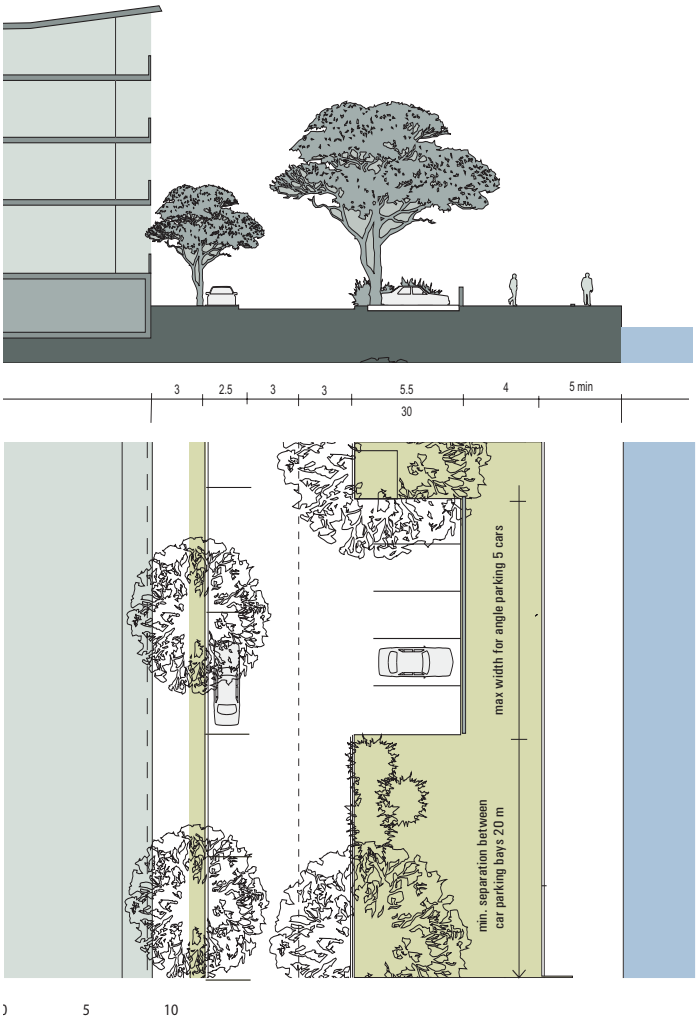
The one-way foreshore road allows for vehicular traffic to loop around waterfront blocks, adjacent to the foreshore linear park (see 3.3.2: Foreshore linear parks and 3.3.3: Foreshore plaza, linear park and loop road). It may be discontinuous in that provides access to, along part of, and away from the foreshore. Each major landholding should provide a foreshore street.

The one-way foreshore street offers opportunities for vehicle access and limited parking on the waterfront. It is narrow in width to emphasise the predominance of the pedestrian environment and to optimise the extent of the promenade and associated public open space, and acts as a buffer between the private domain and the public domain. The scale of buildings on the foreshore street is low to enable a transition from higher development within the precinct, reducing the apparent scale of buildings along the waterfront. This principle is consistent with overall design principles for Sydney Harbour.

3.2.8 FORESHORE STREET – TWO WAY

A continuous two-way foreshore street running the length of the promenade is the preferred design solution. However, the street may be discontinuous where the design outcome is satisfactory to the consent authority; that is, it may form part of a loop road running along the promenade. Each major landholding should provide a forehore street.

The two-way foreshore street offers opportunities for vehicle access and parking on the waterfront. It is narrow in width to emphasise the predominance of the pedestrian environment and to optimise the extent of the promenade and associated public open space, and acts as a buffer between the private domain and the public domain. The scale of buildings on the foreshore street is low to enable a transition from higher development within the precinct, reducing the apparent scale of buildings along the waterfront. This principle is consistent with overall design principles for Sydney Harbour developed by the Sydney Harbour Foreshores Committee.



Uses
Mixed, predominantly residential

Height
4 storeys

Waterfront setbacks
generally 30 metres from waterfront except at the termination of major east-west streets where the setback is 20 metres (see p. 46: Foreshore plaza, linear park and loop road)

Street setbacks
can vary from zero to 3 metres.

ROW
11.5 metres for new development

(existing ROW for the Waterfront and Harbourside developments is 10m)

Carriageway
2 travel lanes and 1 parking lane on the west side, with angle parking bays (max. 5 cars) interspersed with linear park on the east (waterfront) side.

Footpaths
3 metres with 1 metre grass verge

Landscape character and requirements
Street trees in the verge on the west side of the street are planted at approximately 15 metre spacing

30% of 30 metre waterfront setback is to be dedicated to riparian planting for ecological outcomes. Riparian planting is to be located as far as possible to the property boundary but may extend to the promenade verge.

Vegetation overhanging the waterway is to be provided along the foreshore in clumps, having a width of between 1–2 metres, length of no less than 10 metres and spacing at 40 metre centres.

Planting is to support structural diversity, provide a continuous vegetated linkage and use native species in accordance with the Public Domain Plan.

Public open space plays an important role in meeting recreational and social needs. Public open space at Homebush Bay West should include continuous foreshore access and pedestrian and cycle connections throughout the area and to Sydney Olympic Parklands. Public space should also be clearly distinguished from private space, and designed to encourage equitable access and use by the community. Significant public spaces should be associated with the waterfront and the primary streets. To provide adequate amenity for the future residential community, appropriate public space suitable for structured use (active recreation) should be provided. Local open space areas should each serve a catchment of approximately 400–500 metres' walking distance of residences.

The waterfront is the most significant public space element for Homebush Bay West. The relationship of the peninsula to the Parramatta River and Homebush Bay is what gives the precinct its unique character. Whether treated as a road or as a promenade and linear park, the foreshore offers opportunities for recreation, leisure, views, and 'breathing space' which can enhance the area's amenity.

The foreshore has the potential to unify the whole precinct and to link it more strongly with the regional parklands adjacent to it. The relationship between major east-west streets and the foreshore is particularly important, and parks and plazas at the termination of those streets will contribute to the attractiveness and encourage more activity at the waterfront.

Edge treatments to the foreshore comprising areas for planting, seating etc, whether in a road or park condition, should be designed not to compromise the amenity of the pedestrian & cycle access. In these instances the promenade will be widened.

Public open space is to be provided at a minimum 10% of each precinct site area, and includes:

- a point park at Wentworth Point, of approximately 4.8 hectares including foreshore promenade
- three parks distributed evenly through the precinct, including one park on the waterfront for active recreation. Parks at the north and south to have minimum area of 2000m2 each; park in the middle of the precinct to be minimum 1000m2 (areas reflect constraints due to ownership patterns)
- a 20-metre wide promenade and foreshore street
- foreshore parks or plazas terminating major east-west streets and linked to the promenade
- pocket parks or plazas.

The location of these open spaces, with the exception of Wentworth Point Park, is indicative.

All public open space within the precinct, with the exception of the foreshore promenade, is to be dedicated to Auburn Council, and embellishment works undertaken by the applicant. An easement is also required to be created in favour of Council to ensure continuous public access to the foreshore promenade.

3.3.1 FORESHORE PLAZAS

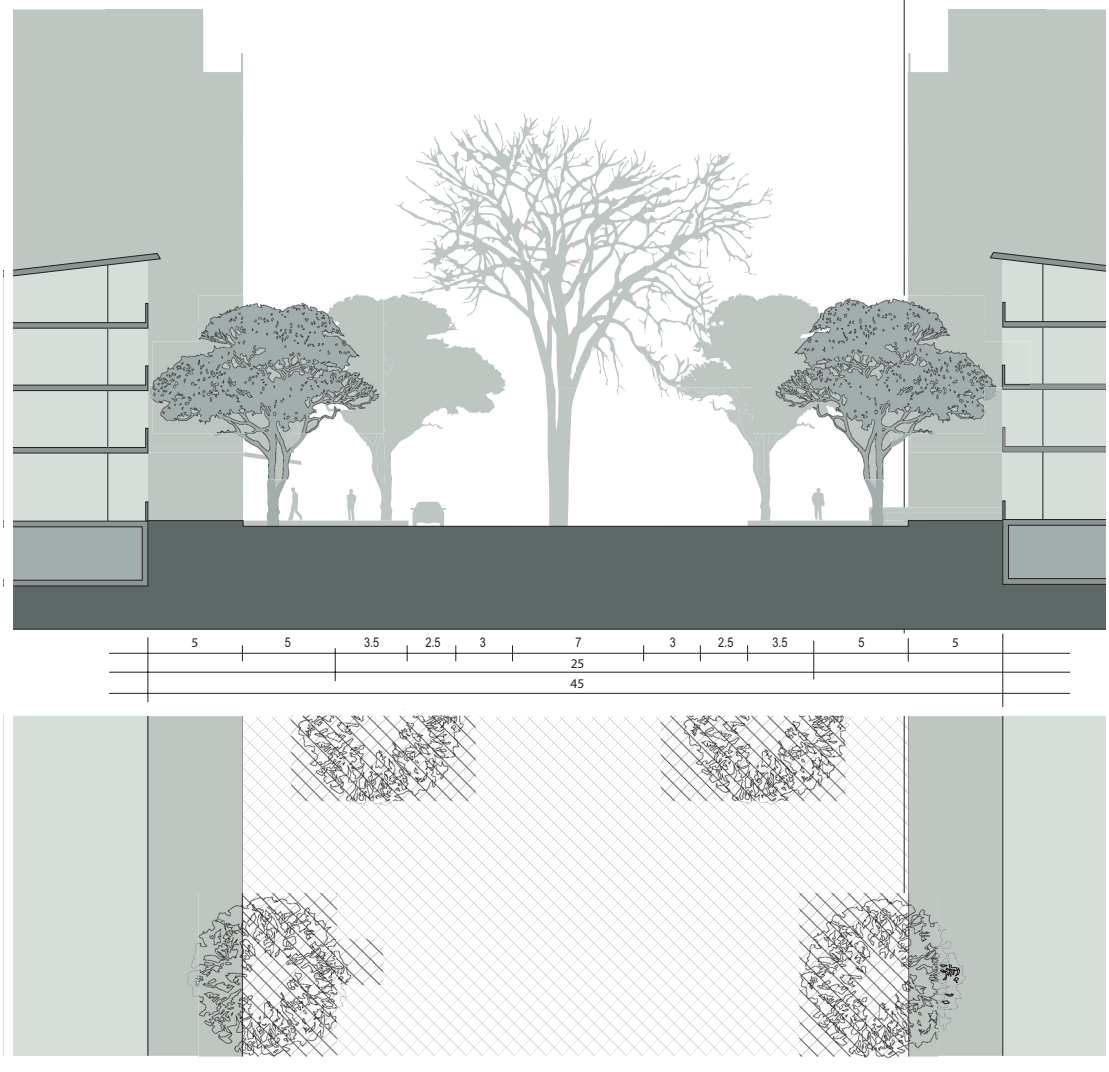
Open spaces at the termination of major east-west streets create a focus for greater activity at intervals along the waterfront. Plazas may be framed by buildings which extend beyond the general foreshore building line to 20 metres from the waterfront. These spaces are not overly large (in the order of 30 – 45 metres square), to both create a pedestrian scale environment and to enable a range of activities in the space itself and associated with buildings (eg cafes with outdoor dining).

Uses
Mixed with emphasis on restaurant / café and small scale neighbourhood retail.

Height
4 storeys with 2 storey pop-ups ONLY on the building alignment to the major east-west street

Setbacks
variable – buildings lining the plaza may be set back an additional 5+ metres from the predominant building line along major east-west streets

Landscape character
Median and street tree planting is continued into the plaza open space. The design of these spaces and the arrangement of trees may vary, to give each space a different character.



3.3.2 FORESHORE LINEAR PARKS

Green spaces along the foreshore will provide an attractive and amenable setting for new development. Linear parks are associated with the foreshore promenade and enhance the quantum and useability of waterfront public open space. They are generous enough in width for large canopy tree planting and for a range of recreation activities.

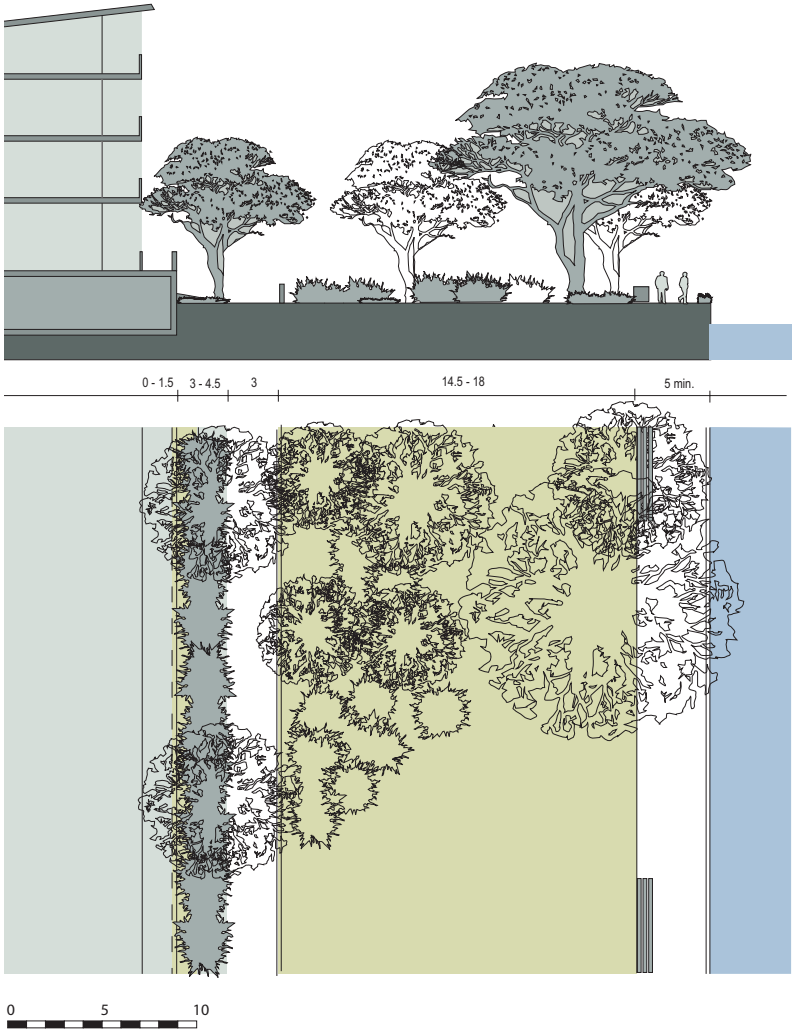
Land dedicated for public access

A continuous public accessway is required at the waterfront within a 20 metre minimum width dedicated open space.

Landscape character and requirements

Plantings of landmark trees at generally 30 metre spacings will create a consistent structure appropriate to the scale of the built form. Large trees will break up the visual dominance of new development to the waterfront and will provide shade for users of the public domain. The trees will also contribute to a sense of the promenade and precinct as 'one place'. Within this structure, detailed promenade and park design is to fulfil the general design principles and requirements of the Public Domain Manual.

30% of 30 metre waterfront setback is to be dedicated to riparian planting for ecological outcomes. Riparian planting is to be located as far as possible to the property boundary but may extend to the promenade verge. Vegetation overhanging the waterway is to be provided along the foreshore in clumps, having a width of between 1–2 metres, length of no less than 10 metres and spacing at 40 metre centres. Planting is to support structural diversity, provide a continuous vegetated linkage and use native species in accordance with the Public Domain Plan.



