

The **Ordinary Meeting** of
Bayside Council
will be held in the Rockdale Town Hall, Council Chambers,
Level 1, 448 Princes Highway, Rockdale
on Wednesday, 11 December 2019 at 7:00 pm

UNDER SEPARATE COVER ATTACHMENTS

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FUTURE BAYSIDE



Local Strategic Planning Statement

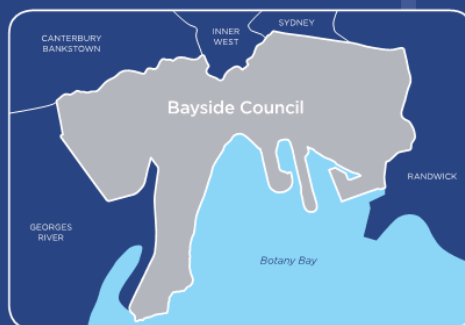
A land-use vision to 2036



Acknowledgement of Country

Bayside Council wish to acknowledge Aboriginal people as the traditional custodians of this land.

Through thoughtful and collaborative planning we seek to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.



Telephone Interpreter Services - 131 450

Τηλεφωνικές Υπηρεσίες Διερμηνέων بخدمة الترجمة الهاتفية 電話傳譯服務處 Служба за преведување по телефон

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Mayor's Message



I am pleased to present the Bayside Local Strategic Planning Statement that will help shape the future of land use in Bayside.

Our current population of around 162,900 is culturally diverse with 46% of residents born overseas. Our population is expected to reach 228,200 by 2036.

New homes will be required to house our growing community and it is important to ensure this growth happens in the right places and is serviced by high quality amenities, facilities, services and open space.

Bayside is also home to Sydney Airport and Port Botany. The role these important gateways play in Sydney's economy is expected to grow over the next 20 years, providing jobs and increasing productivity.

Aligning both existing and planned future infrastructure to support the growth of Bayside will be important to support a more sustainable city, better connecting people with the places they live, work and play, while also preserving our natural areas, landscapes and waterways.

The Bayside Local Strategic Planning Statement's Planning Priorities and Actions provide a road map for the future land use planning of Bayside to 2036.

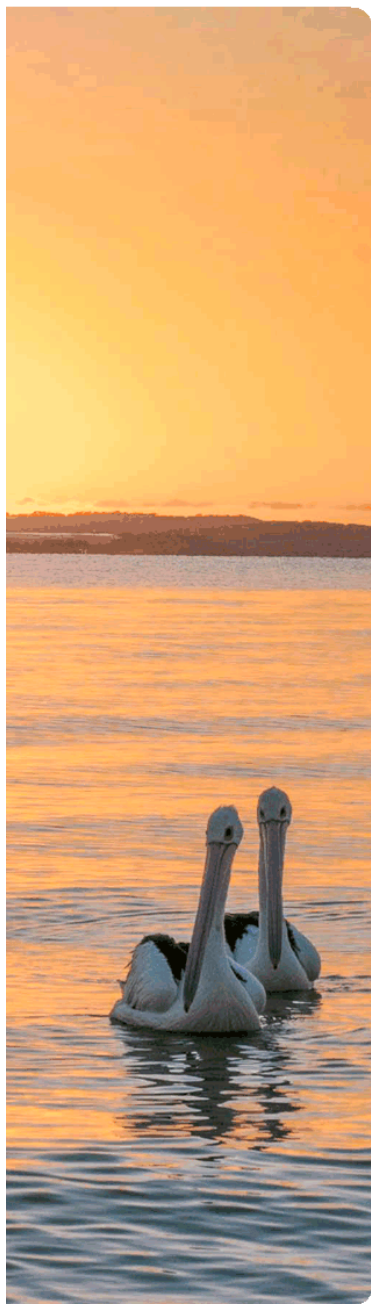
Councillor Joe Awada
Mayor

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Introduction



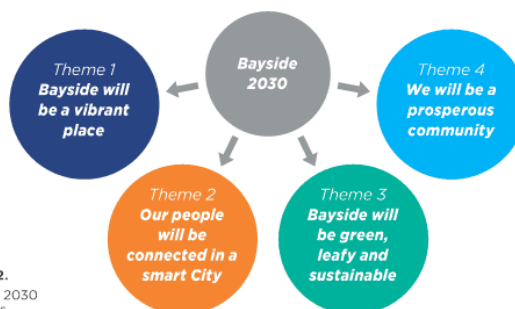
The *Environmental Planning and Assessment Act 1979* (the EP&A Act) defines the planning framework for NSW, including identifying the important role that a council has in the strategic land use planning of its Local Government Area.

Recent amendments to the EP&A Act introduced the requirement for a Local Strategic Planning Statement (LSPS) to be prepared by all councils. The LSPS sets out the 20 year vision for land use in the Local Government Area (LGA); it describes the special character and values that are to be retained and how change will be managed over a 20 year period.

In its LSPS Bayside Council must have regard to the *Eastern City District Plan* and *A Metropolis of Three Cities* (a land use plan for the Sydney region). Both these documents were prepared by the Greater Sydney Commission. An LSPS also aims to implement the priorities of a Council's Community Strategic Plan. The relationship between an LSPS and other plans is shown below.



The Community Strategic Plan, Bayside 2030, has a broad focus. It sets the vision for the Local Government Area (LGA) and is a guide to decision making in relation to the social, environmental and economic future of the area. The Community Strategic Plan is implemented through Council's four year Delivery Program, annual Operational Plans, programs and projects. The Bayside 2030 priorities are shown below.



In contrast, the Bayside LSPS focuses on the vision and priorities for land use and is implemented mainly through a Local Environmental Plan (LEP). It will also inform other planning tools, such as:

- ▶ Development control plans – that provide the detailed controls for development.
- ▶ Local infrastructure contribution plans – to ensure that local facilities are provided as the community's needs change and grow.

It will also inform the preparation of other plans such as town centre master plans and public domain plans.

State agencies will use the LSPS to inform their infrastructure planning and service delivery such as schools, hospitals and transport to support local communities.

The Bayside LSPS is the first LSPS for our Local Government Area. The Bayside Planning Priorities have been grouped under the same four themes identified in the *Eastern City District Plan* and *A Metropolis of Three Cities*. These themes are: Infrastructure and Collaboration, Liveability, Productivity and Sustainability. The Bayside LSPS has 24 planning priorities and 147 actions.

To inform the new strategic planning documents Bayside Council has commissioned nine new studies to better understand our area and develop strategies for future land use planning. These include:

- ▶ Local Housing Strategy
- ▶ Social Infrastructure Strategy (open space and recreation and community facilities)
- ▶ Transport Strategy
- ▶ Bike Plan
- ▶ Environmental Review of Planning Controls
- ▶ Centres and Employment Lands Strategy
- ▶ Aboriginal Heritage Study
- ▶ Non-Aboriginal Heritage Strategy
- ▶ Flooding and Stormwater Study
- ▶ Land Use Limitation Study

This work is due to be completed by late 2019 and will be placed on public exhibition in March 2020. However, legislation requires councils to finalise the LSPS in January 2020 and make their LSPS by 31 March 2020, prior to the completion of this work. Therefore a review of this LSPS will commence in the next term of Council in 2020. This will ensure the next Bayside LSPS is underpinned by an evidence base to support and justify additional planning priorities and actions that are more specific and place based.

Bayside is part of Resilient Sydney which has developed a Strategy for City Resilience. The Strategy has five Directions as follows:

1. People centred city: we include communities in decision making for growth and equity.
2. Live with our climate: we adapt to sustain our quality of life and our environment.
3. Connect for strength: every Sydneysider will feel they belong to our community and city.
4. Get ready: we know how to prepare and respond and recover.
5. One city: we are one city.

These Directions cross a number of the four themes of Infrastructure and Collaboration, Liveability, Productivity and Sustainability under which the Bayside Planning Priorities are grouped and are included where relevant into the Bayside LSPS Planning Priorities and Actions.

This LSPS has been prepared in accordance with clause 3.9 of the EP&A Act.

The Bayside LSPS, once made, will be part of the strategic merit test for gateway determinations in relation to Planning Proposals to make and amend LEPs under section 3.33(2) of the EP&A Act.

An LEP is a legal document prepared by Council and approved by State Government to regulate land use and development through zoning and development controls for private and public land. As a newly amalgamated Council, Bayside has to prepare the Bayside LEP 2020. The Bayside Development Control Plan 2020 will be prepared to provide more detailed planning controls for development in Bayside.

The Bayside Local Strategic Planning Statement is divided into three parts:

PART 1 | FUTURE OF BAYSIDE

This section includes the Bayside Land Use Vision 2036, the Bayside Structure Plan 2036 and a table of the Bayside Planning Priorities.

PART 2 | BAYSIDE: OUR PLACE

This section provides an overview of the key characteristics of our area and issues for consideration in future planning, including a summary of the community engagement undertaken.

PART 3 | BAYSIDE PLANNING PRIORITIES

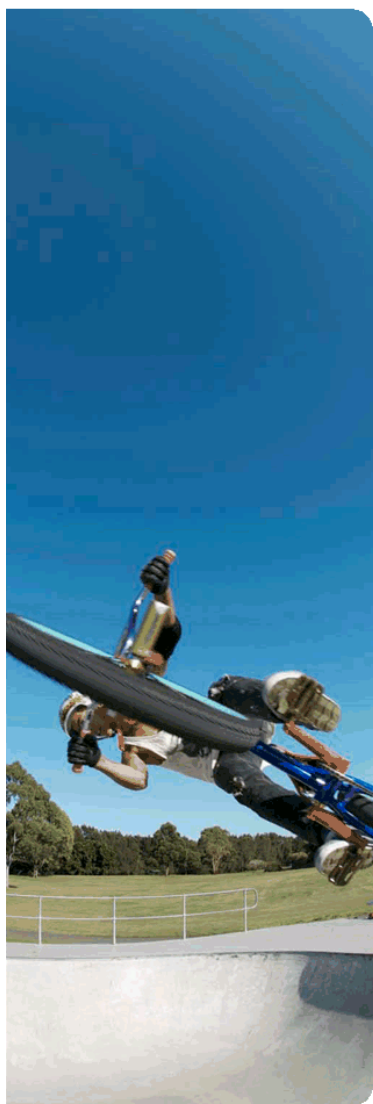
This section identifies the planning priorities and actions to implement the actions contained within the Eastern City District Plan.

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Future of Bayside

We will celebrate our natural environment and heritage by protecting our waterways and natural areas from land uses and activities which pollute them, we will interpret cultural significance in the way we plan and design open space and how we respect buildings, streetscapes and places that are significant to our community. We will create vibrant, healthy and connected places with a strong economy.



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Bayside land use 2036

Bayside was originally home to the Aboriginal people known as the 'water people' who lived around Kamay (Botany Bay) and it is the wetlands and waterways of Bayside that continue to shape Bayside's landscapes.