3.3.3 FORESHORE PLAZA, LINEAR PARK AND LOOP ROAD

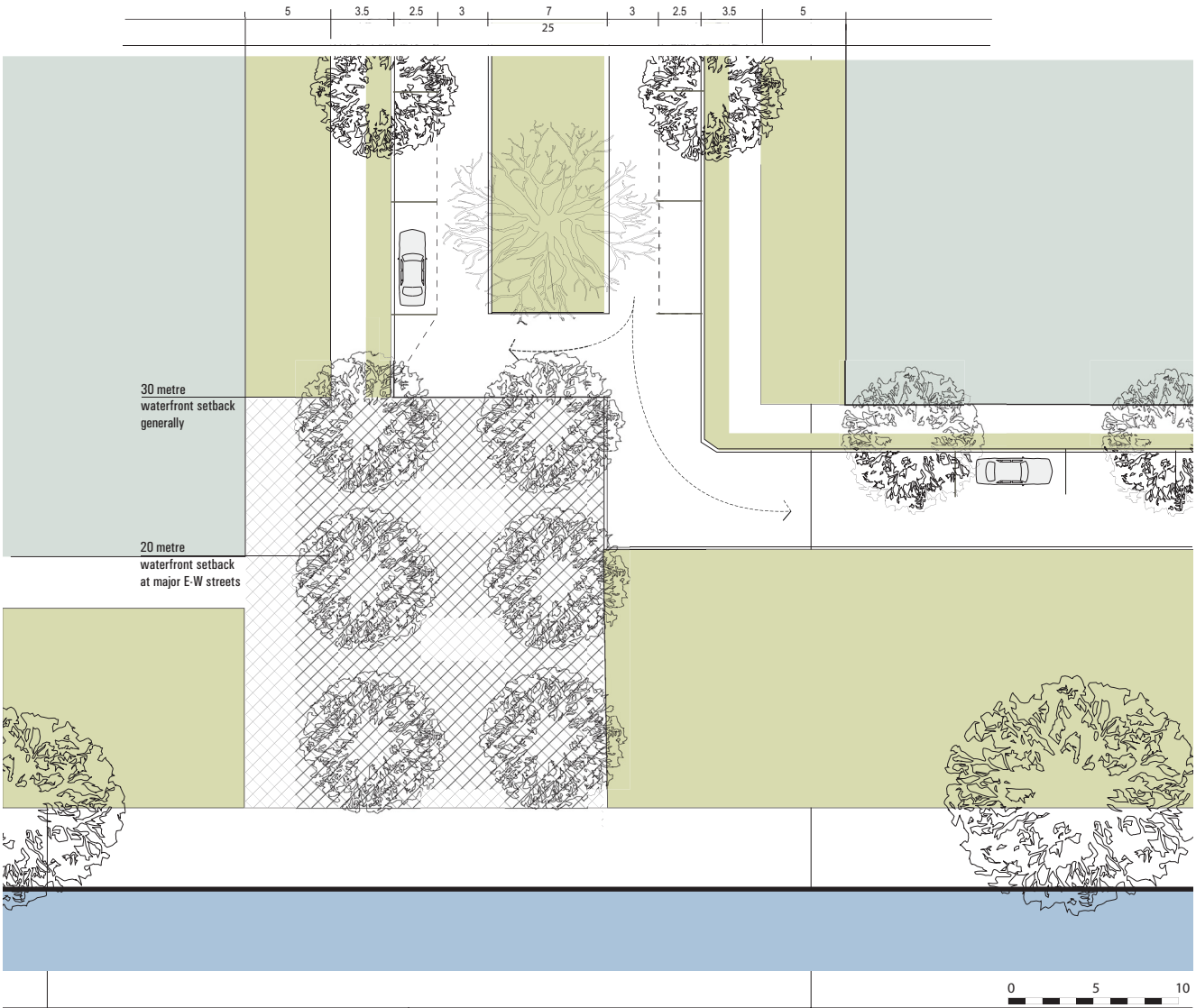
Where an east-west street continues in one direction along the waterfront and then loops back into the precinct, there are opportunities to combine the characteristics of the urban plaza and the linear park. (see also major east-west streets; foreshore street (1) one-way; and foreshore plazas). Different waterfront setbacks allow a strong relationship between the plaza and the building adjoining it. This condition is most successful in the orientation shown, where both plaza and building have good sun access and views to the north and east. At least one publicly accessible loop road should be provided for each major landholding.

Waterfront setbacks

The design solution illustrated is for a 30 metre setback with one-way foreshore road, and a 20 metre setback for pedestrian / cycle access. The 20 metre setback is only permissible at the termination of major east-west streets to a maximum extent of 25 metres.

Landscape requirements

30% of 30 metre waterfront setback is to be dedicated to riparian planting for ecological outcomes. Riparian planting is to be located as far as possible to the property boundary but may extend to the promenade verge. Vegetation overhanging the waterway is to be provided along the foreshore in clumps, having a width of between 1–2 metres, length of no less than 10 metres and spacing at 40 metre centres. Planting is to support structural diversity, provide a continuous vegetated linkage and use native species in accordance with the Public Domain Plan.



3.3.4 PARKS, POCKET PARKS AND URBAN PLAZAS

The peninsula is rich in recreational opportunities. The Sydney Olympic Parklands which surround the area are of regional significance and comprise active and pasive recreation facilities including walking and cycling tracks, areas for play and picnics, ccess to world-class sporting facilities. Within Homebush Bay West itself a range of parks will be provided. Two large parks are proposed, one a point park at Wentworth Point, and the other a large regular-shaped park south of Burroway Road. Both parks are adjacent to the waterfront and connected to the foreshore promenade.

Small parks and plazas should be located throughout the precinct to provide as many recreational opportunities for as many people as possible. They should vary in size to provide diversity in function and character and should be designed to relate to pedestrian routes and to maximise through pedestrian traffic and use. Spaces which are located at street terminations and junctions have the most potential to be well used and to be integrated with built form. Maximising publicly accessible frontage contributes positively to open space visibility and useability.

One large park will be located at Wentworth Point. A local park is proposed south of Burroway Road. Both are adjacent to the waterfront and connected to the foreshore road and promenade. Two more local parks should be provided within the precinct, one north and one south of Baywater Drive.

See Section 2.4.3 for public open space principles, location of the large parks, and indicative location of pocket parks and plazas. Refer to Sections 3.4 and 3.5 of the Public Domain Manual for detailed implementation outcomes and design principles.

Large parks

Uses

Various, including structured and unstructured play, and for both local and district users

Access

Clear access maximised to adjoining public streets and pedestrian / cycle accessways. Continuous access along / from foreshore promenade. Wentworth Park to provide pedestrian access (paths) through the park to the foreshore and to adjoining streets

Character

Green; uncluttered and informal; safe and comfortable; respond to maritime / riverine precinct identity

Pocket parks

Uses

Various, including structured and unstructured play

Access

Clear access over wide frontage, with minimum 30% of edge condition adjoining public streets and pedestrian / cycle access

Character

Shady and green; uncluttered and informal; safe and comfortable; respond to maritime / riverine precinct identity.

Plazas and squares

Uses

Public; day and evening; flexible

Access

Clear integrated access with adjoining spaces and buildings

Character

Robust maritime; simple and uncluttered; shady but urban

3.4.1 LAND USES AND DENSITY

Land uses relate to the Design Framework principles which in turn support the desired future urban structure for the place. Commercial, retail and some neighbourhood uses (which may include provision for active public space) are to be located in the southern part of the peninsula, away from the waterfront. This will provide a concentration of uses to serve the immediate residential area. A larger neighbourhood centre wil be located around the key intersection of Hill Road and Burroway Road, encompassing the ferry terminal / transport interchange, supporting the maritime precinct, and providing for a mix of uses as above and including community uses. This neighbourhood centre is a key element in the urban structure and is ideally located to be visible and visitable from the river. Future development of the western portion of the NSW Waterways site will build on and support this neighbourhood centre. Consideration should be given to a school in this area.

Floor space controls reflect the land use requirements, and other principles illustrated in the Design Framework (see Section 2.4) to distribute building mass on Hill Road and along major east-west streets, creating a gradual transition in scale to the waterfront, and enabling views to Bay and River to be shared. The floor space areas are further subject to traffic modelling requirements to test the cumulative impacts of increased density and traffic movements both immediately on Hill and Bennelong Roads, and on intersections and roads beyond the peninsula, which make up the gateways to the Homebush Bay West precinct.

Objectives

- To provide for a neighbourhood focus at the south of the peninsula and a larger neighbourhood centre focussed around the ferry terminal and the intersection of Hill Road and Burroway Road, which include non-residential uses
- To provide activity areas of small scale retail, outdoor dining and water-related uses along the foreshore
- To ensure that development does not exceed the optimum capacity of the develompent site and the precinct as a whole
- To allow adequate public open space to be provided and distributed throughout the peninsula (see Section 3.3)
- To recognise the constraints and opportunities for individual development parcels due to their location, size or shape
- To support peninsula objectives for a clear, well connected and walkable street layout and efficient block structure.

Controls

i Provide floor space and public open space for each precinct in accordance with the table below and in the locations specified in the DCP Objectives (Section 2.3) and Design Framework (Section 2.4). See the Glossary for definitions.

ii The provision of covenanted space for community uses within neighbourhood centres may be offset against residential floor space.

Precinct	Site area (m2)	Total allowable floor space maximum	Commercial / maritime / educational floor space minimum	Retail / café / dining associated with waterfront minimum	Residential floor space maximum	Public open space minimum
A	203,482	264,527	29,115	300	11,882	49,800
B	109,730	142,649	3,165	100	139,384	10,973
C	31,946	41,530	0	100	41,430	3,195
D	62,375	81,087	405	200	80,482	6,237
E	50,753	65,979	330	100	65,549	5,075
F	182,186	236,842	2,000	200	234,642	18,219
TOTAL	640,473	832,615	35,015	1,000	573,369	93,499

3.4.2 BUILDING HEIGHT

Height is an important control because it has a major impact on the physical and visual amenity of Homebush Bay West and the surrounding waterways and parklands. Height controls respond to agreed principles developed in the Structural Design Framework to minimise the visual impact of built form seen from the water, to relate the size and scale of buildings to the size and uses of streets, and to constrain a 'wall' of built form parallel to the Bay edge. Lower buildings are distributed on the foreshore, while taller buildings are located along major east-west streets and on the Hill Road precinct edge. Heights are expressed as storeys to accommodate a range of floor to ceiling heights for different uses.

Objectives

- To ensure future development responds to the desired future character of streets and the precinct as a whole
- To control the impact of new development on Sydney Harbour at Homebush Bay
- To enable view sharing
- To protect the amenity of the foreshore promenade and contiguous public open space
- To protect views from within Sydney Olympic Parklands to the Millenium Marker, such that it retains its visual dominance on the horizon

Controls

i Height in storeys is calculated from the finished footpath level of the adjoining street. Where constraints on underground car parking result in a raised ground level for the site AND for its surrounding streets, height is understood to relate to that new ground level. See

ii The maximum overall height for any building, inclusive of lift overruns, services, or any other roof extrusions, is AHD 29; that is, the height of the Millenium Marker

iii 'Ground level' as it refers to storeys means the lowest habitable floor of a building, which may be elevated a maximum of 1.2 metres above finished footpath level over a non-habitable sub-basement podium.

Performance criteria

iv Scale development appropriately to conform to the urban form principles in the Structural Design Framework by complying with the following height requirements for street types and widths:

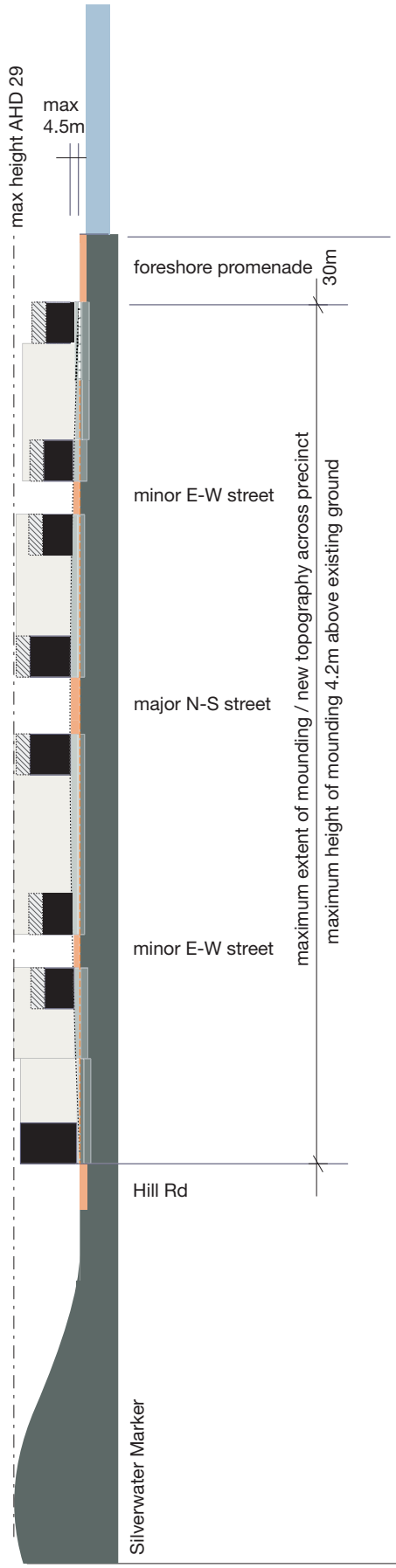
- Hill Road (east side only) 8 storeys
- Major east-west streets (including Baywater Drive and Burroway Road) 8 storeys generally, ranging down to 4 storeys at the foreshore edge
- Major north-south street 6 storeys
- Secondary streets 4 storeys
- Foreshore edge within 30 metres of the waterfront (west side only) 4 storeys
- Those portions of street-edging buildings which 'return' into a block 4 storeys

v Building heights are to achieve built form outcomes that reinforce quality urban and building design

vi Optimise accessibility by providing entrances to ground floor commercial and retail uses that are level with the adjoining footpath, where possible

vii To enable modulation of the skyline and provide for design flexibility within developments while still maintaining a consistent datum appropriate to the street hierarchy and relationship to the water, building heights may be varied as follows:

- buildings of 8 storeys may not be varied
- buildings of 6 storeys may be varied by up to 2 additional storeys whose gross floor area is no more than 8% of the total gross floor area of the building
- buildings of 4 storeys may be varied by up to 2 additional storeys whose gross floor area is no more than 10% of the total gross floor area of the building



3.4.3 TOPOGRAPHY AND SITE INTEGRATION

Reclamation of land to form the Homebush Bay West peninsula has resulted in a characteristic flat topography, with the Millenium Marker as a backdrop. The flatness of the precinct allows for long views towards surrounding areas including Rhodes and Meadowbank. There are also views of the water in Homebush Bay.

The design of development in relation to adjacent sites, and to non-adjacent sites where the Structural Design Framework envisages continous street connections through the peninsula, is very important. There are key urban form principles relating to the scale and massing of the precinct, the importance of direct visual and physical connections to the foreshore, and the significance of the Millenium Marker and Sydney Olympic Parklands.

Some changes to the topography (for example by raising ground levels of streets or development sites) are possible where they can be demonstrated not to compromise the desired urban outcome. The intent is to enable sufficient car parking for sites constrained by the high water table, thus facilitating new development, not to provide density bonuses or excessive building heights.

An integrated approach is encouraged across development sites, as a 'whole-of-precinct' design solution.

Objectives

- To ensure future development responds to the desired future character of streets and the precinct as a whole
- To ensure that topography unifies the precinct as 'one place' rather than creates divided sites at different levels
- To encourage adjacent landowners to consider a joint master plan for sites affected by proposed level changes.
- To create a 'ridge road' in keeping with the Harbour context

Controls

i The extent of ground level changes is delineated by existing public streets and the 30 metre setback to the foreshore; that is, they may not be raised to create an 'edge' to these spaces

ii Where topography has already been altered on streets, as at Baywater Road, this profile may be continued across into the adjacent development precinct.

iii The ground level across the whole area may be raised by a maximum of 4.5 metres where parking is wholly underground (that is, no sub-basement parking) or 3 metres where there is sub-basement parking. Sub-basement parking may protrude above ground to a maximum height of 1.5 m metres.

Performance Criteria

iv Consider the continuation of any changes in ground level across adjacent sites when proposing changes to the topography

v Locate roads, not buildings, on the highest part(s) of the new ground level to optimise the directness of visual and physical connections to the water and surrounding shores.

streets

existing ground level

extent of new ground level

max height datum on north-south streets

max height absolute on major east-west streets

max height over part only of building (see Section 3.4.2 vii)

3.4.4 BUILDING DEPTH

The depth of a building has a significant impact on amenity for its occupants. In general, narrow cross section buildings improve the amenity of working and residential environments. They also minimise the apparent building bulk, enable views between buildings and create more slender silhouettes against the sky. Building depth is related to use. Mixed use buildings may have wider commercial / retail floors combined with narrower residential floors.

Objectives

- To enable view sharing from apartments and views of the sky from the public domain
- To optimise residential amenity in terms of natural ventilation and daylight access to internal spaces
- To provide for dual aspect apartments.

Performance criteria

i Provide opportunities for cross ventilation and daylight access by limiting the depth of residential building envelopes to 22m (maximum 18m glassline to glassline)

ii Maximise cross ventilation and daylight access by providing a minimum of 50% of apartments with openings in two or more external walls of different orientation

iii Optimise the environmental amenity for single aspect apartments by orienting them predominantly north, east or west

iv Promote sustainable practices for commercial floors by limiting their depth above podium level to 25m

3.4.5 BUILDING SEPARATION

The spatial relationship of buildings is an important determinant of urban form and relates to the legible scale of an area. Buildings which are too close together also impact on residential amenity, compromising visual and acoustic privacy and daylight access to apartments and to private and shared open spaces. Building separation should increase in proportion to building height.

Objectives

- To ensure that new development is scaled to support the desired precinct character, with built form distributed to enable views through the precinct to the water and surrounding hills
- To provide visual and acoustic privacy for residents in new development and in any existing development
- To control overshadowing of adjacent properties and private or shared open space
- To allow for the provision of open space of suitable size and proportions for recreational use by building occupants
- To provide open space areas within blocks for landscaping, including tree planting, where site conditions allow.

Performance criteria

i For buildings up to 4 storeys, provide:

12 metres between habitable rooms / balcony edges

9 metres between habitable rooms / balcony edges and non-habitable rooms

6 metres between non-habitable rooms

ii For buildings of 5 – 8 storeys, provide:

18 metres between habitable rooms / balcony edges

13 metres between habitable rooms / balcony edges and non-habitable rooms

9 metres between non-habitable rooms

iii Design buildings at the intersections of Hill Road and major east-west streets with minimum building separation at podium level to create a street wall, urban character

iv Where an upper level setback creates a terrace, apply the building separation control for the storey below.

3.4.6 STREET SETBACKS

Street setbacks establish the front building line. Together with height controls, street setbacks create the proportions of the street and contribute to the character of the public domain. They also create opportunities to enhance the building setting by providing for landscape areas and individual entries to ground floor apartments. In the Homebush Bay West precinct, street setbacks are also critical to providing the required area of deep soil zones. This is because site conditions and constraints on the provision of basement parking mean that in most cases there is little or no opportunity for deep soil zones in the interior of blocks. Street setbacks are measured from the street boundary to the outside face of the building.

Objectives

- To establish the spatial proportions of streets in accordance with the urban form / street hierarchy principles
- To reinforce the threshold between public and private space by providing a transition from the street to the building
- To achieve visual privacy to apartments from the street
- To provide sufficient space for lobbies or foyers, and for individual ground floor apartments
- To support streetscape objectives by allowing for a landscaped setting for buildings

Performance criteria

i Create an urban character, provide consistent street edge definition and enhance the potential for retail and street fronting activities, by:

- establishing street setbacks on Hill Road and major east-west streets (excluding foreshore plaza areas) as build-to lines for a minimum 70% of the length of the building façade.
- This excludes the top two floors, which may be set back from the build-to line.

ii For buildings on Hill Road, provide an 8 metre street setback

iii For buildings on major east-west streets, provide a 5 metre setback

iv Support the linear park character envisaged for the major north-south street by providing a minimum 4 metre setback

iv Create a residential character for buildings on secondary streets by providing a minimum 3 metre setback

vi Protect the amenity and public space character of the foreshore by providing a minimum 30 metre setback to the waterfront, except at the termination of east west streets where a 20 metre setback is allowed to a maximum extent of 25 metres

vii Where variable height in excess of the height controls is permitted (see 3.4.2 Heights above), maintain the overall height datum established for streets by providing minimum 3 metre setbacks to the topmost level(s) of the building

viii Contribute to building expression, environmental design solutions, and opportunities for activating the street, by allowing balconies and ground floor terraces to extend forward of the street setback line by a maximum of 600mm in accordance with 3.4.6 Building Articulation below.

3.4.7 BUILDING ARTICULATION

Building articulation is the three dimensional modelling of a façade. Articulation zones allow for the expression of building entries, awnings, façade modulation, as well as private open space in the form of balconies and ground level courtyards. They enable building expression to extend to the maximum allowable building depth while maintaining optimal plan depth for cross ventilation and natural light penetration.

Objectives

- To provide modelled building facades appropriately scaled for the building use and desired street character
- To provide usable private external spaces which are integrated with internal spaces
- To ensure buildings respond to environmental conditions such as noise, sun, wind and views
- To provide for casual surveillance of public spaces
- To establish the relationship of the building – its entries and openings – with the street.

Performance criteria

i Balconies and ground floor terraces may extend forward of the street setback line by a maximum of 600mm across a maximum 50% of the building frontage.

ii Enhance an active street environment and promote a sense of individual ownership, by providing individual entry to at least 75% of all ground floor apartments.

Iii Balance opportunities for overlooking of streets and for attractive outlooks with considerations of visual and acoustic privacy, for example by:

- orienting private open space towards the street, Homebush Bay and Parramatta River
- using noise barriers and privacy screens

iv Optimise amenity and comfort for residents by designing building articulation elements appropriate to the building orientation, for example vertical or horizontal sun shading devices.

3.4 Built form

INTRODUCTION
This part of the document outlines design objectives and performance criteria that guide the detailed resolution of buildings. These performance criteria are an additional layer of controls to the primary controls in Part 3 of this document.

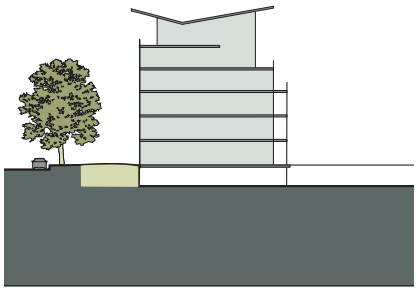
OBJECTIVES
These outline the design intention/intentions. Diagrams have been included to assist in communicating the design objectives. It must be demonstrated that a development seeks to achieve all the design objectives outlined in this section.

PERFORMANCE CRITERIA
The performance criteria demonstrate ways in which the objectives may be achieved, and these may not be applicable to every site. These criteria directly relate to the urban framework principles and the precinct-wide controls outlined in Part 3. All development applications will be reviewed against the performance criteria outlined below.

4.1.1 DEEP SOIL ZONES

Deep soil zones are areas of natural ground with relatively natural soil profiles retained within a development. Deep soil zones have important environmental benefits, which include promoting healthy growth of large trees with large canopies, protecting existing mature trees and allowing infiltration of rain water to the water table and reduction of stormwater runoff.

On many sites on the peninsula filling with demolition material or other imported material reclamation has resulted in a soil profile which is not natural. While these conditions may not be ideal for plant growth, it is still possible to achieve healthy vegetation growth through careful analysis of soil conditions, appropriate soil treatments and careful plant selection. Building up the soil depth to create a new ground level to accommodate parking (essentially filling around car park structures) is an opportunity to provide good quality soil in front setbacks to support water infiltration and the growth of mature trees.



Car parking should be located under the building footprint and within internal couryards to promote continuous deep soil zones around the outside of blocks, in the front setbacks of the development.

Objectives

- To assist with management of the water table.
- To assist with management of water quality.
- To improve the amenity of developments through the retention and/or planting of large and medium size trees.

Performance Criteria

i A minimum of 15 percent of the private open space area of a site is to be a deep soil zone. Where there is no capacity for water infiltration, stormwater treatment measures must be integrated with the design of the residential flat building.

ii Optimise the provision of consolidated deep soil zones by locating basement and sub-basement car parking within the building footprint so as not to extend into street setback zones.

iii Optimise the extent of deep soil zones beyond the site boundaries by locating them contiguous with the deep soil zones of adjacent properties.

iv Promote landscape health by supporting a rich variety of vegetation type and size.

v Increase the permeability of paved areas by limiting the area of paving and/or using pervious paving materials.

4.1.2 FENCES AND WALLS

A picket and pillar fence defines the street boundary, clearly demarcating 'public' and 'private' space.

Materials and planting are combined in a good ratio of solid to void, to enhance visual amenity of the street, whilst ensuring privacy and security to the residents.

Fences and walls include all built vertical landscaping elements designed to define boundaries between one space and the next or to rationalise a change in level. The design of fences and walls has an impact on the real and perceived safety and security of residents as well as on the amenity of the public domain and the identity of the residential apartment development.

Objectives

- To define the edges between public and private land.
- To define the boundaries between areas within the development having different functions or owners.
- To provide privacy and security.
- To contribute positively to the public domain.

Performance Criteria

i Clearly delineate the private and public domain without compromising safety and security by:

- designing fences and walls which provide privacy and security while not eliminating views, outlook, light and air
- limiting the length and height of retaining walls along street frontages.

ii Contribute to the amenity, beauty and useability of private and communal open spaces by incorporating some of the following in the design of fences and walls:

- benches and seats
- planter boxes
- pergolas and trellises
- barbeques
- water features
- composting boxes and worm farms.

iii Retain and enhance the amenity of the public domain by:

- avoiding the use of continuous lengths of blank walls at street level
- using planting to soften the edges of any raised terraces to the street, such as over sub basement car parking, and reduce their apparent scale
- where sub basement car parking creates a raised terrace (up to 1.2 metres higher than footpath level) for residential development to the street, ensuring that any fencing to the terrace is maximum 50% solid to transparent

iv Select durable materials, which are easily cleaned and are graffiti resistant.

4.1.3 LANDSCAPE DESIGN

Landscape design includes the planning, design, construction and maintenance of all utility, open space and garden areas. It is fundamental to the design of residential flat development. Together, landscape and buildings operate as an integrated and sustainable system, resulting in greater aesthetic quality and amenity for occupants and the adjoining public domain. As such, it should not be generated by left-over spaces resulting from building siting and location.

Landscape design builds on the existing site's natural and cultural features to contribute to a development's positive relationship to its context and site. Landscape design should optimise useability, privacy and social opportunity, equitable access and respect for neighbours' amenity. It should also provide for practical establishment and long-term management.

The site's topography has been used to create a series of smaller more intimate spaces using retaining walls and planter beds, which step down across the site.

Objectives

- To add value to residents' quality of life within the development in the forms of privacy, outlook and views.
- To provide habitat for native indigenous plants and animals.
- To improve stormwater quality and reduce quantity.
- To improve the microclimate and solar performance within the development.
- To improve urban air quality.
- To provide a pleasant outlook.

Performance Criteria

i Improve the amenity of open space with landscape design which:

- provides appropriate shade from trees or structures
- provides accessible routes through the space and between buildings
- screens cars, communal drying areas, swimming pools and the courtyards of ground floor units
- allows for locating art works where they can be viewed by users of open space and/or from within apartments.

ii Contribute to streetscape character and the amenity of the public domain by:

- relating landscape design to the desired proportions and character of the streetscape
- using planting and landscape elements appropriate to the scale of the development
- mediating between and visually softening the bulk of large development for the person on the street.

iii Improve the energy and solar efficiency of dwellings and the microclimate of private open spaces. Planting design solutions include:

- trees for shading low-angle sun on the eastern and western sides of a dwelling
- trees that do not cast a shadow over solar collectors at any time of the year
- deciduous trees for shading of windows and open space areas in summer
- locating evergreen trees well away from the building to permit the winter sun access
- varying heights of different species of trees and shrubs to shade walls and windows
- locating pergolas on balconies and courtyards to create shaded areas in summer and private areas for outdoor living
- locating plants appropriately in relation to their size at maturity.

The detailing of the courtyard edge allows a visual connection between the street and the communal space, while clearly defining public and private realms.

iv Design landscape which contributes to the site's particular and positive characteristics by:

- planting communal private space with native vegetation, species selection as per Sydney Olympic Park Parklands 2020 & Plan of Management
- enhancing habitat and ecology
- retaining and incorporating trees, shrubs and ground covers endemic to the area, where appropriate
- retaining and incorporating changes of level, visual markers, views and any significant site elements.

v Contribute to water and stormwater efficiency by integrating landscape design with water and stormwater management, for example, by:

– using plants with low water demand to reduce mains consumption
– using plants with low fertiliser requirements
– using plants with high water demand, where appropriate, to reduce run off from the site
– utilising permeable surfaces
– using water features
– incorporating wetland filter systems.

vi Provide a sufficient depth of soil above paving slabs to enable growth of mature trees.

vii Minimise maintenance by using robust landscape elements.

viii See 4.1.5 Planting on structures for minimum soil depths on roofs for trees, shrubs and groundcover planting.

4.1.4 PRIVATE OPEN SPACE

Open space is breathing space for residential flat development. It may be 'semi-public' (accessible and useable at certain times by the general public), communal (shared by all residents of a development) or private (associated with a single dwelling and for the exclusive use of the occupants). The primary function of open space is to provide amenity in the form of:

- landscape design
- daylight access to apartments
- visual privacy
- opportunities for recreation and social activities
- water cycle management

Objectives

- To provide residents with passive and active recreational opportunities.
- To provide an area on site that enables soft landscaping and deep soil planting.
- To ensure that communal open space is consolidated, configured and designed to be useable and attractive.
- To provide a pleasant outlook.

Performance Criteria

i Provide communal open space at a minimum of 25 percent of the site area (excluding roads). Where developments are unable to achieve the recommended communal open space, they must demonstrate that residential amenity is provided in the form of increased private open space and/or in a contribution to public open space.

ii communal open space may be provided on a podium or roof(s) in a mixed-use building with commercial and/or retail on the ground floor

iii Facilitate the use of communal open space for the desired range of activities by:

- locating it in relation to buildings to optimise solar access to apartments
- consolidating open space on the site into recognisable areas with reasonable space, facilities and landscape
- designing size and dimensions to allow for the 'program' of uses it will contain
- minimising overshadowing
- carefully locating ventilation duct outlets from basement car parks.

iv Provide a minimum area of 25m2 private open space for each apartment at ground level or similar space on a structure, including balconies, such as on a podium or car park; the minimum dimension in one direction is four metres (see Balconies for private open space requirements for above-ground and above-podium dwellings).

v Provide private open space for each apartment capable of enhancing residential amenity, in the form of:

- balcony, deck, terrace, garden, yard, courtyard and/or roof terrace. Where the primary private open space is a balcony, see Balconies.

vi Locate open space to increase the potential for residential amenity by designing apartment buildings which:

- are sited to allow for landscape design
- are sited to optimise daylight access in winter and shade in summer
- have a pleasant outlook
- have increased visual privacy between apartments

vii Provide environmental benefits including habitat for native fauna, native vegetation and mature trees, a pleasant microclimate, rainwater percolation and outdoor drying area.

A central courtyard with mature trees, lawn and a swimming pool provides a pleasant microclimate from surrounding apartments in a dense environment.

The pool provides an informal meeting place and passive recreational areas for residents.

Courtyard gardens provide private open space for residents within a larger common landscaped space.

4.1.5 PLANTING ON STRUCTURES

Shade trees and planters enclose a small courtyard and provides intimacy within a larger communal open space.

Sculptural planters provide adeqaute depth for small trees and visually enhance the design of adjacent spaces.

Constraints on the location of car parking structures due to water table conditions mean that open space and courtyards are most likely to be provided on podium structures. The plants in these areas are grown in total containment with artificial soils, drainage and irrigation and are subject to a range of environmental stresses that affect their health and vigour, and ultimately their survival. Quality landscape design and open space amenity relies in part on the quality and health of plants.

Objectives

- To contribute to the quality and amenity of communal open space on roof tops, podiums and internal courtyards
- To encourage the establishment and healthy growth of trees in urban areas

Performance Criteria

i Design for optimum conditions for plant growth by:
- providing soil depth, soil volume and soil area appropriate to the size of the plants to be established
- providing appropriate soil conditions and irrigation methods
- providing appropriate drainage.

ii Design planters to support the appropriate soil depth and plant selection by:
- ensuring planter proportions accommodate the largest volume of soil possible and minimum soil depths of 1.5 metres to ensure tree growth
- providing square or rectangular planting areas rather than narrow linear areas.

iii Increase minimum soil depths in accordance with:
- the mix of plants in a planter for example where trees are planted in association with shrubs, groundcovers and grass
- the level of landscape management, particularly the frequency of irrigation
- anchorage requirements of large and medium trees
- soil type and quality.

iv Recommended minimum standards for a range of plant sizes, excluding drainage requirements, are:

· Large trees such as figs (canopy diameter of up to 16 metres at maturity)
- minimum soil volume 150 cubic metres
- minimum soil depth 1.3 metre
- minimum soil area 10 metre x 10 metre area or equivalent

· Medium trees (8 metre canopy diameter at maturity)
- minimum soil volume 35 cubic metres
- minimum soil depth 1 metre
- approximate soil area 6 metre x 6 metre or equivalent

· Small trees (4 metre canopy diameter at maturity)
- minimum soil volume 9 cubic metres
- minimum soil depth 800mm
- approximate soil area 3.5 metre x 3.5 metre or equivalent

· Shrubs
- minimum soil depths 500-600mm

· Ground cover
- minimum soil depths 300-450mm

· Turf
- minimum soil depths 100-300mm

4.1.6 STORMWATER MANAGEMENT

Stormwater is the run off from buildings and the paved areas surrounding them. The design and implementation of appropriate management practices during construction, and during the life of the building, can reduce the potentially significant impact of development upon natural waterways. Water sensitive urban design seeks to minimise impacts on the total water cycle by reducing the stormwater discharge rate and protecting stormwater quality. Effective stormwater management supports the stability of the water table.

Stormwater management is critical in the environs of Homebush Bay.

Objectives

- To minimise the impacts of residential flat development and associated infrastructure on the health and amenity of Parramatta River, Homebush Bay and associated waterways.
- To preserve existing topographic and natural features, including watercourses and wetlands.
- To minimise the discharge of sediment and other pollutants to the urban stormwater drainage system during construction activity.