We are a growing and diverse community. In 2016 Bayside was home to 162,900 people with 46% of the population born overseas. By 2036 the population is forecast to be 228,000. We will plan for this growth by identifying places where more homes can be located and be supported by infrastructure and jobs.

Many of the 91,000 jobs in Bayside are located in or around the two trade gateways of Sydney Airport and Port Botany. The trade gateways have an important role in the district's economy and are expected to grow, providing more jobs and increasing productivity in the local area. However, it also means more freight and traffic on roads that are already congested. Transport is therefore a key priority for us and we will advocate to state and federal government for improved public transport, roads and infrastructure. We will work to influence outcomes of major transport projects which are under construction or being planned so that our local community can benefit from improved amenity as well as better access to jobs, goods and services.

Bayside is part of Resilient Sydney which has developed a Strategy for City Resilience in collaboration with metro councils, NSW Government, businesses and communities. Council has integrated many of the identified actions into the LSPS and will be working on how to further implement the strategy. The Bayside Local Strategic Planning Statement builds on the previously adopted Bayside Community Strategic Plan 2030, gives effect to the Eastern City District Plan and reflects community input.

The Bayside Land Use Vision 2036 is that we will:

- ▶ Protect our natural areas, landscapes and waterways and deliver high quality open space. We will also increase our tree canopy and extend our green Grid Corridors through a network of open space, footpaths and cycleways that provide greater connectivity to our open space, centres, employment hubs and green corridors.
- ▶ Plan for a sustainable Bayside that uses resources wisely and is resilient to social, environmental and economic stressors.
- ▶ Be a vibrant, healthy and connected community that respects existing character and heritage.
- ▶ Prepare, in consultation with our community, master plans, structure plans and public domain plans for each of our centres to ensure we have great places.



- ▶ Ensure our land use planning controls encourage a mix of dwelling types and increase the number of affordable rental housing to meet the housing needs of our community. This will include a review of our land use planning controls to encourage more medium density development, not just apartments.
 - ▶ Align land use planning and transport infrastructure to support the growth of Bayside and ensure a more sustainable and a 30-minute city to connect people with places and employment. This means that planning for growth in Bayside will be staged to coincide with existing and planned future public transport. We will also advocate for a station at Bexley on a potential future Kogarah to Parramatta mass transit route.
- Priorities for aligning land use planning and transport are subject to outcomes of the Bayside Strategies that will be finalised in 2020 and include:
- Immediate (next 12 months):** Arncliffe, Banksia
- Short term (1-5 years):** Arncliffe West, Bardwell Park, Brighton Le Sands Stage 1, Kogarah West, Turrella
- Medium term (6-10 years):** Bexley North
- Long term (10+ years):** Bexley, Brighton Le Sands Stage 2, Kingsgrove, Kyeemagh, Ramsgate Beach
- Other centres and precincts will be considered for further investigation on completion of the Bayside background studies and strategies.
- ▶ Advocate for more public transport services and routes to connect our communities, with particular focus on increasing our east-west connections.
 - ▶ Align local infrastructure provision with growth to support our community, including planning for open space and recreation and community facilities.
 - ▶ Retain and manage the employment and urban services land and protect the two international trade gateways of Sydney Airport and Port Botany. This includes managing potential land use conflict and encroachment of non-compatible uses and minimising negative impacts on urban amenity. It will be important to recognise the needs of freight handling to support the two trade gateways as freight will increase significantly by 2036.
 - ▶ Plan for our Strategic Centres of Mascot (twinning with Green Square) and Eastgardens (twinning with Maroubra Junction) in collaboration with the City of Sydney Council and Randwick Council to identify the complementary roles of each centre and how our controls can strengthen the capacity for jobs growth and economic roles of the centres.
 - ▶ Implement the Kogarah Place Strategy in collaboration with Greater Sydney Commission, Georges River Council and relevant government agencies.

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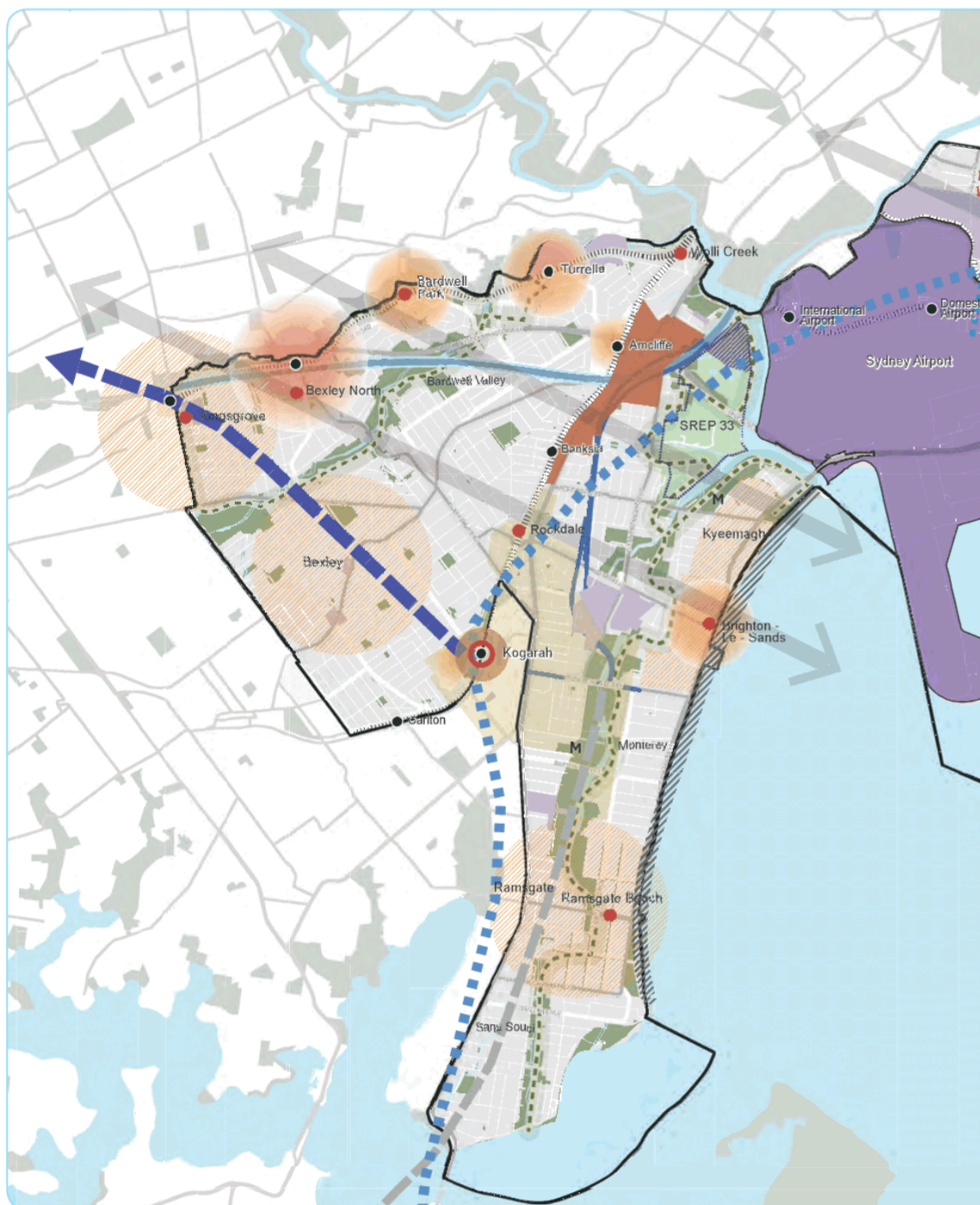
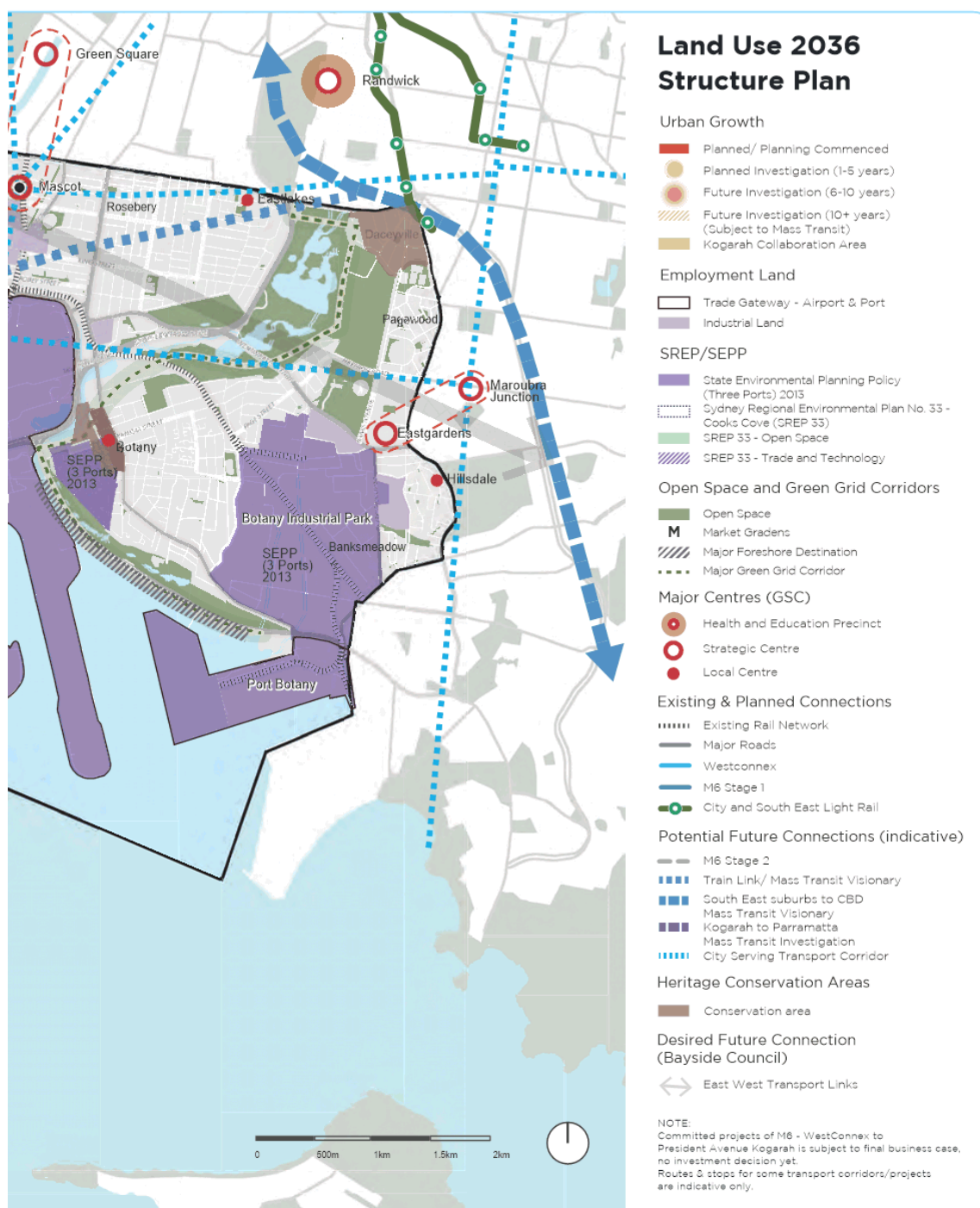


Figure 3. Bayside Land Use 2036 Structure Plan.

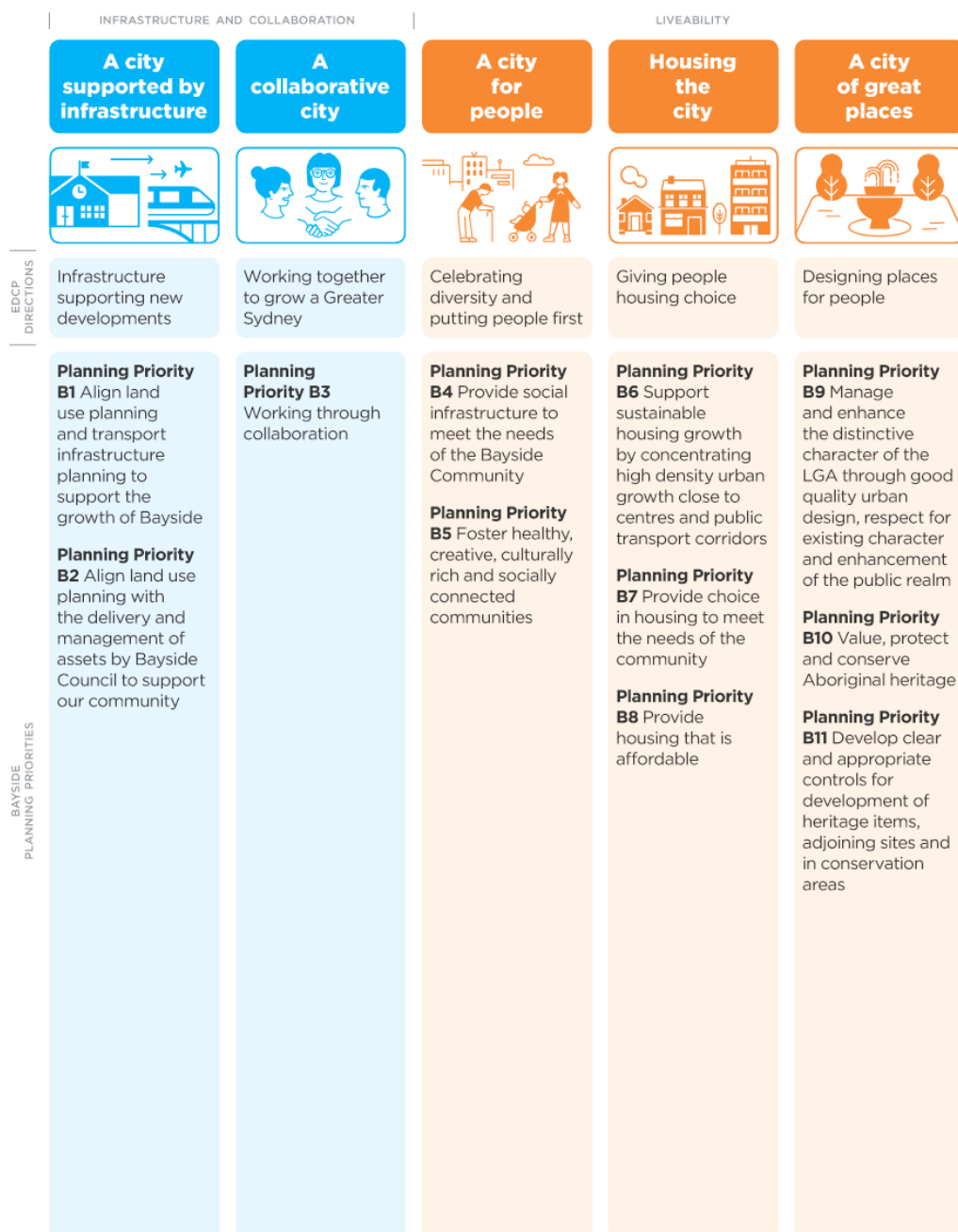
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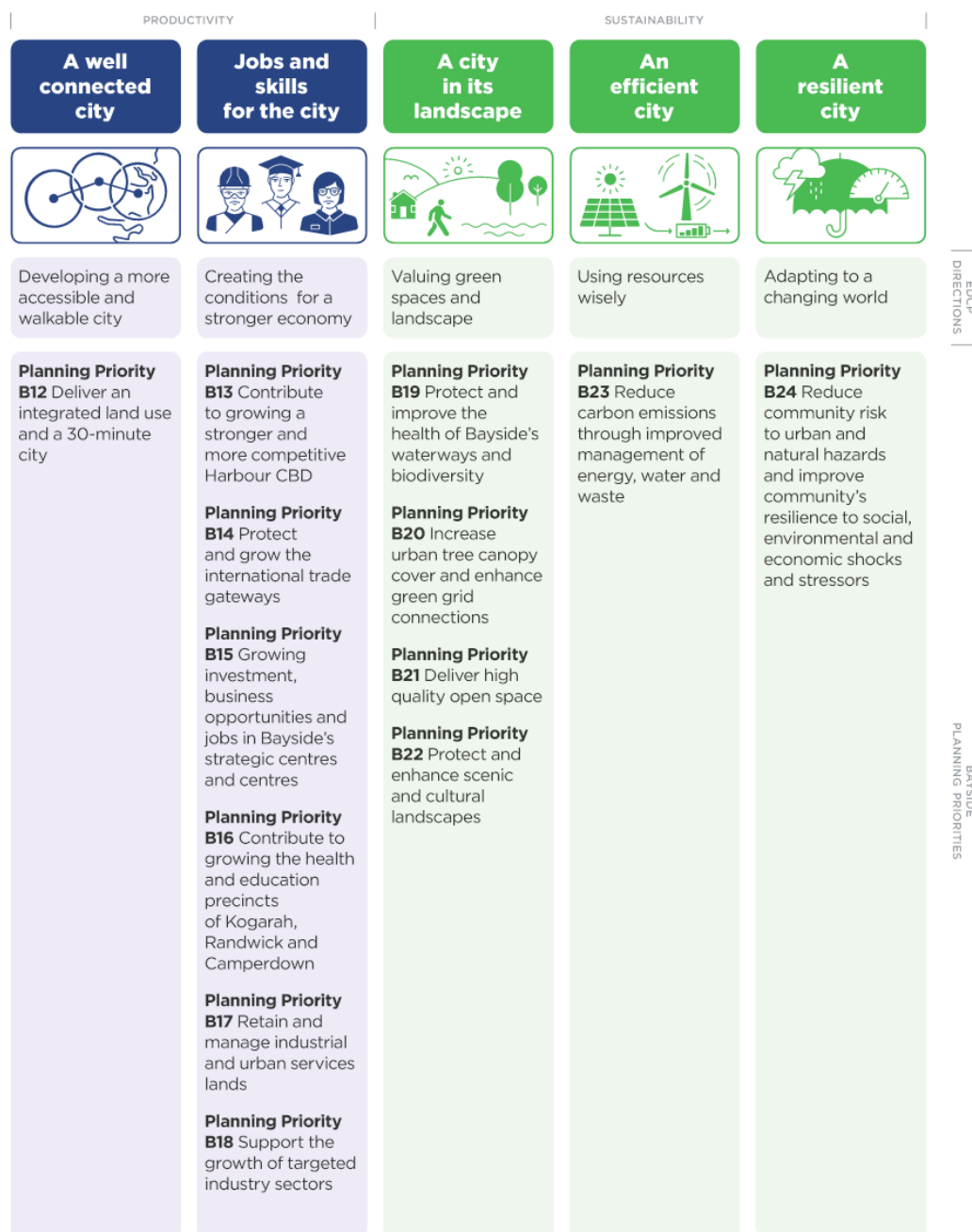
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Bayside planning priorities

A liveability, productivity and sustainability framework



Framework adapted
from the Eastern City
District Plan, GSC.



EDCP
DIRECTIONS

BAYSIDE
PLANNING PRIORITIES

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Bayside: our place



Bayside is located on the shores of historic Botany Bay, 12 kilometres from the Sydney Central Business District (CBD). Bayside Council brings together the former City of Botany Bay and Rockdale City Councils. The area covers 50 square kilometres and stretches over twenty-nine suburbs.

Population

Bayside is one of the nine LGAs that comprises the Eastern City District as shown in the map on the right. Bayside in 2016 had a population of 162,900 and is forecast to grow to 228,200 by 2036, an additional 65,300 people. This is greater than the Eastern City District. Bayside is culturally diverse, with 46% of people born overseas and 53% speaking a language other than English at home.



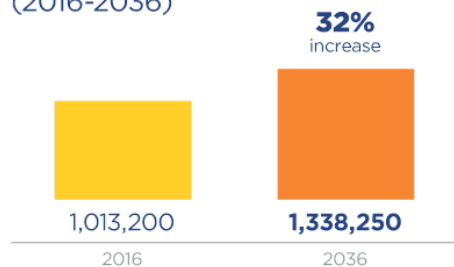
Table 1 below shows the age distribution for 2016 and the forecast for 2036. Overall the Bayside population is forecast to increase by 40%. However this forecast increase will not be the same across all age groups, with Bayside becoming an increasingly older community. This change in the demographic profile is important when planning for housing provision, community services and social infrastructure such as parks and community facilities.