Performance Criteria

i Reduce the volume impact of stormwater on infrastructure by retaining it on site. Design solutions may include:

- minimising impervious areas by using pervious or open pavement materials
- retaining runoff from roofs and balconies in water features as part of landscape design or for reuse for activities such as toilet flushing, car washing and garden watering
- landscape design incorporating appropriate vegetation
- minimising formal drainage systems (pipes) with vegetated flowpaths (grass swales), infiltration or biofiltration trenches and subsoil collection systems in saline areas
- water pollution control ponds or constructed wetlands on larger developments.

ii Optimise deep soil zones. All development must address the potential for deep soil zones (see Deep Soil Zones).

iii On dense urban sites where there is no potential for deep soil zones to contribute to stormwater management, seek alternative solutions. Structural stormwater treatment measures may be used including:

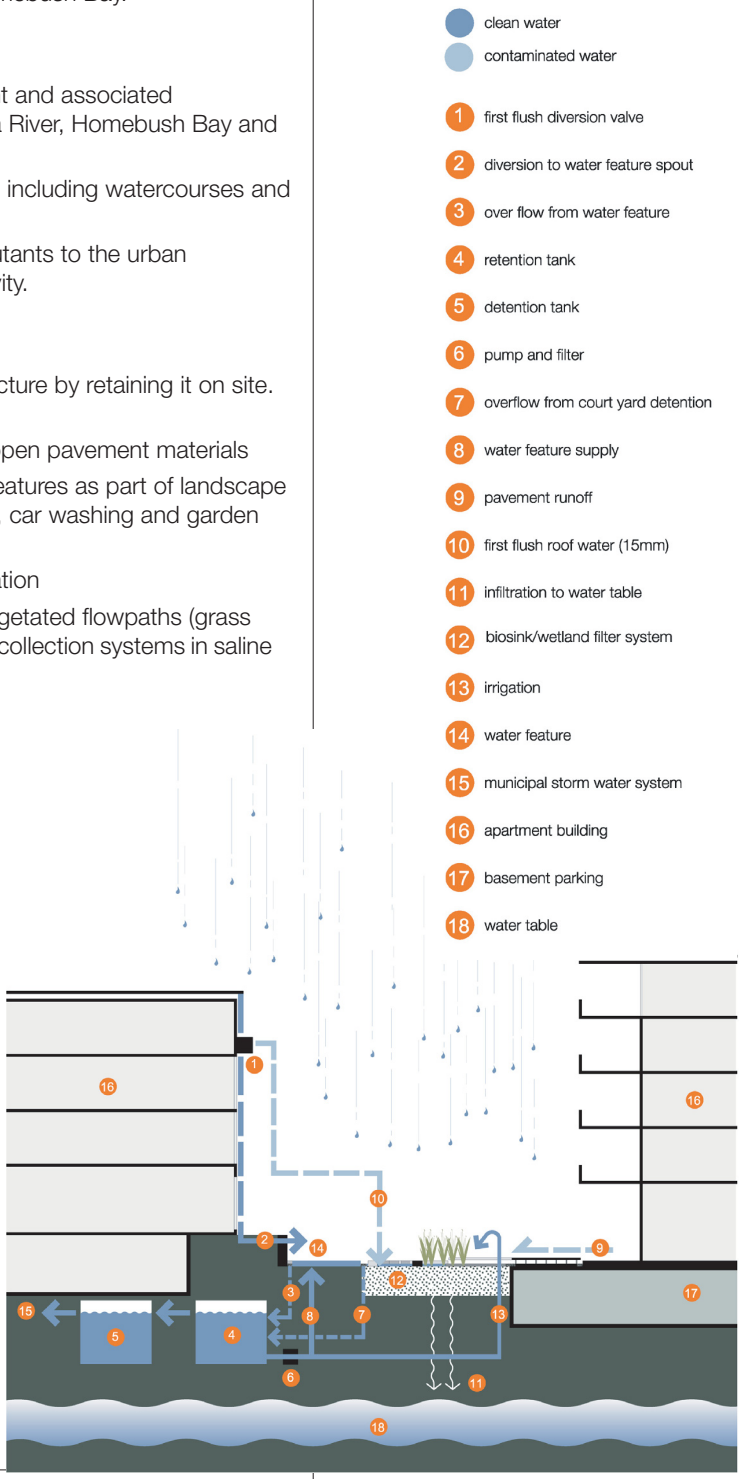
- litter or gross pollutant traps to capture leaves, sediment and litter
- on-site detention storage.

iv Protect stormwater quality by providing for:

- sediment filters, traps or basins for hard surfaces
- treatment of stormwater collected in sediment traps on soils containing dispersive clays.

v Reduce the need for expensive sediment trapping techniques by controlling erosion, for example by:

- landscape design incorporating appropriate vegetation
- stable (non-eroding) flowpaths conveying water at non-erosive velocities.



4.1.7 WIND

Strong prevailing north-easterly as well as southerly winds affect the precinct. There is a potential conflict between capitalising on views and solar access, and managing the impacts of north-easterly winds.

Objectives

- To minimise the impact of wind exposure within public and private open space
- To enable residential dwellings to benefit from ventilating breezes
- To maximise the comfort of the foreshore promenade
- To ensure buildings do not create adverse wind conditions for the Olympic Archery Centre.

Performance criteria

i Site and design development to avoid unsafe and uncomfortable winds at pedestrian level in public areas and private open spaces, for example through appropriate orientation and / or screening of seating areas, balcony, terrace and courtyard spaces.

ii Maximum allowable wind velocities are:
   - 13 metres per second in streets, parks and public places
   - 16 metres per second in all other areas.

iii Provide a Wind Effects Study with all development over 4 storeys in height

iv Ameliorate the effects of wind on the foreshore promenade by configuring landscape elements and incorporating refuge areas off the main promenade.

4.1.8 GEOTECHNICAL SUITABILITY AND CONTAMINATION

Most of the Homebush Bay West precinct is reclaimed land. There are specific constraints on new development arising from the proximity of the water table to the existing ground level (c. 800mm). See Section 4.3.2 Parking. Water-related activity associated with the promenade and foreshore spaces is also currently constrained by contaminated sediments over the whole Bay, in particular the eastern edge. Remediation over time is envisaged to make the Bay safe for passive use by residents and visitors.

Objectives

- To ensure that development sites are suitable for the proposed development use or can be remediated to a level suitable for that use
- To take into account issues relevant to the whole Homebush Bay area, including the disturbance of aquatic sediments

Performance criteria

i Provide a report by a qualified geotechnical engineer establishing that the site of the proposed development is suitable for that development having regard to its groundwater conditions.

ii Provide a report by a qualified contamination consultant indicating that the site is suitable for the proposed use or that remediation options are available to reduce contaminant concentrations to a level appropriate for the proposed land use.

The report fully documents the site investigation process undertaken which includes:

Stage 1 - Preliminary Investigations

Stage 2 - Detailed Investigations

Stage 3 - Remedial Action Plan (if remediation is required)

as outlined in Section 3.4 of *Managing Land Contamination* and Draft Guidelines prepared by DUAP and EPA, August 1998

iii Provide documenation of the process used to ensure fill is clean and contamination free

4.1.9 ELECTRO-MAGNETIC RADIATION

A medium wave (AM) antenna operated by Harbour Radio Pty Ltd (2GB) was located on Wentworth Point in 1937. There are seven aerials within a 2.7km radius of the antenna due to the favourable broadcasting and 'salt marsh' earthing conditions over the Homebush Bay area, two of which are near the southern boundary of the precinct.

Continuation of the AM radio use of the site has significant implications for the exposure fooprint and for future development in the area. Careful consideration must be given to this issue and its potential effects on any development proposals.

Objectives

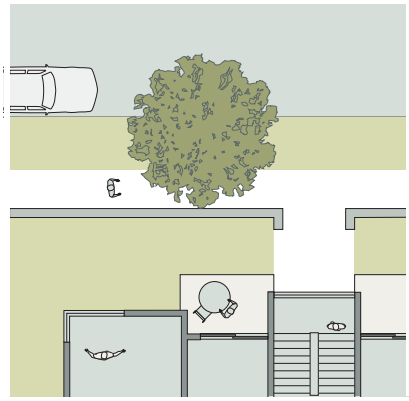
- To enable development of the Homebush Bay West precinct for residential, commercial, recreational and community uses
- To recognise the issues associated with continued use of the site for AM radio broadcasting.

Performance criteria

i Applicants are required to demonstrate that development proposals have carefuly considered potential health and interference impacts from the AM radio towers. Further advice and guidance may be obtained from the relevant Commonwealth regulatory bodies including the Australian Broadcasting Authority.

ii Building design and siting responds appropriately to any constraints and / or impacts identified, for example, appropriate shielding of electronic and telephonic cables.

4.2.1 SAFETY AND SECURITY



Windows, balconies and front doors address the street, provide surveillance and make both the street and the apartment building more

Landscape lighting, common stairwell lighting and projected internal lighting increases safety within the common areas in the development

The built environment has an impact on perceptions of safety and security, as well as on the actual opportunities for crime. A development which provides safe ground level entry and exit during all times of the day and night will minimise opportunities for crime. Design for safety works by enabling casual surveillance, reinforcing territory, controlling access and managing space.

Objectives

- To ensure that residential flat developments are safe and secure for residents and visitors.
- To contribute to the safety of the public domain.

Performance Criteria

i Carry out a formal crime risk assessment in accordance with NSW Police 'Safer by Design' protocols for all residential developments of more than 20 new dwellings, and for the mixed use maritime precinct around Wentworth Point. Crime risk assessment is to extend beyond the site boundaries to include the relationship of the building to public open space areas.

ii Reinforce the development boundary to strengthen the distinction between public and private space. This can be actual or symbolic and may include:

- employing a level change at the site and/or building threshold
- signage which is clear and easy to understand
- entry awnings
- fences, walls and gates
- change of material in paving between the street and the development.

iii Optimise the visibility, functionality and safety of building entrances by:

- orienting entrances towards the public street
- providing clear lines of sight between entrances, foyers and the street
- providing direct entry to ground level apartments from the street rather than through a common foyer
- providing direct and well-lit access between car parks and dwellings, between car parks and lift lobbies and to all unit entrances.

iv Improve the opportunities for casual surveillance by:

- orienting living areas with views over public or communal open spaces, where possible
- using bay windows and balconies, which protrude beyond the building line and enable a wider angle of vision to the street
- using corner windows, which provide oblique views of the street
- avoiding high walls around and parking structures which obstruct views
- providing casual views of common internal areas, such as lobbies and foyers, hallways, recreation areas and car parks.

v Minimise opportunities for concealment by:

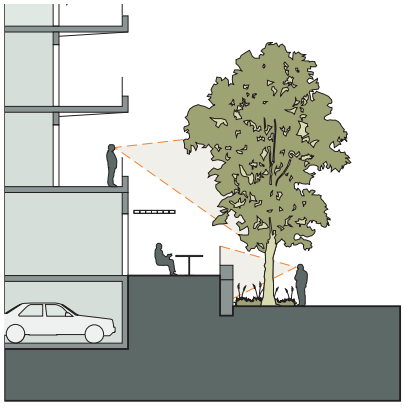
- avoiding blind or dark alcoves near lifts and stairwells, at the entrance and within indoor carparks, along corridors and walkways
- providing well-lit routes throughout the development
- providing appropriate levels of illumination for all common areas
- providing graded illumination to car parks and illuminating entrances higher than the minimum acceptable standard.

vi Control access to the development by:

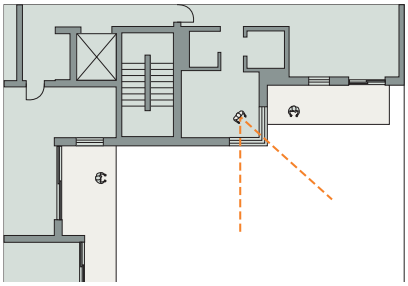
- making apartments inaccessible from the balconies, roofs and windows of neighbouring buildings
- separating the residential component of a development's car parking from any other building use and controlling car park access from public and common areas
- providing direct and secure access from car parks to apartment lobbies for residents
- providing separate access for residents in mixed-use buildings
- providing an audio or video intercom system at the entry or in the lobby for visitors to communicate with residents
- providing key card access for residents.

Projecting bay windows increases surveillance along the street

4.2.2 VISUAL PRIVACY



A change in level, retaining walls, and vegetation, define a boundary between private open space and communal open space.



Locating circulation cores at the re-entrant (internal) corners of buildings can improve separation and privacy between apartments.

Building elements provide privacy between spaces, pergolas limit overlooking, solid walls and sliding screens limit horizontal views.

Visual privacy protects residents' ability to carry out private functions within all rooms and private open spaces without compromising views, outlook, ventilation and solar access or the functioning of internal and external spaces. It relates to the adjacent context, site configuration, topography, the scale of the development and the layout of the apartments.

Degrees of privacy are influenced by a number of factors such as:

- the nature of activities in different areas
- the times and frequency of use of the spaces
- occupants' expectations of privacy and their ability to control overlooking with screening devices.

Objectives

- To provide reasonable levels of visual privacy externally and internally, during the day and at night.
- To maximise outlook and views to the public domain from principal rooms and private open spaces without compromising visual privacy.

Performance Criteria

i Locate and orient new development to maximise visual privacy between buildings on site and adjacent buildings by:
- providing adequate building separation
- employing appropriate rear and site setbacks

ii Design building layouts to minimise direct overlooking of rooms and private open spaces adjacent to apartments by:
- locating balconies to screen other balconies and any ground level private open space
- separating communal open space, common areas and access routes through the development from the windows of rooms, particularly habitable rooms
- changing the level between ground floor apartments with their associated private open space, and the public domain or communal open space (see Ground Floor Apartments).

iii Use detailed site and building design elements to increase privacy without compromising access to light and air. Design detailing may include:
- offset windows of apartments in new development and adjacent development windows
- sill heights set at minimum 1.2m above floor level
- recessed balconies and/or vertical fins between adjacent balconies
- solid or semi-solid balustrades to balconies
- louvres or screen panels to windows and/or balconies
- fixed obscure glazing
- appropriate fencing
- vegetation as a screen between spaces
- incorporating planter boxes into walls or balustrades to increase the visual separation between areas
- utilising pergolas or shading devises to limit overlooking of lower apartments or private open space.

4.3 Site Access

4.3.1 BUILDING ENTRY

Entrances define the threshold between the public street and private areas within the building. They may lead into a common entry or directly into the private space of an apartment from the street. Building entries provide a public presence and interface within the public domain thereby contributing to the identity of a residential development.

Objectives

- To create entrances which provide a desirable residential identity for the development.
- To orient the visitor.
- To contribute positively to the streetscape and building façade design.

Performance Criteria

i Improve the presentation of the development to the street by:

- locating entries so that they relate to the existing street and subdivision pattern, street tree planting and pedestrian access network
- designing the entry as a clearly identifiable element of the building in the street
- utilising multiple entries—main entry plus private ground floor apartment entries—where it is desirable to activate the street edge or reinforce a rhythm or entry along a street.

ii Provide as direct a physical and visual connection as possible between the street and the entry.

iii Achieve clear lines of transition between the public street, the shared private, circulation spaces and the apartment unit.

iv Ensure equal access for all

v Provide safe and secure access. Design solutions include:

- avoid ambiguous and publicly accessible small spaces in entry areas
- provide a clear line of sight between one circulation space and the next
- provide sheltered, well lit and highly visible spaces to enter the building, meet and collect mail.

vi Generally provide separate entries from the street for:

- pedestrians and cars
- different uses, for example, for residential and commercial users in a mixed-use development
- ground floor apartments, where applicable (see Ground Floor Apartments).

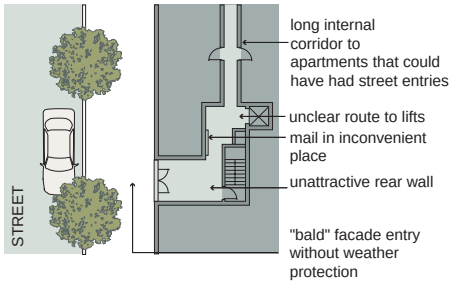
vii Design entries and associated circulation space of an adequate size to allow movement of furniture between public and private spaces.

viii Provide and design mailboxes to be convenient for residents and not to clutter the appearance of the development from the street. Design solutions include:

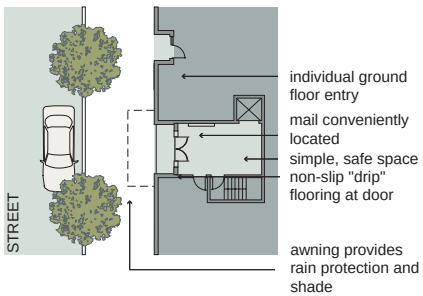
- locating them adjacent to the major entrance and integrated into a wall, where possible
- setting them at 90 degrees to the street, rather than along the front boundary.

Multiple private entries along a street can activate the street and create visual interest.

The facade of this building distinguishes the residential entry from the commercial shop fronts with a vertical element.



poor building entry



well designed building entry

4.3.2 PARKING

Accommodating parking on site, underground and on-grade, has a significant impact on the site layout, landscape design, deep soil zones and stormwater management. It also has the potential to impact on the urban form. The amount of parking provided is related to the size of the development, and parking provision must also be considered in relation to the local context.

There are particular constraints in the Homebush Bay West precinct on provision of car parking in underground structures. Due to the geotechnical conditions, excavation is limited to one level of basement parking and on some sites to 800mm below existing ground. This necessitates site design which locates the parking above ground within perimiter blocks to form podium structures (see diagram 1 below).

An integrated approach across one or more large development sites is encouraged where it is proposed to raise the ground level to provide a new ground level with car parking under and habitable floors above (see 3.4.3 Topography and Site Integration for controls for the extent of permissable ground level changes. See also diagram 2 below).

Objectives

- To minimise car dependency for commuting and recreational transport use and to promote alternative means of transport-public transport, bicycling, and walking.
- To provide adequate car parking for the building's users and visitors, depending on building type and proximity to public transport.
- To integrate the location and design of car parking with the design of the site and the building.

Performance Criteria

i Determine the appropriate car parking space requirements in relation to the development's proximity to public transport, shopping and recreational facilities, the density of the development and the local area and the site's ability to accommodate car parking.

ii Limit the number of visitor parking spaces, particularly in small developments where the impact on landscape and open space is significant.

iii Give preference to underground parking, whenever possible. Design considerations include:

- retaining and optimising the consolidated areas of deep soil zones (in this case, including the street setbacks forming continuous deep soil zones around the outside of a block)
- facilitating natural ventilation to basement and sub-basement car parking areas, where possible
- integrating ventilation grills or screening devices of carpark openings into the façade design and landscape design
- providing a logical and efficient structural grid. There may be a larger floor area for basement car parking than for upper floors above ground. Upper floors, particularly in slender residential buildings, do not have to replicate basement car parking widths.