	2016	2036	% change
0-4	11,200	14,300	28%
5-19	25,600	37,500	46%
20-29	24,300	29,650	22%
30-39	28,450	32,850	15%
40-49	22,400	31,700	42%
50-64	26,250	39,650	51%
65-84	20,750	34,500	66%
85+	3,950	8,050	104%

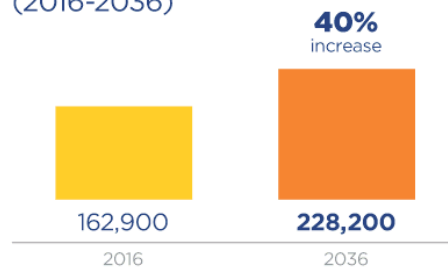
Table 1. Bayside population by age group 2016 and 2036.
(source: NSW Department of Planning, Industry and Environment)

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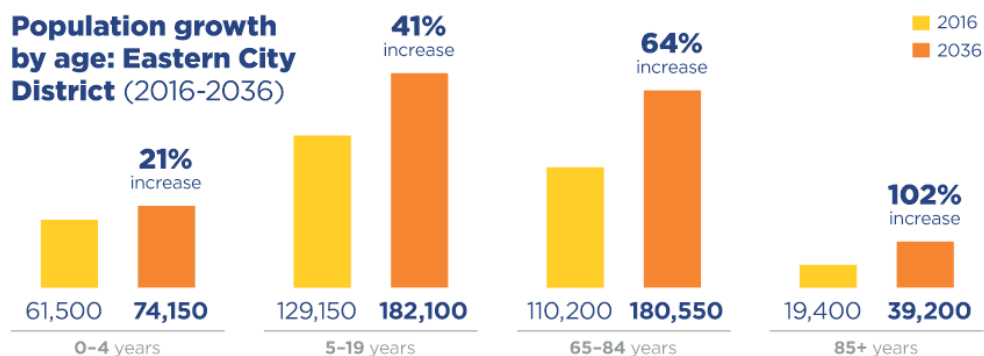
Population growth: Eastern City District (2016-2036)



Population growth: Bayside (2016-2036)



Population growth by age: Eastern City District (2016-2036)



Population growth by age: Bayside (2016-2036)



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Housing a growing population

In 2016 there were around 62,000 dwellings in Bayside. Between 2006 and 2016, 9,211 new dwellings were built in Bayside presenting an annual growth rate of 8.4%. This growth rate has exceeded that of the Eastern City District, which had an annual growth rate of 7.6% over the same time period.

The different types of dwellings are distributed unevenly across the LGA with flats and apartments being the most common dwelling type concentrated in the areas of Wolli Creek, Mascot, Eastlakes, Brighton Le Sands and Rockdale.

Smaller areas of walk up flats (3-4 storey) are located in places like Hillsdale and Ramsgate. Much of the remainder of Bayside contains separate dwellings with some medium density (semi-detached dwellings, row or terrace) scattered throughout. This distribution is shown in Figure 4.

The western part of Bayside is the more suburban in character including suburbs along the T8 Line (Airport and South) which includes Kingsgrove, Bexley North, Bardwell Park and Turrella. The centres of Wolli and Mascot are also located on this line but these are high density residential areas.

The suburbs along the T4 Line (Eastern Suburbs and Illawarra) includes Carlton, Kogarah, Rockdale, Banksia and Arncliffe. Rockdale is less suburban in character and is increasingly being developed for high density residential apartments. Banksia and Arncliffe have been identified for urban renewal and will be undergoing change over the coming years as it is redeveloped.

The eastern part of Bayside is less suburban in character with separate dwellings, semi-detached, row or terrace dwellings and 3-4 storey walk-up flats interspersed with large areas of industrial land and the very high density area of the Mascot town centre station precinct, most of which has been developed.

The already urban character of Bayside means there is a lack of vacant land so new development is being concentrated in centres, mainly in the form of apartments and units. This is shown in Figure 5. A key challenge will be ensuring there is a range of housing types and size to meet the needs of the population.

Housing: Eastern City District



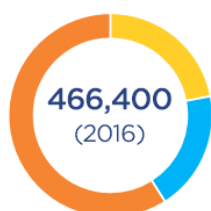
Separate house
102,608 | 22%



Semi-detached, row or terrace house
88,616 | 19%



Flat or apartment
275,176 | 59%



Housing: Bayside



Separate house
23,785 | 38%



Semi-detached, row or terrace house
9,075 | 15%



Flat or apartment
28,729 | 47%



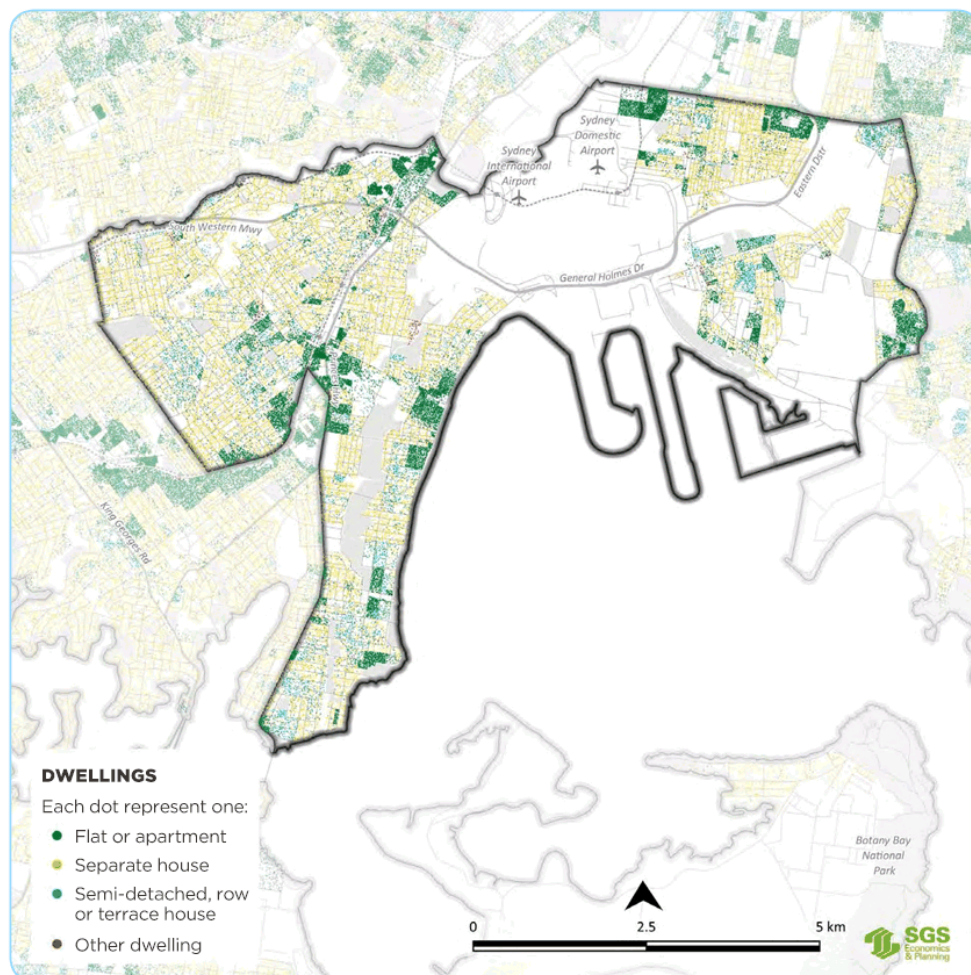


Figure 4.
The approximate distribution of different kinds of dwellings across Bayside.
(source: SGS Bayside Local Housing Strategy Background Paper)

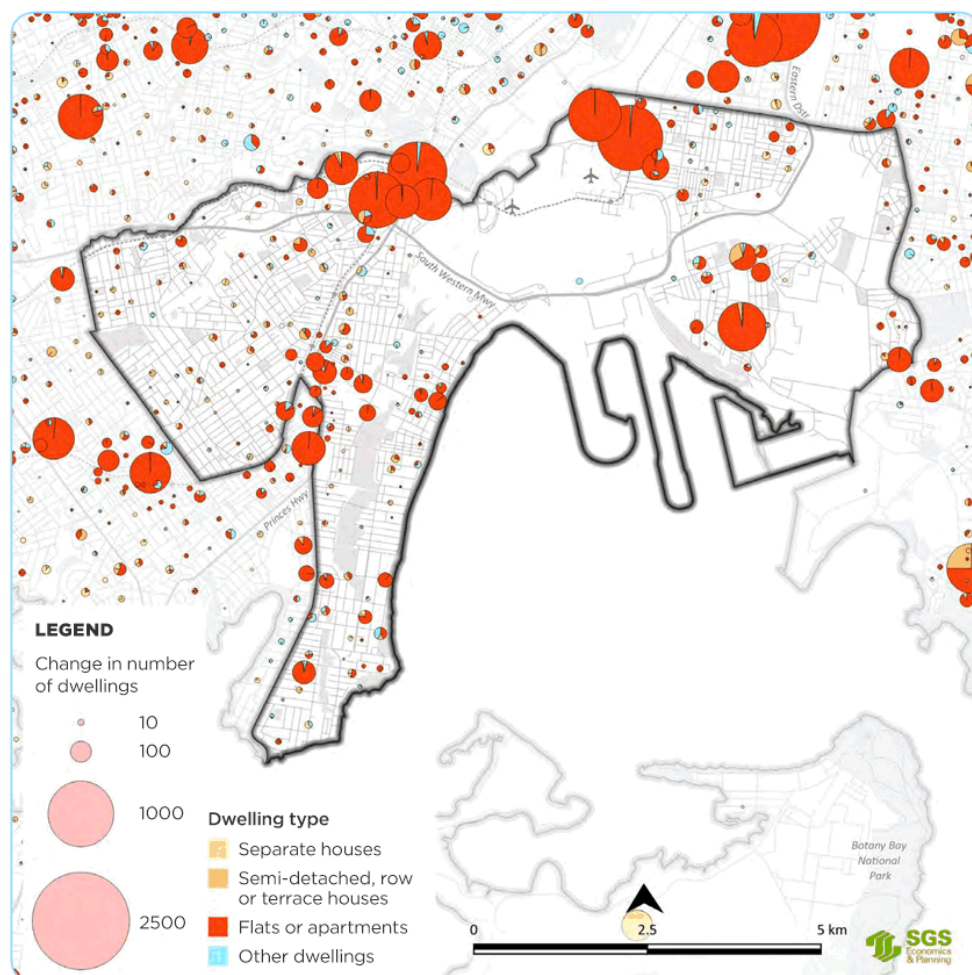


Figure 5.
The increase in dwellings across the Bayside LGA between 2011-2016.
(source: SGS Bayside Local Housing Strategy Background Paper)

What housing will Bayside need in the future

The Department of Industry, Planning and Environment anticipates that by 2036 Bayside will need an additional 28,000 dwellings to accommodate population demand. Bayside Council is investigating the ability to accommodate this demand as part of the development of a Local Housing Strategy. This strategy will consider dwelling requirements alongside analysis of local land use opportunities and constraints.

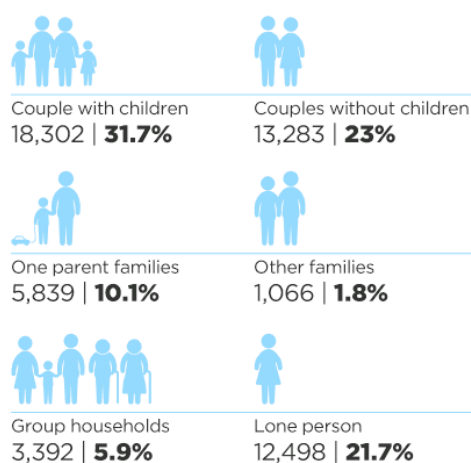
In the short term, new dwellings are planned in the urban renewal precincts of Banksia and Arncliffe (3,500 dwellings) and at Eastgardens.

Infill development will also occur in the form of medium density housing in the more suburban areas of Bayside. Higher density residential development in the form of residential flat buildings and shop top housing will occur in the centres of Mascot (along Botany Road), Botany and Rockdale which still have significant capacity.

However, additional areas will need to be planned and rezoned to meet the housing needs by 2036. To ensure housing growth is sustainable it will be important to align this growth with infrastructure provision and close to centres and public transport corridors.

Household types

The household types in Bayside are shown below.

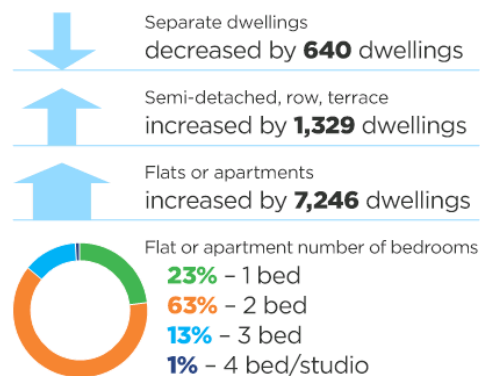


Source: ABS 2016.

The household types living in Bayside are somewhat similar to the household types in the Eastern City District, which the exception of couples with children who are over represented in Bayside compared to the Eastern City District. Based on current trends more separate dwellings, semi-detached, row or terrace medium density dwellings are required by 2036 to house the many family households.

However, between 2011-2016 the number of separate dwellings has decreased, the number of semi-detached, row and terrace homes has increased only slightly while the number of flats or apartments has increased significantly.

Furthermore, over 80% of these flats or apartments have only one or two bedrooms.



Source: ABS 2011, 2016 Census.

This means that if Bayside is to meet the needs of the community it will be necessary to consider changes to current development controls to encourage more medium density dwellings such as semi-detached, row or terrace houses to meet the needs of families with children as well as downsizers.

The census data also shows there is an increase in families with children living in apartments, as well as working aged and older people.

Apartment design and planning controls will therefore also need to be reviewed to ensure that this dwelling type meets the future needs of the Bayside community.

Housing affordability

Housing affordability is a key issue and a significant problem across the Sydney Metropolitan area.

Between 2006-2016 the median dwelling price across Sydney increased by 88% while median personal income only increased by 39%. Whilst the median dwellings prices have not increased in Bayside as much as other parts of Sydney, increases in Bayside have still outpaced incomes.

Having a range of dwelling types and tenures at different price points makes it easier for people to live in a dwelling that suits their income and lifestyle needs. Parts of Bayside, particularly in the eastern area, are still comparatively affordable. In part this is due to the presence of ageing apartment stock. However, as gentrification occurs lower income households may be pushed out of Bayside.

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Social infrastructure

The growth of Bayside will need to be supported by high quality, flexible and well located social infrastructure comprising open space, recreation and community facilities to ensure a healthy, active, social and vibrant urban life for our community.

Open space

Bayside has a diverse range of open space and recreation sporting facilities including the following:

- ▶ 220 hectares of parklands
- ▶ 150 hectares of sportsgrounds across 20 locations (excluding golf courses)
- ▶ 100 hectares of natural areas
- ▶ 75 hectares of other open space
- ▶ 7 golf courses (including approximately 95ha of public land)
- ▶ 2 aquatic centres
- ▶ 6 tidal swimming enclosures
- ▶ 4 indoor sports facilities (2 council owned and 2 privately owned)
- ▶ Bike paths and footpaths
- ▶ Hard open spaces such as plazas and streets that form part of the open space network

These include smaller local parks that cater for a range of children's activities and age groups, youth recreation spaces, active recreation spaces, trail and path based recreation, organised sport and recreation and off-leash dog exercise areas.

The distribution and access to open space varies across the LGA. For example, some areas do not have access to local parks within a 400m safe walking distance and other areas have a low supply of sporting open space compared to other areas.

Not all open space is owned by Council, with significant areas owned by other government agencies and some privately owned. One of the key issues in relation to the government owned open space is Council does not have long term tenure through leases. Confirmation of tenure is important so that Council and the community can plan for upgrades and use by the current and growing population.

Bayside has a number of destination and regional open spaces including:

- ▶ The Bayside Botany Bay Foreshore Parklands
- ▶ Cooks River Open Space Corridor
- ▶ Cahill Park and Bardwell Valley Parklands
- ▶ Millstream and Botany Wetlands Open Space Corridor
- ▶ Rockdale Wetlands Open Space Corridor

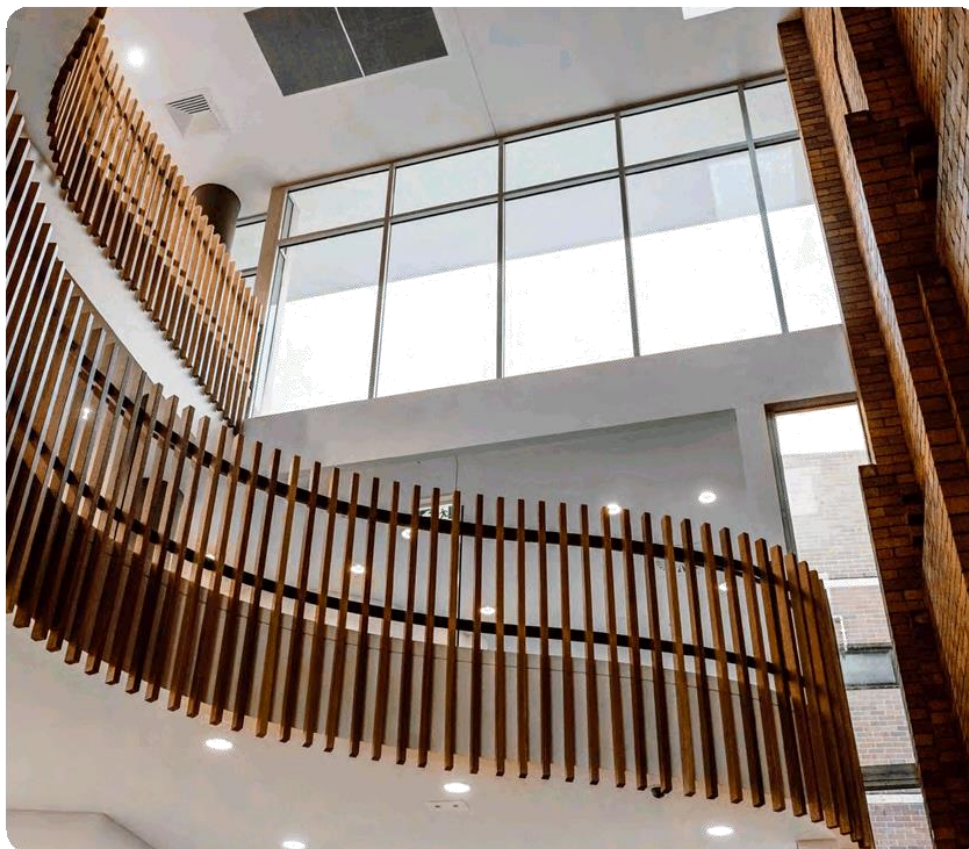
These are also used by people visiting from outside of the Bayside LGA.

The provision of formal and informal sport and active recreation will be essential but challenging in the urbanised Bayside LGA. Council is preparing a Social Infrastructure Strategy that will provide guidance on the strategies that will need to be developed to deliver sport and recreation opportunities to meet the needs of the growing Bayside population.

Where access to formal open space is constrained, the enhancement of active transport links between open and green spaces that can build upon the already identified Green Grids within Bayside will be important.

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Community facilities

Bayside has a mix of community facilities including:

- ▶ 10 community halls, community centres and meeting rooms
- ▶ 7 libraries
- ▶ 5 senior citizen's centres
- ▶ 5 children's services including 2 childcare centres

The Bayside community is diverse in terms of age, cultural and linguistic backgrounds. More than half the residents speak a language other than English at home, many residents were born overseas and almost one in ten residents don't speak English well or at all.

In the future Bayside's population will see:

- ▶ Significant increase in the number of working age adults
- ▶ Increased proportion of residents over 50 years of age
- ▶ Increased number of couples with children
- ▶ Increase in couples no children
- ▶ Increase in lone person households

These different household types and age groups have needs that can be difficult to accommodate in older inflexible community facilities, some of which are isolated with poor public transport connections.

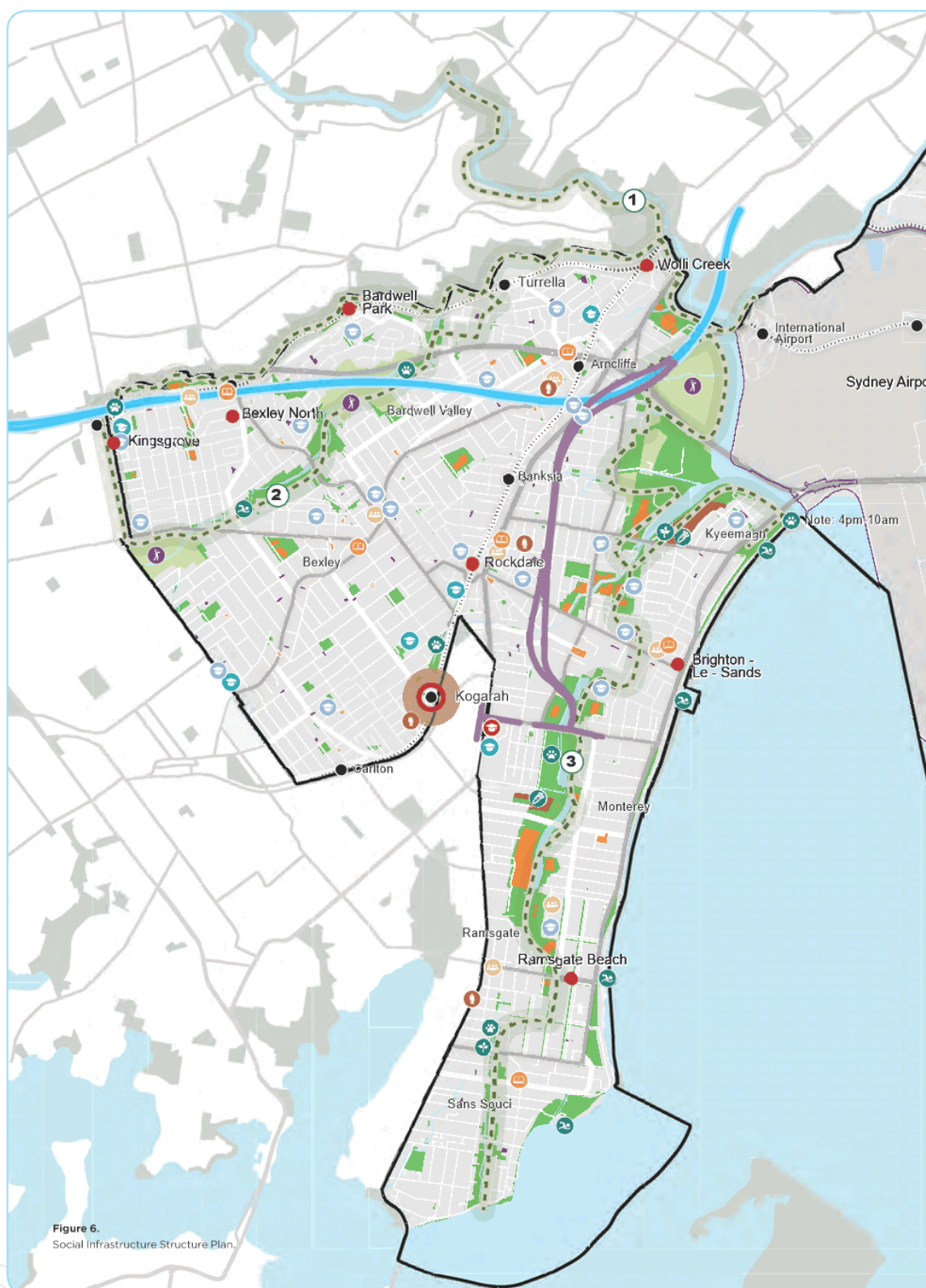
In addition, the increase in high density living can lead to increasing social isolation and disconnectedness. Provision of social infrastructure as "third spaces" where you can relax in public and spend time will be important for community wellbeing, such as in parks, public libraries and cafes.