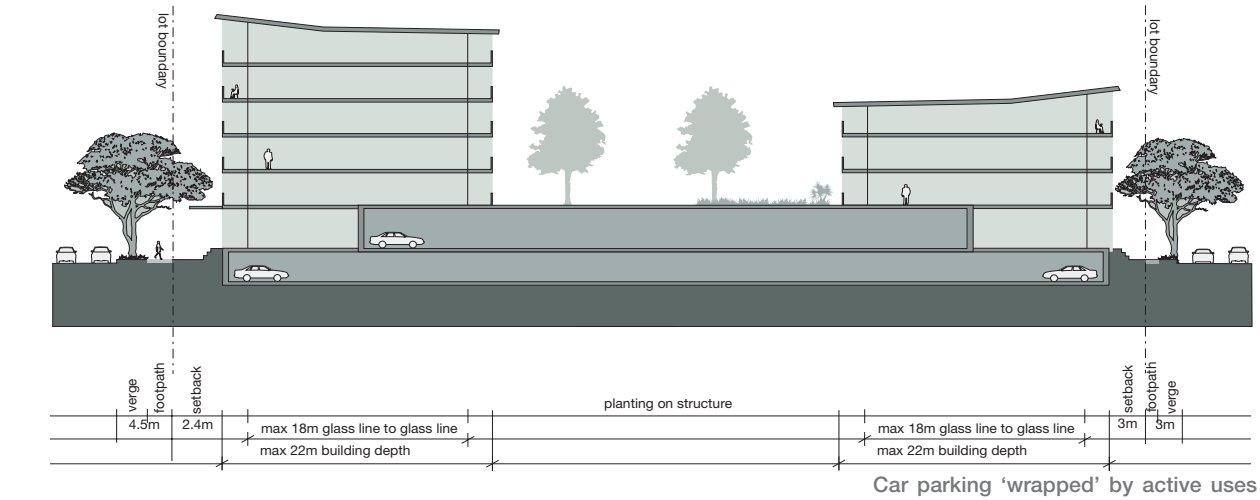
iv A basement podium does not protrude more than 1.2 metres above ground level.

v Where above ground enclosed parking cannot be avoided, ensure the design of the development mitigates any negative impact on streetscape and street amenity by:

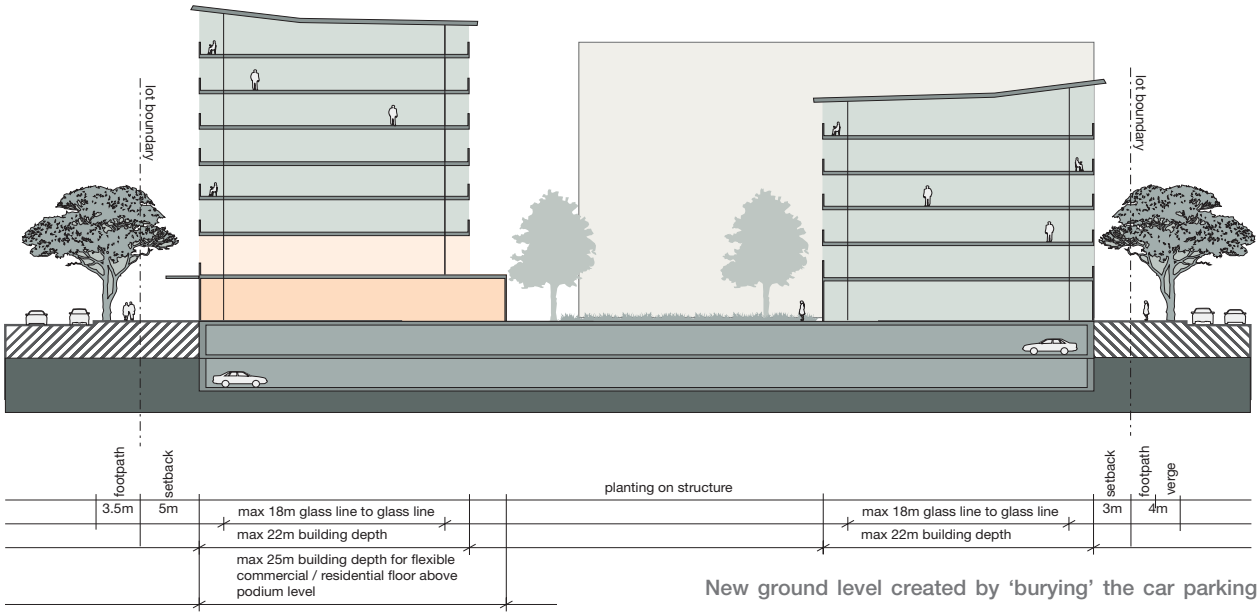
- integrating the car park, including vehicle entries, into the overall façade design, for example, by using appropriate proportions and façade details
- 'wrapping' the car parks with other uses, for example, retail and commercial along street edges with parking behind.

vi Provide bicycle parking which is easily accessible from ground level and from apartments. Provide a combination of secured and chained bicycle storage.

4.3 Site Access



Car parking 'wrapped' by active uses



New ground level created by 'burying' the car parking

vii Provide residential car parking in accordance with the following requirements:

- Generally provide a minimum of 1 space per dwelling.

- *Dwelling type*	*Maximum car spaces per dwelling*
studio	none
I bedroom	1.0
2 bedroom	1.5
3 bedroom	2
visitors	.2

- The consent authority may permit variations to the above maximum rates on the basis of a Transport and Traffic Management Plan which meets their approval

viii Non-residential parking controls for Precinct A are excluded from this DCP and addressed through the precinct masterplan.

ix Provide car parking for convenience retail as follows:

- employees: 2 spaces per tenancy
- patrons: gross floor area under 100m^2, managed on-street parking; gross floor area over 100m^2, 1 space per 40m^2

x Provide car parking for cafes and restaurants as follows:

- employees: 2 spaces per tenancy
- patrons: 15 spaces per 100m^2 (as per RTA Traffic Generating Guidelines)
- this may be a combination of on-street and on-site parking if appropriate management arrangements are agreed with the consent authority and/or Auburn Council.

xi Provide 1 car parking space per 60 sq.m gross leasable floor area of commercial office development

xii Provide motorbike parking at the rate of 1 space per 25 car parking spaces.

xiii Provide secure bicycle parking in all residential developments in accordance with these requirements:

- *Dwelling type*	*Minimum bicycle spaces per dwelling*
studio	none
I bedroom	none
2 bedroom	0.5
3 bedroom	0.5
visitors	1 per 15 dwellings

xiv Provide bicycle parking for commercial office development at the rate of:

- 1 bicycle space per 300 m^2 gross leasable floor area
- 1 visitor space per 2500 m^2 of gross leasable floor area

4.3.3 PEDESTRIAN ACCESS

A safe pedestrian pathway mediates between private building entries and on-grade car parking.

Design for pedestrians focuses on delivering high quality, safe and pleasant walking environments. It is person-centred rather than vehicle-centred. Pedestrian access should also be equitable access, which provides a barrier-free environment where all people who live in and visit the development can enjoy the public domain, and can access apartments and communal use areas in residential developments.

Objectives

- To promote residential flat development which is well connected to the street and contributes to the accessibility of the public domain.
- To ensure that residents, including users of strollers and wheelchairs and people with bicycles, are able to reach and enter their apartment and use communal areas via minimum grade ramps, paths, accessways or lifts.

Performance Criteria

i Utilise the site and its planning to optimise accessibility to the development.

ii Separate and clearly distinguish between pedestrian accessways and vehicle accessways.

iii Consider the provision of public through-site pedestrian accessways in large development sites.

iv Provide high quality accessible routes to public and semi-public areas of the building and the site, including major entries, lobbies, communal open space, site facilities, parking areas, public streets and internal roads.

v Promote equity by:

- ensuring the main building entrance is accessible for all from the street and from car parking areas
- integrating ramps into the overall building and landscape design.

vi Design ground floor apartments to be accessible from the street, where applicable, and to their associated private open space

vii Provide barrier free access to at least 20 percent of dwellings in the development.

viii Demonstrate that adaptable apartments can be converted.

4.3.4 VEHICLE ACCESS

Vehicle access is the ability for cars and maintenance and service vehicles to access the development. The location, type and design of vehicle access points to a development will have significant impacts on the streetscape, the site layout and the building façade design. It is important that vehicle access is integrated with site planning from the earliest stages to balance any potential conflicts with streetscape requirements and traffic patterns and to minimise potential conflicts with pedestrians.

Objectives

- To integrate adequate car parking and servicing access without compromising street character, landscape or pedestrian amenity and safety.
- To encourage the active use of street frontages.

Performance Criteria

i Vehicular access is discouraged from Hill Road and from major east-west streets. Access is to be provided from secondary streets where possible

ii Ensure that pedestrian safety is maintained by minimising potential pedestrian/ vehicle conflicts. Design approaches include:

- limiting the width of driveways to a maximum of 6 metres
- limiting the number of vehicle access points
- ensuring clear site lines at pedestrian and vehicle crossings
- utilising traffic calming devices
- separating and clearly distinguishing between pedestrian and vehicular accessways.

iii Ensure adequate separation distances between vehicular entries and street intersections.

iv Optimise the opportunities for active street frontages and streetscape design by:

- making vehicle access points as narrow as possible
- consolidating vehicle access within sites under single body corporate ownership
- locating car park entry and access from secondary streets and lanes.

v Improve the appearance of car parking and service vehicle entries, for example, by:

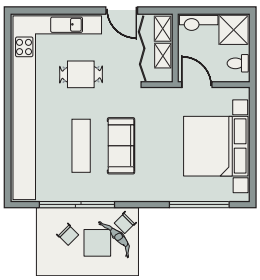
- locating or screening garbage collection, loading and servicing areas visually away from the street.
- setting back or recessing car park entries from the main façade line
- providing security doors to carpark entries to avoid blank 'holes' in facades; or
- where doors are not provided, ensuring that the visible interior of the carpark is incorporated into the façade design and material selection and that building services are concealed
- returning the façade material into the carpark entry recess for the extent visible from the street as a minimum.

A safe pedestrian pathway mediates between private building entries and on-grade car parking.

This elevation treats the car park entry as part of the whole elevation. It narrows the width of the entry and defines an opening in proportion to the other facade elements.

On this small site on a steep terrain, the entry and exit driveways are split to maintain a consistent scale of facade openings.

4.4.1 APARTMENT LAYOUT



Studio apartment

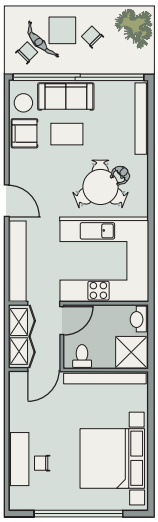
The internal layout of an apartment establishes the spatial arrangement of rooms, the circulation between rooms, and the degrees of privacy for each room. In addition, the layout directly impacts the quality of residential amenity, such as access to daylight and natural ventilation, and the assurance of acoustic and visual privacy. The apartment layout also includes private open space.

Objectives

- To ensure that apartment layouts are efficient and provide high standards of residential amenity.
- To maximise the environmental performance of apartments.

Performance Criteria

i Provide apartments with the following amenity standards as a minimum:
- single-aspect apartments are limited in depth to 8 metres.
- the back of a kitchen is no more than 8 metres from a window.
- The width of cross-over or cross-through apartments over 15 metres deep is 4 metres or greater to avoid deep narrow apartment layouts.



One-bedroom cross-through apartment

ii Ensure apartment layouts are resilient and adaptable over time, for example by:
- accommodating a variety of furniture arrangements
- providing for a range of activities and privacy levels between different spaces within the apartment
- utilising flexible room sizes and proportions or open plans
- ensuring circulation by stairs, corridors and through rooms is planned as efficiently as possible, thereby increasing the amount of floor space in rooms.

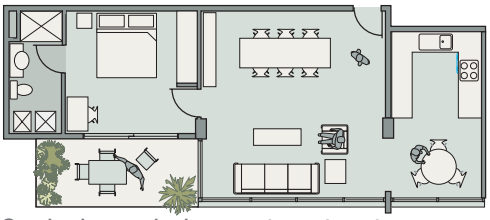
iii Design apartment layouts which respond to the natural environment and optimise site opportunities, by:
- providing private open space in the form of a balcony, a terrace, a courtyard or a garden for every apartment
- orienting main living spaces toward the primary outlook and aspect and away from neighbouring noise sources or windows
- locating main living spaces adjacent to main private open space
- locating habitable rooms, and where possible kitchens and bathrooms, on the external face of the buildings, thereby maximising the number of rooms with windows

iv Maximise opportunities to facilitate natural ventilation and to capitalise on natural daylight, for example by providing:
- corner apartments
- cross-over or cross-through apartments
- split-level or maisonette apartments
- shallow, single-aspect apartments

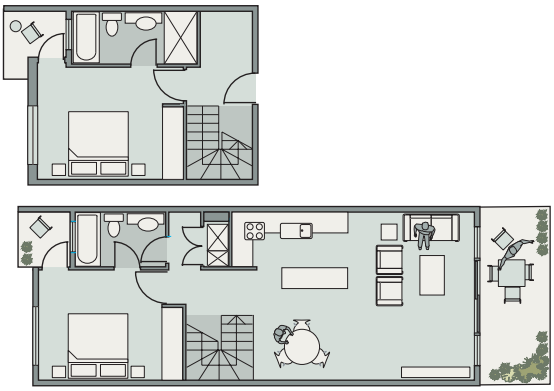
v Avoid locating kitchen as part of the main circulation spaces of an apartment, such as a hallway or entry space.

vi Include adequate storage space in apartment

vii Ensure apartment layouts and dimensions facilitate furniture removal and placement.

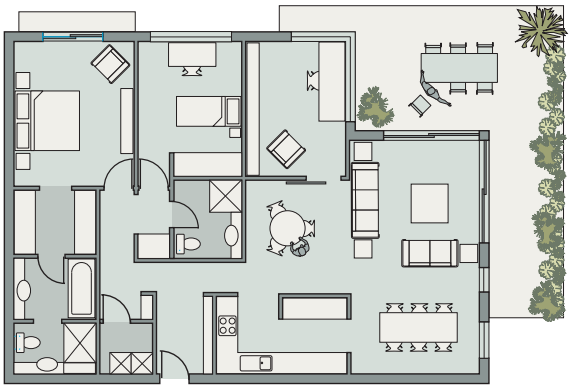


One bedroom single aspect apartment

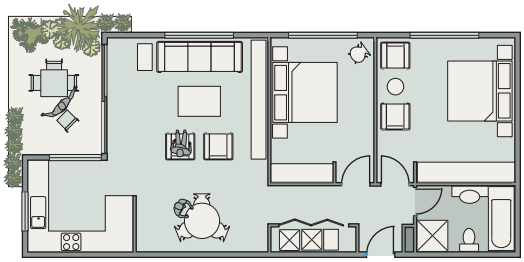


Two bedroom cross over apartment

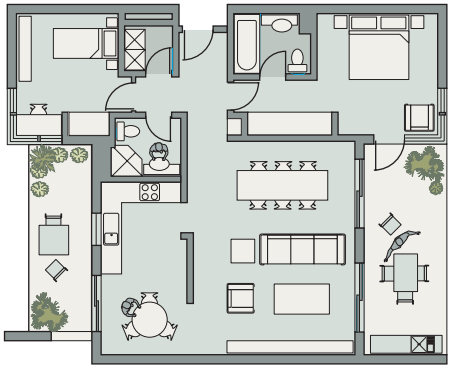
One bedroom maisonette/loft apartment



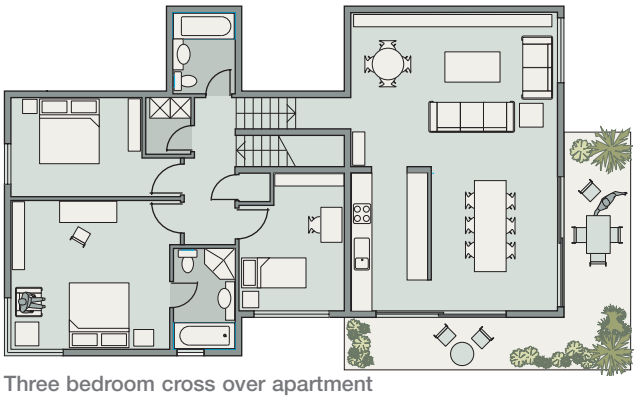
Two bedroom corner apartment with study



Two bedroom corner apartment



Two bedroom cross through apartment



Three bedroom cross over apartment

4.4.2 APARTMENT MIX AND AFFORDABILITY

A mix of apartment types provides housing choice and supports equitable housing access. By accommodating a range of household types, a mix of apartments can ensure apartment buildings support the needs of society now and in the future. This is particularly important because apartment buildings form a significant and often permanent part of the urban fabric.

Objectives

- To provide a diversity of apartments types, which cater for different household requirements now and in the future.
- To provide equitable access to new housing

Performance Criteria

i Provide a variety of apartment types between studio-, one-, two-, three- and three plus-bedroom apartments.

ii Locate a mix of accessible one-, two- and three-bedroom apartments on the ground level for people with disabilities, elderly people and families with children.

iii Optimise the number of accessible and adaptable apartments. See 4.4.5 Flexibility

4.4.3 BALCONIES

Balconies are outdoor rooms, which enhance the amenity and lifestyle choices of apartment residents. They provide private open space, extend the living spaces of the apartment and capitalise on the temperate climate. Balconies are also important architectural elements, contributing to the form and articulation of apartment buildings.