Within high density growth areas it will be important to proactively plan and advocate for improved and increased provision of social infrastructure.

Particularly in high density areas, the provision of open space and community facilities should be planned as the centre of the development, and with public transport and active transport networks connecting all major parks, sport, community, transport hubs/nodes and recreation destinations.

The Bayside Social Infrastructure Strategy will be finalised in 2020 and will provide an evidence base for future planning decisions.

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Environment

Natural areas and open space

There are over 350 parks and reserves in Bayside with many of these containing wetlands and waterways, bushland, coastal environments as well as traditional open space.

The wetlands and waterways of Bayside Council are an iconic feature of today's landscape forming an integral part of Sydney's Blue Grid. They are highly used recreational areas recognised for their environmental attributes at a Local, State, Commonwealth and International level. Their importance as a key feature of the area was also reflected in the past with the Gwegal, Bidjigal and Gadigal clans known as the "water people".

Bayside's waterways and wetlands include:

- ▶ Botany Bay
- ▶ Cooks River
- ▶ Mill Stream
- ▶ Georges River
- ▶ Botany Wetlands
- ▶ Rockdale Wetlands Corridor

Bayside is also home to areas of significant bushland and coastal environment including Bardwell Valley, Fry's Reserve, Foreshore Beach and Lady Robinsons Beach. Despite its highly urbanised environment, the LGA is home to over thirty threatened and significant species as well as a number of remnant vegetation communities.

The importance of Bayside's natural environment is reflected in the Eastern City District identification of four of the five priority Green Corridors within Bayside:

- ▶ Mill Stream and Botany Wetlands Open Space Corridor
- ▶ Wolli Creek Regional Park and Bardwell Valley Park
- ▶ Rockdale Wetlands
- ▶ Cooks River Open Space Corridor

Bayside's natural areas are not only important for biodiversity, but also provide urban cooling, community recreation and relaxation spaces and support our local economy.

Community engagement undertaken for the development of the Local Strategic Planning Statement has highlighted the value to the community of public open space and green infrastructure providing places for people to gather, play and recreate as well as providing environmental value.

Council has an extensive on ground and community engagement program to improve our natural areas and open space and is updating planning controls to minimise development impact on these important assets.

Resource efficiency

Bayside Council recognises that reducing energy consumption, increasing water efficiency and reducing waste is required to minimise Bayside's environmental footprint. This needs to be undertaken at a Council and community level.

In 2016-17, the Bayside community contributed 1.58 million tonnes of greenhouse gases (CO₂e) into the atmosphere. This is about 3.3% of Greater Sydney's total greenhouse gas emissions. The sources of greenhouse emission in Bayside are shown in Figure 7, which highlights that most emissions come from electricity used in buildings, including larger users such as industrial buildings. Energy from transport and emissions from waste also make significant contributions.

In addition to changing Council's water, energy and waste practices, Council can engage the community in best practice water and energy efficiency and waste reduction through changes in planning controls, advocacy to State Government and enhanced community engagement.

Council will finalise the Bayside Transport Strategy in 2020 and this will include the consideration of transport demand management initiatives including working from home, improved walking and cycling, improved access to car sharing, car pooling and on demand transport to work towards achieving net-zero greenhouse gas emissions.

Bayside Council will continually undertake reviews of energy, water and waste management solutions to identify opportunities and improve resource efficiencies.



Contaminated land and ground water

The legacy of heavy industry and commercial activity within the Bayside LGA has impacted our soil and groundwater, resulting in the presence of toxic chemicals, petroleum and heavy metals such as zinc, copper and lead. This is particularly so in the eastern area of Bayside.

Council has an important role in managing contaminated land along with the NSW Environment Protection Authority. This includes the identification of contamination on Council owned sites and their management along with the assessment of development applications on contaminated and potentially contaminated sites.

Significant areas of contaminated groundwater in the eastern area of Bayside has resulted in the State Government placing groundwater exclusion zones in these areas as well as working with Orica to coordinate the Botany Groundwater Clean Up Program. Council is in regular contact with the key agencies to provide input into this issue.

In addition, acid sulfate soils which are naturally occurring in estuarine environments, need to be managed to minimise impacts on built structures, water quality and animal and plant life. Council manages this through the assessment of development applications and its own work activities.

All emissions by source (2016-17)

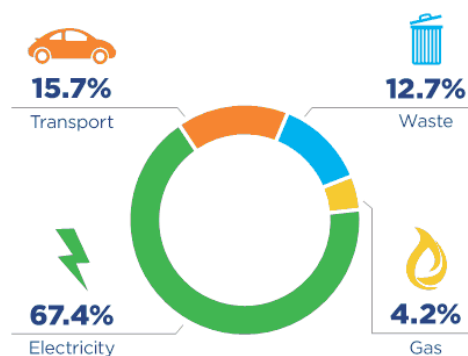


Figure 7.
Bayside emissions by source for 2016-17.
(source: Resilient Sydney Platform - www.resilientsydney.com.au)

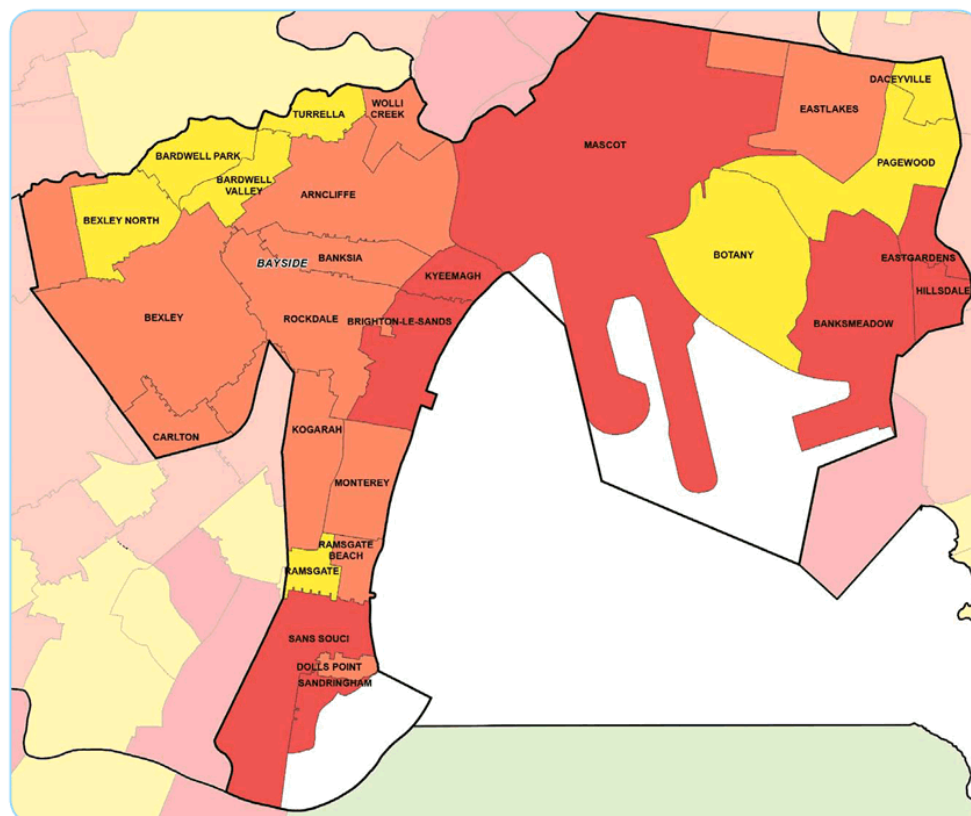
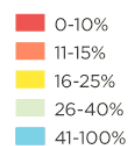


Figure 8.
Bayside urban canopy cover.
(source: Department of Planning
Industry and Environment 2018)





Air and noise impacts

In addition to its urban nature the location of Sydney Airport and Port Botany as well as major transport corridors means that there are a number of factors that have a negative impact on air and noise quality within the Bayside LGA.

Through advocacy to State Government and key agencies, as well as implementation of planning controls, Bayside is continually working to identify opportunities to reduce the impact of negative noise and air quality on the Bayside community.

Climate change

Climate change is one of the key issues facing Bayside with an increasing number of hot days predicted above 35°C, more frequent extreme weather events and rising sea levels.

The average tree canopy cover in Bayside is only 13.7%. The range of canopy cover is shown in Figure 8.

This is the lowest tree canopy in Greater Sydney, but in part this is due to the presence of Sydney Airport and Port Botany.

The impact of increased temperatures can be affected further by the urban heat island effect, which is localised warming due to large areas of paved or dark coloured surfaces such as roads and roofs. Both Sydney Airport and Port Botany can be clearly seen demonstrating this effect in Figure 9, Urban heat island effect.

Strategies to reduce the urban heat island effect can include increasing landscaping and canopy cover, retaining water in the landscape, by increasing pervious areas or using lighter coloured materials.

More hot days over 35C put people at risk, particularly the elderly and very young. Figure 10, Vulnerability to the heat island effect, maps those areas where the population is more vulnerable to heat waves.

With changing weather patterns the life cycles of flora and fauna may be impacted and become more vulnerable such as coastal salt marsh habitat. Climate change will also likely result in increased storm events, localised flooding and coastal erosion that will have financial impacts for Council in relation to its stormwater system and infrastructure maintenance. Already coastal erosion is occurring at Lady Robinsons Beach and Cahill Park.

With increasing land use pressure to accommodate and plan for an additional 65,000 more people by 2036, climate change adaptation and improving community resilience will be important in future land use and infrastructure planning.

Council has commissioned an Environmental Review of Planning Controls that will provide an evidence base for future planning decisions.

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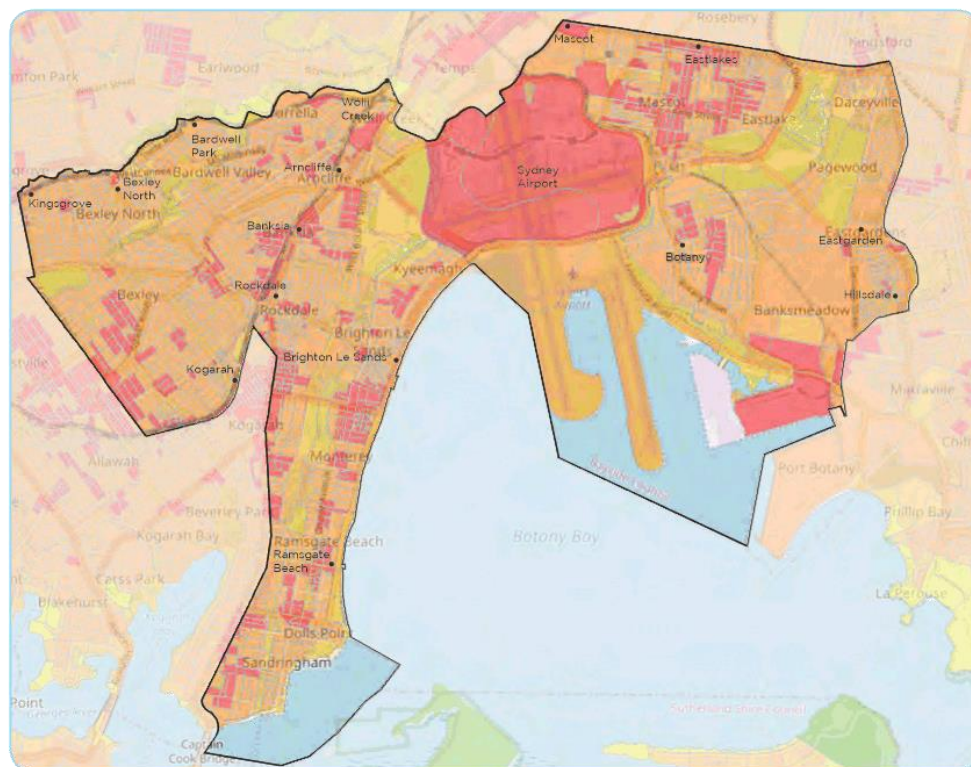


Figure 9.
Bayside heat island map. Sydney Greater
Metropolitan Area for the summer of 2015-2016.
(source: Land and Property Information 2015)

- Cooler than baseline
- 0 - 3 degrees warmer
- 3 - 6 degrees warmer
- 6 - 9 degrees warmer
- Warmer than 9 degrees

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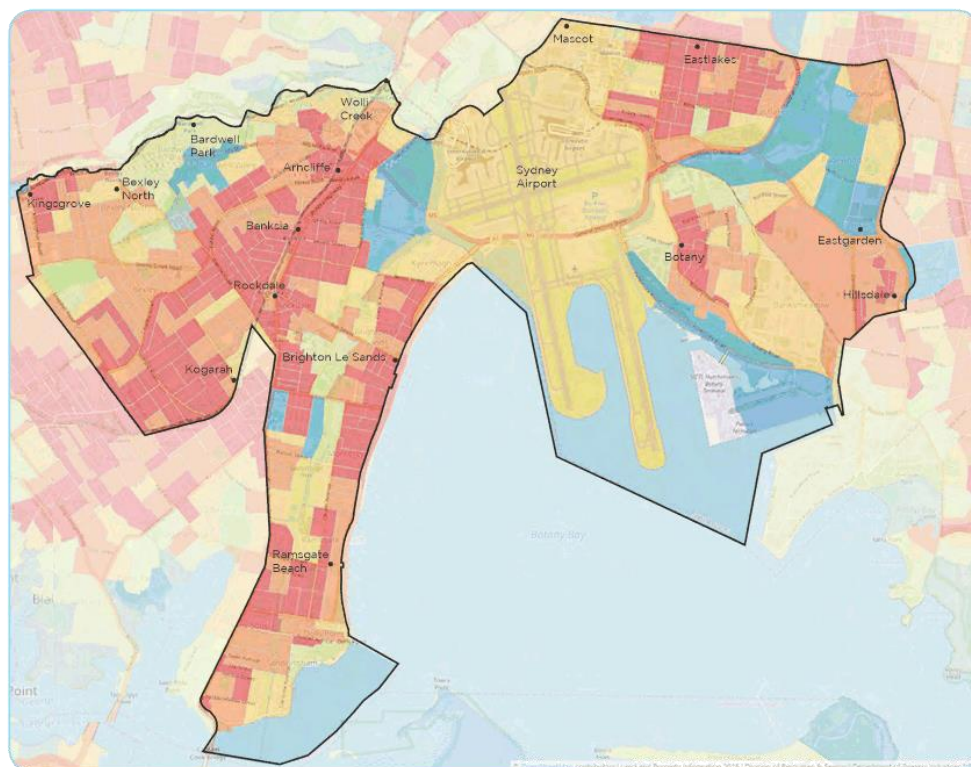
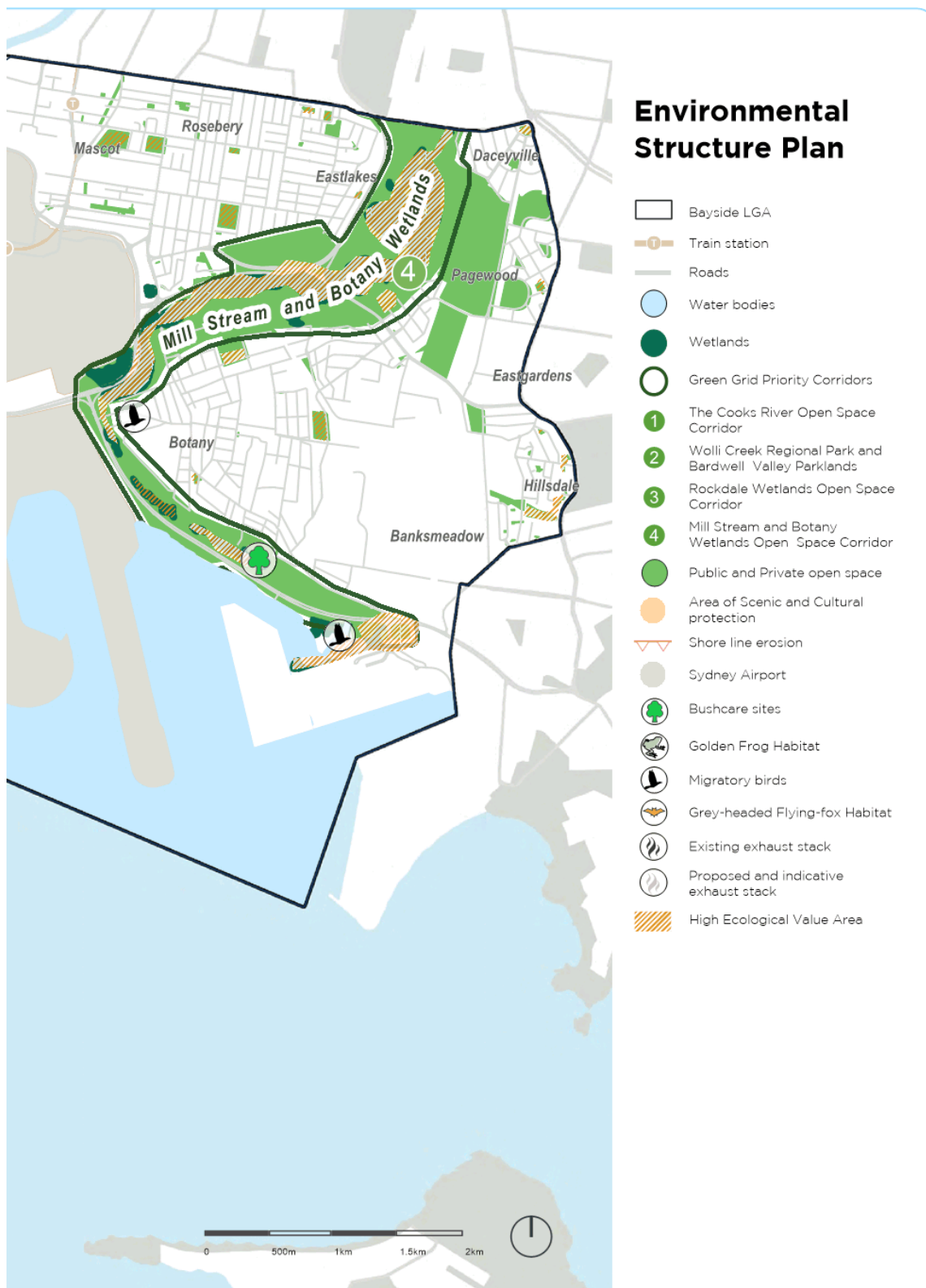


Figure 10.
Bayside heat vulnerability
index. (source: Land and
Property Information 2015)







Aboriginal and non-Aboriginal heritage

Bayside has been home for many generations of Aboriginal people, living along the Cooks River and around Kamay (Botany Bay). Aboriginal heritage includes sites like rock engravings, tools such as stone axes or spear points, natural features of spiritual significance, landscapes like Kamay Bay, historical camps, buildings where Aboriginal people lived or worked and contemporary places of work or recreation.

There are 1,550 Aboriginal and Torres Strait Islander people living in Bayside, including people with ancestral connections to Kamay, and others with contemporary or historical connections to the area.

Council is researching and documenting Aboriginal history and heritage in consultation with the Aboriginal community. This will inform the preparation of an Aboriginal Heritage Strategy that will help Bayside recognise and manage Aboriginal heritage as the area develops in the future.

Bayside also has a rich non Aboriginal heritage with about 395 heritage items that include houses, hotels, commercial buildings, churches, parks and monuments.

We currently have two heritage conservation areas at Botany Town Centre and the Daceyville Garden Suburb along with well-known heritage places such as Botany Town Hall, the market gardens at Kyeemagh, Arncliffe and Kogarah, Brighton Baths, Botany Wetlands and Scarborough Park Wetlands. The mixed architectural character includes concentrations of interwar dwellings around Bexley and Kyeemagh and a number of Victorian era buildings along the rail corridors.