Objectives

- To provide all apartments with private open space.
- To ensure balconies are functional and responsive to the environment thereby promoting the enjoyment of outdoor living for apartment residents.
- To ensure that balconies are integrated into the overall architectural form and detail of residential flat buildings.
- To contribute to the safety and liveliness of the street by allowing for casual overlooking and address.

Performance Criteria

i Where other private open space is not provided, provide at least one primary balcony. The combined area of private open space is a minimum of 12% of the dwelling floor space.

ii Primary balconies for one-bedroom apartments are to have a minimum depth of 2 metres and a minimum area of 8 m2. Primary balconies for two- and three-bedroom apartments are to have a minimum depth of 2.4 metres and a minimum area of 10m2.

- Developments which seek to vary from the minimum standards must provide scale plans of balcony with furniture layout to confirm adequate, useable space.

iii Primary balconies are to be:

- located adjacent to the main living areas, such as living room, dining room or kitchen to extend the dwelling living space
- proportioned to be functional and promote indoor/outdoor living. A dining table and two to four chairs should fit on the majority of balconies in any development. Consider supplying a tap and gas point.

iv Consider secondary balconies, including Juliet balconies or operable walls with balustrades, for additional amenity and choice:

- in larger apartments
- adjacent to bedrooms
- for clothes drying; these should be screened from the public domain.

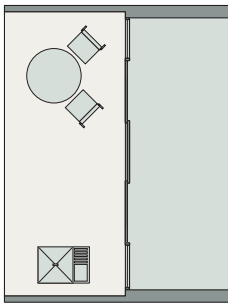
v Design and detail balconies in response to the local climate and context thereby increasing the usefulness of balconies. This may be achieved by:

- locating balconies facing predominantly north, east or west to optimise solar access and views to Parramatta River, Homebush Bay West and Sydney Olympic Park
- utilising sun screens, pergolas, shutters and operable walls to control sunlight and wind
- providing balconies with operable screens, Juliet balconies or operable walls/ sliding doors with a balustrade in special locations where noise or high winds prohibit other solutions—along rail corridors, on busy roads or in tower buildings
- choosing cantilevered balconies, partially cantilevered balconies and/or recessed balconies in response to requirements for daylight, wind, acoustic privacy and visual privacy
- ensuring balconies are not so deep that they prevent sunlight entering the apartment below.

Balconies allow for privacy while at the same time giving a view and surveillance over the street they face.

Ensure that balconies have enough depth to accomodate a table and chairs.

The detailed design of these partially solid balustrades, sun shades and privacy screens contribute to the overall facade composition of the building.

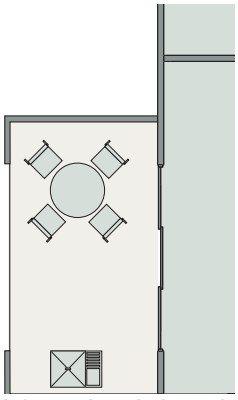


A 2m deep balcony can comfortably accomodate a table and two chairs.

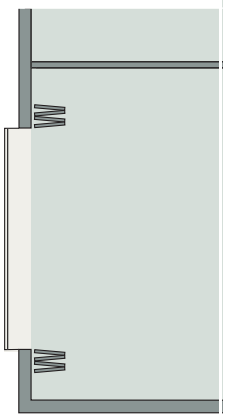
vi Design balustrades to allow views and casual surveillance of the street while providing for safety and visual privacy. Design considerations may include:

- detailing balustrades using a proportion of solid to transparent materials to address site lines from the street, public domain or adjacent development. Full glass balustrades do not provide privacy for the balcony or the apartment's interior, especially at night
- detailing balustrades and providing screening from the public, for example, for a person seated looking at a view, clothes drying areas, bicycle storage or air conditioning units.

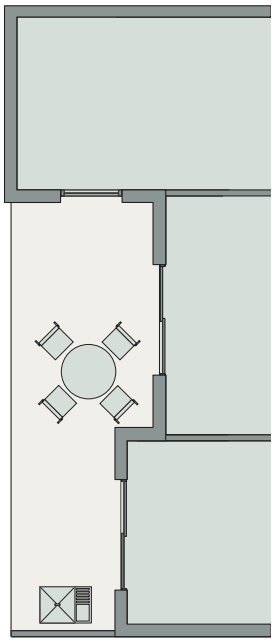
vii Coordinate and integrate building services, such as drainage pipes, with overall façade and balcony design, for example, drainage pipes under balconies are often visible from below in taller buildings and negatively impact the overall façade appearance.



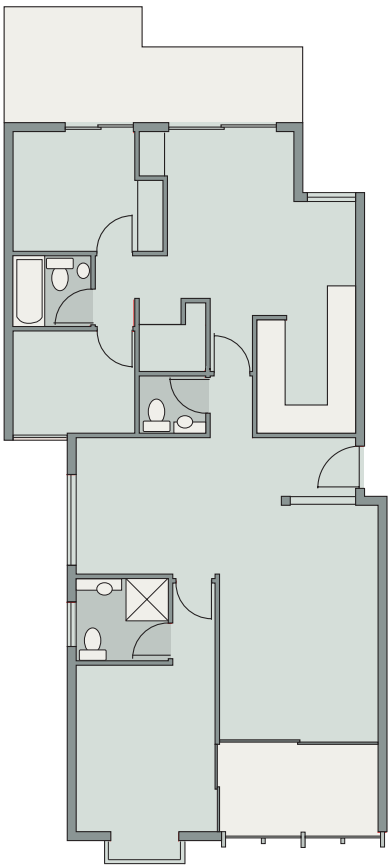
A 2.4 m deep balcony is required to comfortably accomodate a table and four chairs.



Operable walls may be appropriate iwhere there is limited space available.



Balconies with access from mutiple rooms improve the amenity of an apartment.



This three bedroom apartment has two balconies which provide a choice of outdoor private space and the potential for greater privacy and amenity for residents

4.4.4 CEILING HEIGHTS

Ceiling heights are measured from finished floor to finished ceiling level. Ceiling heights are design elements for defining the three-dimensional space of an apartment, in conjunction with walls and floors. Well designed and appropriately defined ceilings ensure quality residential amenity and create spatial interest and hierarchy in apartments.

Variation in height of different floors adds to the articulation/visual quality of the building.

Objectives

- To increase the sense of space in apartments and provide well proportioned rooms.
- To promote the penetration of daylight into the depths of the apartment.
- To contribute to flexibility of use.
- To achieve quality interior spaces while considering the external building form requirements.

Guidelines

i Minimum dimensions are measured from finished floor level (FFL) to finished ceiling level (FCL) are:

- in mixed use buildings along Hill Road and major east-west streets: 3.6 metre minimum for ground floor retail or commercial and 3.3 metre minimum for first floor residential, retail or commercial to promote future flexibility of use
- in residential buildings on primary north-south street and on secondary streets: 3.3 metre minimum for ground floor to promote future flexibility of use; 2.7 metre minimum for all habitable rooms on all other floors; 2.4 metre minimum for all non-habitable rooms.
- for two storey units, 2.4 metre minimum for second storey if 50 percent or more of the apartment has 2.7 metre minimum ceiling heights
- for two-storey units with a two storey void space, 2.4 metre minimum

ii Double height spaces with mezzanines count as two storeys

iii Use ceiling design to:

- define a spatial hierarchy between areas of an apartment using double height spaces, raked ceilings, changes in ceiling heights and/or the location of bulkheads
- enable well proportioned rooms: for example, smaller rooms often feel larger and more spacious when ceilings are higher
- maximise heights in habitable rooms by stacking wet areas from floor to floor. This ensures that services and their bulkheads are located above bathroom and storage areas rather than habitable spaces
- promote the use of ceiling fans for cooling and heating distribution.

iv Facilitate better access to natural light by using ceiling heights which:

- promote the use of taller windows, highlight windows and fan lights. This is particularly important for apartments with limited light access, such as ground floor units and apartments with deep floor plans
- enable the effectiveness of light shelves in enhancing daylight distribution into deep interiors.

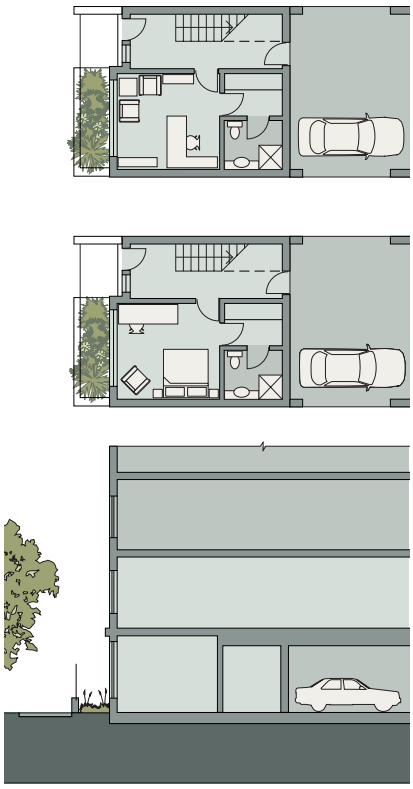
v Developments which seek to vary the recommended ceiling heights must demonstrate that apartments will receive satisfactory daylight (eg. shallow apartments with large amount of window area).

vi Coordinate internal ceiling heights and slab levels with external height requirements and key datum lines. External building elements requiring coordination may include:

- datum lines set by the Structural Design Framework
- exterior awing levels or colonnade heights

The double height in this apartment spatially unifies the two floor levels, creating a pleasant well-lit living area.

4.4.5 FLEXIBILITY



Locating a bedroom with an ensuite on the ground floor of this 2-storey apartment facilitates a variety of uses:
1. Small business
2. Third bedroom
3. Shared housing for independent adults
4. Housing for an older person or person with a mobility disability

Flexible apartment design ensures that buildings can accommodate a wider range of inhabitants and their changing lifestyle needs, such as:

- household structure changes: single, couple, family, extended family
- live/work housing arrangements
- changing mobility and access needs
- future changes in use: residential to commercial office.

Objectives

- To encourage housing which meets the broadest range possible of occupants' needs, including people who are ageing and people with disabilities.
- To promote 'long life loose fit' buildings, which can accommodate whole or partial changes of use.
- To encourage adaptive re-use.
- To save the embodied energy expended in building demolition.

Performance Criteria

i. Provide robust building configurations which utilise multiple entries and circulation cores, especially in larger buildings over 15 metres long, for example with:
   - thin building cross sections suitable for either residential or commercial uses
   - a mix of apartment types
   - higher ceilings on the ground floor and first floor
   - separate entries for the ground floor level and the upper levels
   - sliding and/or movable wall systems.

ii Provide a multi-use space with kitchenette within each development to be available for the use of residents.

iii Provide apartment layouts which accommodate the changing use of rooms. Design solutions may include:
   - windows in all habitable rooms as many non-habitable rooms as possible
   - adequate room sizes or open-plan apartments
   - dual master-bedroom apartments, which can support two independent adults living together or a live/work situation.

iv Utilise structural systems, which support a degree of future change in building use or configuration. Design solutions may include:
   - a structural grid which accommodates car parking dimensions, retail, commercial and residential uses vertically throughout the building
   - aligning structural walls, columns and services cores between floor levels
   - minimising of internal structural walls
   - higher floor to floor dimensions on the ground floor and possibly the first floor
   - knock-out panels between apartments to allow two adjacent apartments to be amalgamated.

v Design all commercial / retail components of mixed use buildings to comply with AS1428-2001

vi Promote accessibility and adaptability by :
   - providing a minimum of 20% of all apartments that comply with AS4299-1995 *Adaptable housing Class B*
   - providing a minimum of 75% visitable apartments within each development; that is, where the living room is accessible
   - optimising pedestrian mobility and access to communal private space
   - designing developments to meet AS3661 *Slip-Resistant Surface Standard* for pedestrian areas
   - ensuring wheelchair accessibility between designated dwelilngs, the street and all common facilities

4.4.6 GROUND FLOOR APARTMENTS

Ground floor apartments offer the potential for direct access from the street and on-grade private landscape areas and provide opportunities for the apartment building and its landscape to respond to the streetscape and the public domain at the pedestrian scale. Where apartment entries are accessible from the street they also support housing choice by offering housing choice to older people, people with disabilities and families with small children. Ground floor apartments extend the lifestyle choices available in apartment buildings by facilitating activities, such as gardening, play and pet ownership. Ground floor apartments include apartments directly above a sub-basement parking level.

Objectives

- To contribute to residential streetscape character and to create active safe streets.
- To increase the housing and lifestyle choices available in apartment buildings.
- To ensure that ground floor apartments achieve good amenity

Performance Criteria

i Design front gardens or terraces to contribute to the spatial and visual structure of the street while maintaining privacy for apartment occupants. This can be achieved by:

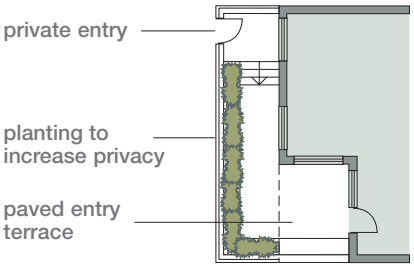
- animating the street edge and creating more pedestrian activity by optimising individual entries for ground floor apartments.
- providing appropriate fencing, balustrades, window sill heights, lighting and/ or landscaping to meet privacy and safety requirements of occupants while contributing to a pleasant streetscape
- increasing street surveillance with doors and windows facing onto the street.
- utilising a maximum 1.5 metre change in level from the street to the private garden or terrace to minimise sight lines from the streets into the apartment

ii Promote housing choice by:

- providing private gardens or terraces which are directly accessible from the main living spaces of the apartment and support a variety of activities
- maximising the number of accessible and visitable apartments on the ground floor
- supporting a change or partial change in use, such as a home offices accessible from the street

iii Increase opportunities for solar access in ground floor units, particularly in denser areas by:

- proving higher ceilings and taller windows
- choosing trees and shrubs which provide solar access in winter and shade in summer



This private entry is raised above ground to provide and to facilitate car park ventilation. Planting along the terrace edge contributes to a quality streetscape.

Street level picket fencing with planting provides screening to car park

4.4.7 HOME OFFICES

Mount Street Walk, Pyrmont – home offices on the ground floor and residential uses above

A home office is a small work place forming part of a dwelling, with a gross floor space limit of 30 square metres, which involves not more than two workers (one of whom is a permanent resident of the dwelling), with no traffic or parking implications, and no interference with the amenity of the neighbourhood.

Objectives

- To promote economic growth in the town centre.
- To promote an active and safe neighbourhood by promoting 24-hour use of the area.
- To promote transport initiatives by reducing travel time and cost, which in turn creates a cleaner environment.
- To enable tax deduction advantages by clearly identifying a home-business area.
- To improve personal and property security.
- To promote casual surveillance of the street.
- To promote opportunities for less mobile people to make economic progress.
- To promote a diverse workforce in terms of age and mobility, as well as people from culturally and linguistically diverse backgrounds.

Performance Criteria

i. Home offices are not allowed to conduct business which involves the registration of the building under the Factories, Shops and Industries Act 1962.

ii. Home offices are to have no traffic or parking implications on the neighbourhood/ street.

iii. Home offices are to seek to minimise conflict with domestic activities.

iv. Home offices are to have the flexibility of being able to convert to become part of the residence.

v. Home offices are to have a clearly identifiable area, ideally designed to close-off from the rest of the dwelling for purposes of safety, security and privacy.

vi. The work activity is not to interfere with the amenity of the neighbourhood by reason of emisison of noise, vibration, odour, fumes, smoke, vapour, steam, soot, ash, dust, waste, water, waste products, grit, oil, or otherwise.

vii. Home offices are to have:

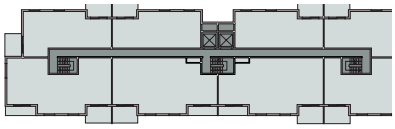
- adequate storage areas,
- separate business phone/fax,
- large mailbox suitable for business mail
- any special utility services needed (eg separate power metering)

viii. Home offices are not allowed to display any goods in a window or otherwise.

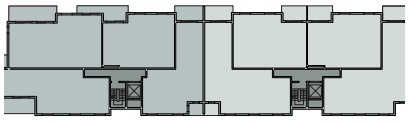
ix. Home offices are not allowed to exhibit any notice, advertisement or sign, other than a notice, sign or advertisement exhibited on the dwelling house or dwelling to indicate the name and occupation only of the resident.

4.4.8 INTERNAL CIRCULATION

Lobbies, stairs, lifts and corridors make up the common circulation spaces within a building. Important design considerations include safety, amenity and durability. In addition, the location, proportion, extent and frequency of these elements have a direct relationship with the building's form, layout and articulation.



Conventional practice locates single aspect units along a double loaded corridor.



Better practice uses multiple cores to support more dual aspect apartments with better daylight access and cross-ventilation.

The use of multiple lift and stair cores promotes more entries along the street and can help to 'break up' a long building facade.

Objectives

- To facilitate quality apartment layouts, such as dual aspect apartments.
- To contribute positively to the form and articulation of the building façade and its relationship to the urban environment.
- To create safe and pleasant spaces for the circulation of people and their personal possessions.
- To encourage interaction and recognition between residents to contribute to a sense of community and improve perceptions of safety.

Performance Criteria

i Increase amenity and safety in circulation spaces by:

- providing generous corridor widths and ceiling heights, particularly in lobbies, outside lifts and apartment entry doors
- providing appropriate levels of lighting, including the use of natural daylight, where possible
- minimising corridor lengths to give short, clear sight lines
- avoiding tight corners
- providing legible signage noting apartment numbers, common areas and general directional finding
- providing adequate ventilation.

ii Support better apartment building layouts by:

- designing buildings with multiple cores which increase the number of entries along a street, increase the number of vertical circulation points, and give more articulation to the facade
- limiting the number of units off a circulation core on a single level.

iii Where units are arranged off a double-loaded corridor, the number of units accessible from a single core/corridor is limited to eight, except where:

- developments can demonstrate the achievement of the desired streetscape character and entry response
- where developments can demonstrate a high level of amenity for common lobbies, corridors and units.

iv Articulate longer corridors. Design solutions may include:

- changing the direction or width of a corridor
- utilising a series of foyer areas
- providing windows along or at the end of a corridor.

v Minimise maintenance and maintain durability by using robust materials in common circulation areas.

4.4.9 STORAGE

Providing storage space for items ancillary to people's living needs is particularly important in residential developments where the size of dwellings and their configuration are constrained. Storage is conventionally calculated on an apartment by apartment basis, proportional to the size of the apartment.

Objectives

- To provide adequate storage for everyday household items within easy access of the apartment.
- To provide storage for sporting, leisure, fitness and hobby equipment.

Performance Criteria

i Provide storage facilities accessible from hall or living areas, in addition to kitchen cupboards and bedroom wardrobes, at a minimum:

- studio apartments $6m^3$
- one-bedroom apartments $6m^3$
- two-bedroom apartments $8m^3$
- three plus bedroom apartments $10m^3$

This storage is to be excluded from FSR calculations.

ii Locate storage conveniently for apartments. Options include providing:

- at least 50 percent of the required storage within each apartment and accessible from either the hall or living area. Storage within apartments is best provided as cupboards accessible from entries and hallways and/or from under internal stairs
- dedicated storage rooms on each floor within the development, which can be leased by residents as required
- dedicated and/or leasable storage in internal or basement car parks. Leasing storage provides choice and minimises the impact of storage on housing affordability.

iii Provide storage suitable for the needs of residents in the local area and able to accommodate larger items, such as:

- boating-related equipment
- surfing equipment
- bicycles.

Bicycle storage should be a combination of secured and chained storage located in convenient and visible locations.

iv Ensure that storage separated from apartments is secure for individual use.

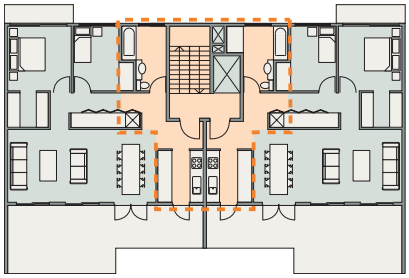
v Where basement storage is provided:

- ensure that it does not compromise natural ventilation in car parks or create potential conflicts with fire regulations
- exclude it from FSR calculations.

vi Consider providing additional storage in smaller apartments in the form of built-in cupboards to promote a more efficient use of small spaces.

4.5.1 ACOUSTIC PRIVACY

Acoustic privacy is a measure of sound insulation between apartments and between external and internal spaces. Designing for acoustic privacy relates to the location and separation of buildings within a development and the arrangement of apartments and internal spaces within apartments.



This apartment layout locates living spaces away from noise sources such as the lift and stairs. Quiet bedrooms are also located separate from main living areas.

Objective

- To ensure a high level of amenity by protecting the privacy of residents within residential flat buildings both within the apartments and in private open spaces.

Performance Criteria

i Utilise the site and building layout to maximise the potential for acoustic privacy by providing adequate building separation within the development and from neighbouring buildings

ii MInimum building separations are:

– up to 4 storeys /12 metres	12 metres between habitable rooms / balconies
	9 metres between habitable/balconies and non-habitable rooms
	6 metres between non-habitable rooms
– 5 to 8 storeys /	18 metres between habitable rooms/balconies
12 metres to 25 metres	13 metres between habitable rooms/balconies and non-habitable rooms
	9 metres between non-habitable rooms

iii Arrange apartments within a development to minimise noise transition between flats by:

- locating busy, noisy areas next to each other and quieter areas next to other quiet areas, for example, living rooms with living rooms, bedrooms with bedrooms
- using storage or circulation zones within an apartment to buffer noise from adjacent apartments, mechanical services or corridors and lobby areas
- minimising the amount of party (shared) walls with other apartments.

iv Design the internal apartment layout to separate noisier spaces from quieter spaces by:

- grouping uses within an apartment—bedrooms with bedrooms and service areas like kitchen, bathroom, laundry together.

v Resolve conflicts between noise, outlook and views by using design measures including:

- double glazing
- operable screened balconies
- continuous walls to ground level courtyards where they do not conflict with streetscape or other amenity requirements.

vi Reduce noise transmission from common corridors or outside the building by providing seals at entry doors.

vii Provide a detailed noise and vibration impact assessment report for residential buildings affected by surrounding uses.

4.5.2 DAYLIGHT ACCESS

A combination of louvres provides shading for different times of the day.

Daylight consists of skylight-diffuse light from the sky-and sunlight-direct beam radiation from the sun. It changes with the time of day, season, and weather conditions. This variability contributes to the pleasant environments in which to live and work. Within an apartment, daylighting reduces reliance on artificial light, improving energy efficiency and residential amenity.

Objectives

- To ensure that daylight access is provided to all habitable rooms and encouraged in all other areas of residential flat development.
- To provide adequate ambient lighting and minimise the need for artificial lighting during daylight hours.
- To provide residents with the ability to adjust the quantity of daylight to suit their needs.

Performance Criteria

i Orient new residential flat development to optimise northern aspect.

ii For 1-2 storey developments, provide living rooms and principal ground level open spaces with at least 2 hours sunlight between 9.00 am and 3.00 pm in mid-winter;

iii For 3 or more storey developments, provide at least 75% of residential apartments with at least 2 hours of sunlight to living rooms and private open spaces between 9.00 am and 3.00 pm in mid-winter. Design opportunities include:

- using skylights, clerestory windows and fanlights to supplement daylight access
- providing two-storey and mezzanine, ground floor apartments to facilitate daylight access to living rooms and private open spaces on the ground level
- limiting the depth of single aspect apartments
- providing single aspect, single-storey apartments with northerly or easterly aspect
- locating living areas to the north and service areas to the south and west of the development
- using light shelves to reflect light into deeper apartments.

Sun shading is an integral component of the building form and facade design.

iii Limit the number of single-aspect apartments with a southerly aspect (SW–SE) to a maximum of 10 percent of the total units proposed. Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and address energy efficiency.

iv Design for shading and glare control, particularly in summer, by:

- using shading devices, such as eaves, awnings, colonnades, balconies, pergolas, external louvres and planting
- optimising the number of north-facing living spaces
- providing external horizontal shading to north-facing windows
- providing vertical shading to east or west windows
- using high performance glass but minimising external glare off windows:
- avoiding reflective films
- using a glass reflectance below 20 percent
- considering reduced tint glass.

v The use of lightwells as a primary source of daylight in habitable rooms is prohibited. Where they are used, they are to be fully open to the sky and their dimensions relate to building separation.

vi No more than 50% of the public domain (excluding streets) and communal space areas are overshadowed between 10.00 am and 2.00 pm between 21st April and 21st August. Provide appropriate shading in summer.

vii Shadow diagrams showing the impact of a proposal on adjacent residential developments and their private open space will be required.

4.5.3 NATURAL VENTILATION

Natural ventilation is the circulation of sufficient volumes of fresh air through an apartment to create a comfortable indoor environment. Designing for natural ventilation exercises sustainable practice by responding to the local climate and by reducing or eliminating the need for mechanical ventilation. To achieve natural ventilation the design concept must address the building's orientation, the apartment's configuration and the external building envelope.

Objectives

- To ensure that apartments are designed to provide all habitable rooms with direct access to fresh air and to assist in promoting thermal comfort for occupants.
- To provide natural ventilation in non-habitable rooms, where possible.
- To reduce energy consumption by minimising the use of mechanical ventilation, particularly air conditioning.

Performance Criteria

i Plan the site to promote and guide natural breezes by:
- orienting buildings to maximise the use of prevailing winds
- locating vegetation to direct breezes and cool air as it flows across the site
- selecting planting or trees that do not inhibit airflow.

ii Limit residential building depth to 18 metres glass line to line line to support natural ventilation.

iii Utilise the building layout and section to increase potential for natural ventilation, by:
- providing dual aspect apartments, eg. cross through and corner apartments
- facilitating convective currents by designing units which draw cool air in at lower levels and allow warm air to escape at higher levels, for example, maisonette apartments and two-storey apartments.

iv Design the internal apartment layout to promote natural ventilation by:
- minimising interruptions in air flow through an apartment. The more corners or rooms airflow must negotiate, the less effective the natural ventilation
- grouping rooms with similar usage together, for example, keeping living spaces together and sleeping spaces together. This allows the apartment to be compartmentalised for efficient summer cooling or winter heating

v A minimum of 60% of residential apartments are to be naturally ventilated

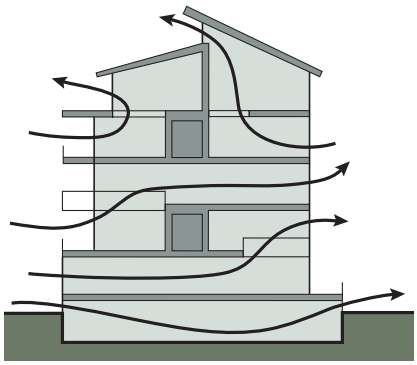
vi A minimum of 25% of kitchens within a development are to be naturally ventilated

vii Select doors and operable windows to maximise natural ventilation opportunities established by the apartment layout. Design solutions may include:
- locating small windows on the windward side and larger windows on the leeward side of the building thereby utilising air pressure to draw air through the apartment
- using higher level casement or sash windows, clerestory windows or operable fanlight windows—including above internal doors—to facilitate convective currents. This is particularly important in apartments with only one aspect
- selecting windows which occupants can reconfigure to funnel breezes into the apartment, like vertical louvred, casement windows and externally opening doors.

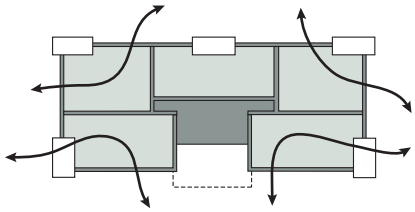
v Coordinate design for natural ventilation with passive solar design techniques

vi Explore innovative technologies to naturally ventilate internal building areas or rooms—such as bathrooms, laundries and underground carparks—for example with stack effect ventilation or solar chimneys.

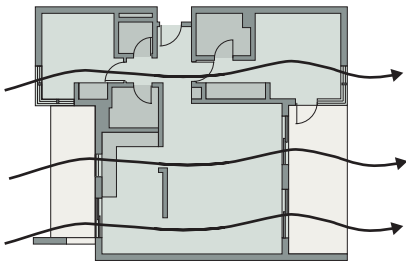
vii Developments which seek to vary from the minimum standards must demonstrate how natural ventilation can be satisfactorily achieved, particularly in relation to habitable rooms.



Good cross-ventilation can be achieved with the following:
1. Cross-over apartments
2. Maisonette apartments
3. Semi-basement car parks



Corner apartments achieve effective natural ventilation by drawing air through windows with different orientations. This layout works well in upper floor apartments.



This cross-through layout allows for air flow directly from one side of the apartment to the other

4.6.1 AWNINGS AND SIGNAGE

Well-designed awnings create interest in the streetscape and give pedestrians protection from the weather.

Signage contributes to the building's image from a distance.

Signage gives identity to the building entry and provides legibility for visitors.

Awnings increase the useability and amenity of public footpaths by protecting pedestrians from sun and rain. They encourage pedestrian activity along streets and, in conjunction with active edges such as retail frontages, support and enhance the vitality of the local area. Awnings, like building entries, provide a public presence and interface within the public domain thereby contributing to the identity of a development.

Signage is an important consideration in the design of residential flat buildings located in mixed-use areas. Where signage is required for business identification its design should be compatible with the scale and proportions of the development without obscuring or dominating important views. Signage and advertising should communicate clearly and effectively, contributing to the desired streetscape character rather than creating visual clutter.

Objectives

- To provide shelter for public streets
- To support and encourage pedestrian movement associated with retail uses.
- To ensure signage is in keeping with desired streetscape character and with the development in scale, detail and overall design.

Performance Criteria

Awnings

i Encourage pedestrian activity on streets by providing awnings to retail strips,
  – complement the height, depth and form of the desired character or existing pattern of awnings
  – provide sufficient protection for sun and rain.

ii Contribute to the legibility of the development and amenity of the public domain by locating local awnings over residential building entries.

iii Enhance safety for pedestrians by providing under-awning lighting.

iv New awnings are to follow the general alignment of existing awnings in the street.

v Provide continuous awnings at areas of high pedestrian activity, particularly where there are ground floor commercial and/or retail uses: corners of Hill Road and major east-west streets; and corners of major east west streets and the primary north-south street). Awnings are also to be provided to buildings fronting pedestrian plazas at the termination of major east-west streets.

vi Awning height is to be in the range 3.2 - 4.2 metres (clear soffit height) and the awning face is to be horizontal.

vi All awnings are to comply with State Environmental Planning Policy No 64 (SEPP 64) - Advertising and Signage.

Signage

i Signage is to be integrated with the design of the development by responding to scale, proportions and architectural detailing.

ii Signage is to provide clear and legible way-finding for residents and visitors.

iii Under-awning signage is limited to one sign per residential building plus one sign per commercial or retail tenancy.

iii Signage on blinds is not permitted

iv Conceal or integrate the light source to any illuminated signage within the sign. Illuminated signage is only permitted where it does not compromise residential amenity.

v All signage is to comply with State Environmental Planning Policy No 64 (SEPP 64) - Advertising and Signage.

4.6.2 FACADES

Facades are the public face of buildings. A building facade is a streetscape element, whose architectural quality contributes to the character and design of the public domain. High architectural quality requires the appropriate composition of building elements, textures, materials and colours and reflects the use, internal design and structure of a development.

The composition and detailing of the building façade has an impact on its apparent scale as well as its appearance. The pattern or rhythm established by the proportions of the façade, the modulation of the external walls, the design of façade elements, their materials and their detailing are all important considerations.

Objectives

- To promote high architectural quality in buildings.
- To ensure that new developments have facades which define and enhance the public domain and desired street character.
- To ensure that building elements are integrated into the overall building form and façade design.

Performance Criteria

i Consider the relationship between the whole building form and the façade and/or building elements. Columns, beams, floor slabs, balconies, window opening and fenestrations, doors, balustrades, roof forms and parapets are elements which can be revealed or concealed and organised into simple or complex patterns.

ii Compose facades with an appropriate scale, rhythm and proportion which respond to the building's use and the desired contextual character, for example by:

- defining a base, middle and top related to the overall proportion of the building
- expressing key datum lines using cornices, change in materials or building setback
- expressing building layout or structure, such as vertical bays or party wall divisions
- expressing the variation in floor to floor height, particularly at ower levels
- articulating building entries with awnings, porticos, recesses, blade walls and projecting bays
- selecting balcony types which respond to the street context, building orientation and residential amenity and will create different façade profiles
- detailing balustrades to reflect the type and location of the balcony and its relationship to the façade detail and materials
- using a variety of window types to create a rhythm or express the building uses, for example, a living room versus a bathroom
- incorporating architectural features which give human scale to the design of the building at street level, including entrances, awnings, colonnades, pergolas and fences
- using recessed balconies and deep windows to create articulation and define shadows, thereby adding visual depth to the façade.

iii Design facades to reflect the orientation of the site using elements such as sun shading, light shelves and bay windows as environmental controls, depending on the façade orientation.

iv Express important corners by giving visual prominence to parts of the façade, for example, a change in building articulation, material or colour, roof expression or increased height.

v Coordinate and integrate building services, such as drainage pipes, with overall façade and balcony design.

vi Coordinate security grills/screens, ventilation louvres and carpark entry doors with the overall façade design.

vii Integrate the design of garage entries with the building facade design, locating them on secondary streets where possible.

This facade has a strong balance of horizontal and vertical framing elements with sunscreen and balustrade infill components

This facade has a distinct base, middle and top, and uses materials sympathetic to the local context

Rectilinear elements, clearly defined volumes and a change of materials create visual interest on this facade

The rhythm of single height and double height apartments can be read on this facade. Strong modelling in the vertical and horizonal planes expresses the building's structure and layout

4.6.3 ROOF DESIGN

The feature roof line of this building gives it a strong identity.

The roof is an important architectural element for the overall composition and expression of a building. The shape and form of a roof and its associated elements responds to the environment and the context. Quality roof design responds to various viewpoints within the local context, such as the roofscape observed from adjacent taller buildings and the silhouette viewed from the street below. In some areas the roof forms part of a distant view and sits within a larger skyline.

Objectives

- To provide quality roof designs, which contribute to the overall design and performance of residential flat buildings.
- To integrate the design of the roof into the overall facade, building composition and desired contextual response.
- To increase the longevity of the building through weather protection.

This modern version of the attic contributes to a dynamic and vibrant roofscape at night time.

Performance Criteria

i Relate roof design to the desired built form. Some design solutions may include:

– articulating the roof, or breaking down its massing on large buildings, to minimise the apparent bulk or to relate to a context of smaller building forms

– using a similar roof pitch or material to adjacent buildings, particularly in existing special character areas or heritage conservation areas. Avoid directly copying the elements and detail of single family houses in larger flat buildings; this often results in inappropriate proportion, scale and detail for residential flat buildings

– minimising the expression of roof forms gives prominence to a strong horizontal datum in the adjacent context, such as an existing parapet line

– using special roof features ,which relate to the desired character of an area, to express important corners.

ii Design the roof to relate to the size and scale of the building, the building elevations and 3D building form. This includes the design of any parapet or terminating elements and the selection of root materials.

iii Design roofs to respond to the orientation of the site, for example, by using eaves and skillion roofs to respond to sun access.

iv Minimise the visual intrusiveness of service elements by integrating them into the design of the roof. These elements include lift over-runs, service plants, chimneys, vent stacks, telecommunication infrastructures, gutters, downpipes and signage.

v Support the use of roofs for quality open space in denser urban areas by

– providing space and appropriate building systems to support the desired landscape design (see Landscape Design and Open Space)

– incorporating shade structures and wind screens to encourage open space use

– ensuring open space is accessible.

vi Facilitate the use or future use of the roof for sustainable functions, for example:

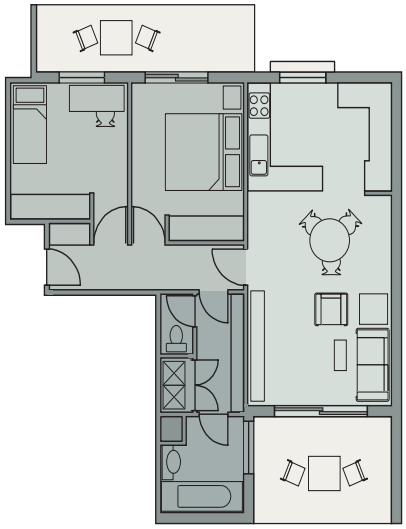
– allow rainwater tanks for water conservation

– orient and angle roof surfaces suitable for photovoltaic applications

– allow for future innovative design solutions, such as water features or green roofs.

4.7.1 ENERGY EFFICIENCY

The ability of buildings to optimise thermal performance, thermal comfort and daylighting will contribute to the energy efficiency of buildings, provide increased amenity to occupants and reduce greenhouse emissions and, with them, the cost of supplying energy.



This illustration shows how a plan can be organised into separable heating and cooling zones.

Objectives

- To reduce the necessity for mechanical heating and cooling.
- To reduce reliance on fossil fuels.
- To minimise greenhouse gas emissions.
- To support and promote renewable energy initiatives
- To use natural climatic advantages of the coastal location such as cooling summer breezes, and exposure to unobstructed winter sunlight
- To provide a suitable environment for proposed uses, having regard to wind impacts and noise
- To ensure that land is geotechnically suitable for development and can be feasibly remediated of any contaminants to a level adequate for the proposed use.

Performance Criteria

i Incorporate passive solar design techniques to optimise heat storage in winter and heat transfer in summer by:

– maximising thermal mass in floor and walls in northern rooms of dwelling/ building

– polishing concrete floors and/or using tiles or timber floors rather than carpets

– limiting the number of single aspect apartments with a southerly aspect (SW–SE) to a maximum of 10 percent of the total units proposed

– insulating roof/ceiling to R2.0, external walls to R1.0 and the floor—including separation from basement car parking—to R1.0

– minimising the overshadowing of any solar collectors.

ii Improve the control of space heating and cooling by:

– designing heating/cooling systems to target only those spaces which require heating or cooling, not the whole apartment

– designing apartments so that entries open into lobbies or vestibules and are isolated from living areas by doorways

– allowing for adjustable awnings and blinds to be attached to the outside of windows to keep the heat out in summer

– providing gas bayonets to living areas, where gas is available

– providing reversible ceiling fans for improving air movement in summer and for distributing heated air in winter.

iii Provide or plan for future installation of solar collectors and photovoltaic panels, for example by:

– designing the roof so that solar collectors and photovoltaic panels can be mounted parallel to the roof plane

– locating trees where they will not shade existing or planned solar and photovoltaic installations.

iv Improve the efficiency of hot water systems by

– insulating a hot water system or systems with a Greenhouse Score of 3.5 or greater and which suits the needs of the development and/or individual dwellings

– installing water-saving devices, such as flow regulators, AAA (or higher) rated shower heads and tap aerators.

v Reduce reliance on artificial lighting by:

– providing a mix of lighting fixtures, including dimmable lighting, to provide for a range of activities in different rooms

– designing to allow for different possibilities for lighting the room, for example, low background lighting supplemented by task or effect lighting for use as required

– using separate switches for special purpose lighting

– using high efficiency lighting, such as compact fluorescent, for common areas

– using motion detectors for common areas, lighting doorways and entrances, outdoor security lighting and car parks

vi Maximise the efficiency of household appliances by:

– selecting an energy source with minimum greenhouse emissions

– installing high efficiency refrigerators/freezers, clothes washers and dishwashers

– providing areas for clothes to be dried through natural ventilation

vii Provide an Energy Peformance Report from a suitably qualified consultant to accompany any development application for a new building. Nathers 4.5 star rating should be achieved to 80% of all residential apartments and commercial offices

viii Use the NSW Government's sustainability assessment tool, BASIX, from such time as it is implemented for the residential housing types in the DCP precinct area, as an additional rating system, to be achieved to 80% of all residential apartments.

4.7.2 MAINTENANCE

Detailed design and material selection support long-term maintenance of buildings. On-going maintenance ensures the longevity of quality architectural and landscape design, sustains and increases the value of property and minimises the life-cycle cost of a development to owners.

Objective

- To ensure long life and ease of maintenance for the development.

Performance Criteria

i Design windows to enable cleaning from inside the building, where possible.

ii Select manually operated systems, such as blinds, sunshades, pergolas and curtains in preference to mechanical systems.

iii Incorporate and integrate building maintenance systems into the design of the building form, roof and façade.

iv Select durable materials, which are easily cleaned and are graffiti resistant.

v Select appropriate landscape elements and vegetation and provide appropriate irrigation systems (see Landscape Design).

vi For developments with communal open space, provide a garden maintenance and storage area, which is efficient and convenient to use and is connected to water and drainage.

4.7.3 WASTE MANAGEMENT

The minimisation and management of waste from buildings can contribute to the visual and physical amenity of the building as well as limiting potentially harmful impacts on the environment. Minimising waste is relevant to all stages of the building's life cycle, from construction to demolition. It also includes the way in which waste is stored and collected.

Objectives

- To avoid the generation of waste through design, material selection and building practices.
- To plan for the types, amount and disposal of waste to be generated during demolition, excavation and construction of the development.To encourage waste minimisation, including source separation, reuse and recycling.
- To ensure efficient storage and collection of waste and quality design of facilities.

Performance Criteria

i Incorporate existing built elements into new work, where possible.

ii Recycle and reuse demolished materials, where possible.

iii Specify building materials that can be reused and recycled at the end of their life.

iv Integrate waste management processes into all stages of the project, including the design stage.

v Support waste management during the design stage by:

– specifying modestly for the project needs

– reducing waste by utilising the standard product/component sizes of the materials to be used

– incorporating durability, adaptability and ease of future services upgrades.

vi Prepare a waste management plan for green and putrescible waste, garbage, glass, containers and paper.

vii Locate storage areas for rubbish bins away from the front of the development where they have a significant negative impact on the streetscape, on the visual presentation of the building entry and on the amenity of residents, building users and pedestrians.

viii Provide every dwelling with a waste cupboard or temporary storage area of sufficient size to hold a single day's waste and to enable source separation.

ix Incorporate on-site composting, where possible, in self contained composting units on balconies or as part of the shared site facilities.

x Supply waste management plans with any Development Application as required by the NSW Waste Board.

4.7.4 WATER CONSERVATION

Water is our most precious resource. Building design can contribute to environmental sustainability by integrating measures for improved water efficiency. Water can be conserved in two ways: by reducing water demand from the mains and by re-using water which would otherwise be lost as run off or waste water.

Objectives

- To reduce mains consumption of potable water.
- To reduce the quantity of urban stormwater run off.
- To encourage integrated water management, that is, capturing stormwater and/or rainwater and storing on site for both external and internal use.

Performance Criteria

i Use AAA (or higher) rated appliances to minimise water use.

ii Encourage the use of rainwater tanks.

iii Collect, store and use rainwater on site for non-potable purposes. This may be used for car washing, watering the garden, toilet flushing and washing machines. Once treated, rainwater can also be used for potable supply. Consider the recycling of grey water for toilet flushing or for garden uses.

iv All development is to be connected to the Homebush Bay Water Reclamation and Management System (WRAMS). To facilitate connection to WRAMS, provide correctly sized dual water reticulation systems, appropriate dual supply plumbing, and toilet flushing and irrigation connections.

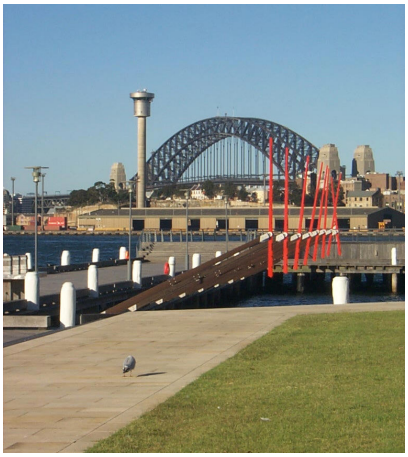
v Incorporate local indigenous native vegetation in landscape design.

vi Avoid the use of lead- or bitument-based paints on roofs, as rainwater cannot be collected from them. Normal guttering is sufficient for water collections provided that it is kept clear of leaves and debris.

vii Provide spring return taps for all public amenities.

4.8 PUBLIC ART AND DESIGN

Spaces which are well designed, with high amenity and regard for safety and security issues, are attractive to use and can enliven the public domain



Public art contributes to the unique character of places. When local artists are used it can also create a feeling of community for residents and workers in the locality.

Public art includes art and design elements, installations, fixtures and treatments that enhance public environments and buildings. These may include:

- Paving design
- Lighting design
- Sculpture
- Fencing design
- Decorative elements as part of architectural and engineering work
- Landscape and planting work with specially designed elements and
- Temporary or ephemeral work.

Objectives

- To celebrate local heritage and culture
- To explore community cultural identity
- To instigate the feeling of 'community' in the town centre
- To articulate the nature and special qualities of the town in the public domain

Performance Criteria

i. Artworks are to be integrated into broader development and planning.

ii. Art and design that enhances the pedestrian experience are to be encouraged.

iii. Projects that develop cultural themes that are relevant to the locality and its community are to be encouraged.

iv. Public art is to be used to help define important spaces in the locality.

v. Stand-alone projects that fail to address the locality and its culture, are to be avoided.

vi. Elements such as seating, paving, bus shelters and other street furniture, whilst being functional, are to be visually appealing and of a high design quality.

PART 4 **DETAILED DESIGN GUIDELINES**

Acoustic privacy	a measure of sound insulation between apartments, between apartments and communal areas, and between external and internal spaces
Accessible housing	housing that is designed and built to accommodate the needs of occupants with mobility impairment (Australian Standard 1428: Design for Access & Mobility Series)
Adaptable housing	housing that is designed and built to accommodate future changes to suit occupants with mobility impairment or life cycle needs (Australian Standard 4299: Adaptable Housing)
Affordable Housing	housing for low to moderate income households. Affordable housing is usually required to be financially viable based on a ratio of housing costs to income.
Amenity	the 'liveability' or quality of a place which makes it pleasant and agreeable to be in for individuals and the community. Amenity is important in both the public and private domain and includes the enjoyment of sunlight, views, privacy and quiet.
Articulation zone	Articulation is the three dimensional modelling of the building. The articulation zone is the area of three dimensional modelling at the periphery of the building, including any changes in facade alignment, balconies, bay windows and sun shading devices.
AS 1428	Australian Standard 1428: Design for Access and Mobility Series
AS 4299	Australian Standard 4299: Adaptable Housing
BCA	Building Code of Australia
Build to line	a front setback expressed as a required distance from the street edge of the building envelope. In urban areas the build to line often corresponds to a zero front setback, to establish a consistent streetscape.
Building line	the line formed by the main external face of the building, excluding any balcony or bay window projections
Building envelope	the area within which a building can be built, represented in plan and section.
Communal open space	open space within a residential development that is not public and not allocated to an individual dwelling but is shared for the recreation and relaxation of all residents
Core	vertical circulation (eg lift, stairs)
Cross over apartments	apartments with two opposite aspects and with a change in level between one side of the building and the other
Cross through apartments	apartments on one level with two opposite aspects
Datum or datum line	a significant point or line in space established by the existing or desired context, often defined as an Australian Height Datum. For example, the top of significant trees or the cornice of a heritage building
Deck	an external platform, usually elevated, located alongside and accessible from an interior space and often made of timber

GLOSSARY

Deep soil zone soft landscaping above unimpeded deep soil, not including permeable paving

Double loaded corridor corridor with apartments off both sides, generally associated with single aspect apartments

Dual aspect apartment apartments which have at least two major external walls facing in different directions, including corner, cross over and cross through apartments

Ecologically Sustainable Design (ESD)

The Commonwealth Government National Strategy for Ecologically Sustainable Development describes ESD as: "Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased." Design principles include preserving ecosystems and biodiversity and minimising resource use and waste, by adopting energy efficient practices.

Façade the external face of a building

Floor space the sum of the areas of each floor of a building, measured from the inside face of external enclosing walls and 1400mm above each floor level.

It includes:

- habitable space below ground (auditoria, cinemas, supermarkets)
- retail space (cafés) associated with main entrance and/or lobby.

It excludes:

- main building entrances and associated foyers and lobbies
- common vertical circulation (stairs and lifts)
- non-habitable areas of the buildng which do not protrude more than 1.2 metres above ground level that are used for the purposes of:
  - car, coach and bicycle parking
  - space for loading and unloading of goods
  - waste management and storage areas
- one level of above-ground car parking entirely contained within a perimeter building, as an internal podium or courtyard, where all the uses 'wrapping' the parking are active and have a street address.
- plant rooms and vertical mechanical services and ducting
- communal recreational areas in residential buildings up to 5% of the total floor area of the building
- balconies, including those enclosed by operable screening devices
- the void space above double height spaces.

Glass line	inside face of windows on the external walls of a building
Ground level	both the existing level of the site before development, and any new ground level resulting from changes to the topography to accommodate car parking ONLY when such changes are approved for a whole development site
Habitable room	any room or area used for normal domestic activities, including living, dining, family, lounge, bedrooms, study, kitchen, sun room and play room
Internal Courtyard	communal space at ground level or above a structure (eg. podium), formed by the building and enclosed on 3 or more sides and open to the sky
Juliet balcony	small projecting balcony, generally ornamental or only large enough for one person standing
Lightwell	a shaft for air or light, enclosed on all sides or which has the potential to be enclosed by future adjoining development, and either open to the sky or glazed
Light shelves	Reflective horizontal elements fixed to window openings which improve the amenity of deeper spaces by 'bouncing' light towards the back of the room
Long life loose fit	buildings which can accommodate a range of existing and future uses
Maisonette apartment	a two-storey apartment, where the storeys are vertically stacked
Mezzanine	the second storey of an apartment, fully or partially open to a void (double height) space shared by both storeys
Mixed use	a combination of residential, commercial, retail and community uses
Natural ventilation	ventilation by natural airflow, unassisted by mechanical means, through doors, operable windows and louvres
Non-habitable room	spaces of a specialised nature not occupied frequently or for extended periods, including bathrooms, toilets, pantries, walk-in wardrobes, corridors, lobbies, photographic darkrooms and clothes drying rooms
On-grade	on ground level (not on a building structure)
Open plan	apartment layouts where spaces are not divided into discrete rooms, but are open and connected to allow flexibility of use (typically living, dining, kitchen and study areas)
Open space	Public open space is space which is accessible to the public and useable at all times, day or night. 'Semi-public' open space is accessible and useable at certain times by the general public. Communal open space is private and shared, for the use of residents or tenants of a development. Private open space is associated with a single dwelling and is for the exclusive use of its occupants.
Operable screening device	sliding, folding or retractable elements on a building designed to provide shade, privacy, and protection from natural elements.

GLOSSARY

Operable walls	internal walls which can be moved, for example by sliding, folding, or pivoting, to allow for different room configurations
Passive solar design	Design that provides cooling in summer and warming in winter by controlling sun access. Building location, orientation, materials choice and the design of openings can all contribute to optimising thermal comfort for residents throughout the changing climate of the year.
Potable water	water which conforms to Australian Standards for drinking quality
Private courtyard	private open space which may be on a structure (eg. podium, parking deck) or at ground level
Setbacks	Side setbacks are measured from the side site boundary to the outside face of the building Street setbacks are parallel to the street boundary and are measured to the outside face of the front of the building
Stack ventilation / solar chimney	air convection resulting from hot air being pushed up and out by colder denser air which is drawn in at a lower level
Storey	a level in a development. This includes attic spaces with habitable rooms. It does not include space used for car parking, laundries or storeroom if the ceiling above the space is not more than 1200mm (measured from the lowest point on the development site) above ground level
Terrace (outdoor area)	an unroofed and usually paved area connected to an apartment and accessible from at least one room. May be on-grade or on a structure (podium)
Underground	below ground level or less than 1.2 metres above ground level