Council is preparing a Heritage Strategy that is reviewing the significance and character of existing and potential heritage conservation areas in Bayside. Council is also reviewing the Bayside DCP 2020 heritage controls to ensure our heritage items and conservation areas are effectively protected.

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Economy

In 2016 Bayside had approximately 91,000 jobs located in the LGA. Of these, 15,000 jobs were located at Sydney Airport and a further 18,000 at Mascot.

Located in Bayside are the two trade gateways of Sydney Airport and Port Botany. These trade gateways are important to the economy of Sydney and the nation. The trade gateways are supported by large areas of industrial employment and urban services land, including the Botany Industrial Park, and transport infrastructure providing connections to destinations across the city and NSW. The supporting precincts enable these trade gateways to operate as effectively as possible and are critical for their ongoing operations.

The Eastern City District Plan requires Bayside to retain and manage all existing industrial and urban services land, safeguarding them from competing pressures especially residential and mixed-use zones.

Both the *Sydney Airport Masterplan 2039* and *Navigating the Future: NSW Ports 30 Year Masterplans* identify a growth in the movement of people and freight over the next 20 years. To ensure long term security for the industries that support these trade gateways, such as freight forwarding, warehousing and airport-related industries, Council will need to manage land use conflict in the vicinity, particular with residential land uses.

The Eastern Economic Corridor, which stretches from Macquarie Park in the north to Sydney Airport in the south, contains close to one-third of Greater Sydney's jobs. Bayside's industrial precincts are well-positioned to support businesses needing to be close to both the port/airport and the Sydney CBD. This provides an advantage to Bayside in attracting some of these future jobs in sectors such as freight and logistics and advanced manufacturing.

Bayside also has a number of centres that provide shops, services, social infrastructure (e.g. a library) and jobs for the local communities. There are ten local centres, two strategic centres and the Kogarah Health and Education Collaboration Area identified in the Eastern City District Plan.

The ten local centres listed in the Eastern City District Plan are focal points for their neighbourhood, providing access to goods and services, community infrastructure and transport in close proximity to where they live. They are an important part of the 30-minute city and can deliver mixed use, walkable, cycle friendly centres and neighbourhoods with appropriate infrastructure that supports walking and cycling for everyday trips. Local and neighbourhoods centres also have an important role in providing local employment.

These ten local centres are:

- ▶ Bardwell Park
- ▶ Bexley North
- ▶ Botany
- ▶ Brighton Le Sands
- ▶ Eastlakes
- ▶ Hillsdale
- ▶ Kingsgrove
- ▶ Ramsgate
- ▶ Rockdale
- ▶ Wolli Creek

The Bayside Centres and Employment Lands Strategy includes work on identifying a centres hierarchy for Bayside. When finalised, this may result in additional centres being recommended for inclusion as a local centre.

The two designated strategic centres in the Eastern City District Plan are Mascot twinned with Green Square (City of Sydney) and Eastgardens twinned with Maroubra Junction (Randwick Council).

Mascot twinned with Green Square forms a strategic centre that has undergone significant urban renewal in recent years, with high density residential, commercial office, and ground floor retail and dining clustered around the train stations. In 2016 there were 59,500 jobs in the centre and a further 16,500-21,500 jobs are forecast by 2036.

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Eastgardens is a major shopping centre and is twinned with Maroubra Junction in Randwick, approximately one km to the east. The Eastern City District Plan is forecasting an additional 1,100-2,100 jobs by 2036. There is no high street connecting the two existing centres and the Eastern City District Plan has identified the activation of Maroubra Road as a key action. Collaboration between Randwick Council and Bayside Council will be required to achieve activation of Maroubra Road.

Combined, the four centres that make up these two cross-LGA Strategic Centres will build on their local characteristics and complement, rather than compete with one another to accommodate particular roles and functions.

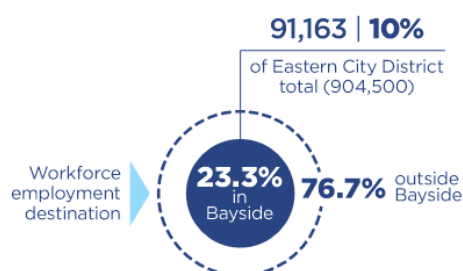
The Kogarah Collaboration Area has been nominated as a Health and Education Precinct and contains a concentration of medical facilities and a mix of retail and commercial activities which are mostly focused on the finance and insurance industry. The Kogarah Collaboration Area includes the Kogarah town centre (Georges River LGA) residential areas of Kogarah located in Bayside LGA, Rockdale town centre and extends to include part of Scarborough Park.

In 2016 the Kogarah Health and Education Precinct was host to 11,800 jobs and by 2036 it could host as many as 20,500 jobs. Planning for the Kogarah Collaboration Area is being undertaken by the Greater Sydney Commission in collaboration with Georges River Council, Bayside Council and a wide range of stakeholders.

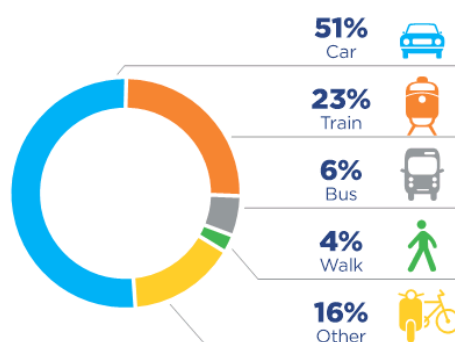
Bayside is currently preparing a Centres and Employment Lands Strategy which will be the basis for Council's retail, economic, industrial and urban services priorities. It will also help set the priorities for mixed-use precincts.

Land use planning is an important component in ensuring the economy grows and the priorities identified in the strategy will provide an evidence based approach for making those land use planning decisions.

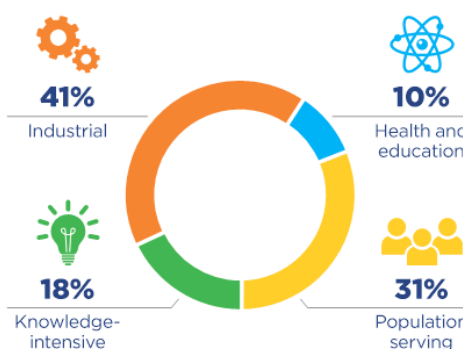
Jobs in Bayside (2016)



Journey to work (2016)



Jobs by sector (2016)



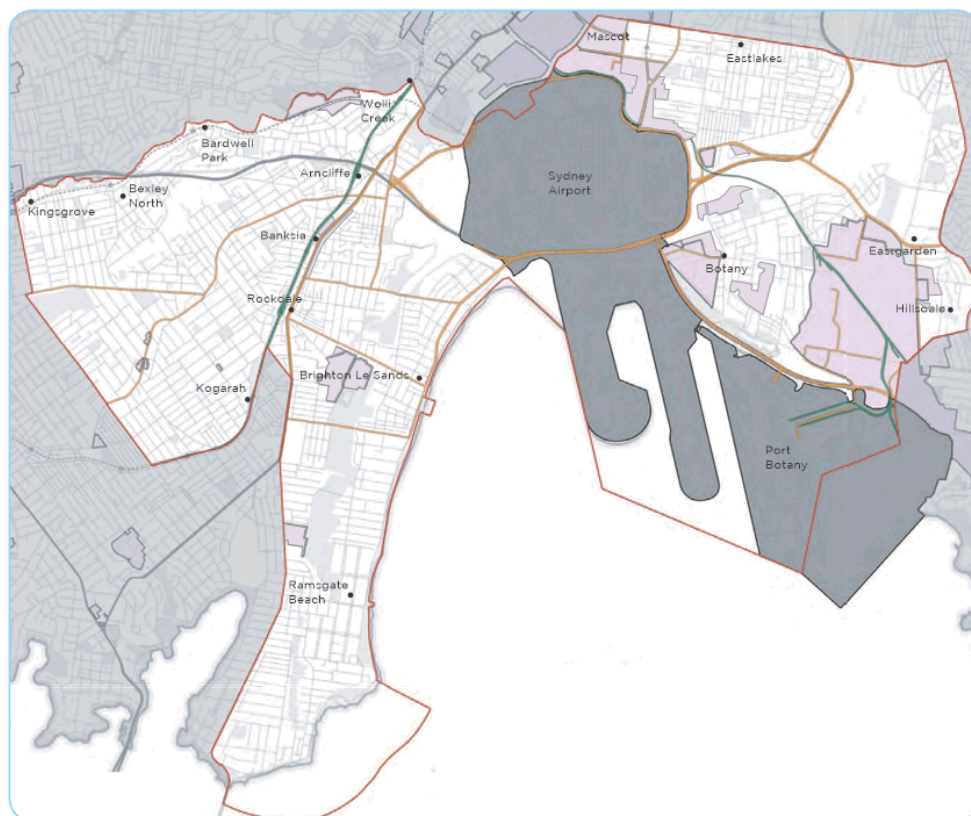


Figure 12.
Industrial freight and port.
(source: SGS Economics & Planning 2019)

- Freight Rail Links
- Key Surface Road Freight Links
- Industrial Lands
- Industrial Lands - in adjoining LGAs
- Port/Airport)
- Railway Stations
- Railway Network
- Highways
- Other Roads
- Bayside LGA Boundary

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Meeting the transport needs

Bayside is located at the south west edge of the Sydney CBD and is home to the two trade gateways of Sydney Airport and Port Botany. Transport is a key priority in the strategic planning of the LGA, and includes all forms of transport: rail, road, freight and cycleways and footpaths.

Bayside is currently serviced by two train lines:

T4 (Eastern Suburbs and Illawarra): Wolli Creek, Arncliffe, Banksia, Rockdale, Kogarah and Carlton.

T8 (Airport and South): Mascot, Domestic Airport, International Airport, Wolli Creek, Turrella, Bardwell Park, Bexley North and Kingsgrove.

With the exception of Mascot and the Sydney Airport Stations, all other stations are located in the western part of Bayside. Whilst there are some capacity constraints these train lines generally provide a good level of public transport to employment areas in the Sydney CBD, Mascot and Sydney Airport. They also support the high density residential areas already developed at Wolli Creek and Rockdale and the proposed renewal areas of Arncliffe and Banksia.

Capacity on the train lines will increase, with the next phase of the More trains, More Services program focusing on delivering improvements for the T4 Eastern Suburbs and Illawarra Line and the T8 Airport and South Line customers. More services for the T8 Airport Line will mean trains at on average every four minutes instead of every six minutes during the morning peak, a potential 80% increase in capacity. There should also be a 30% increase in peak services on the T4 line.

Other than Mascot, which has largely been redeveloped as a high density mixed use centre, the eastern areas of Bayside are less well served by public transport, relying solely on bus services.

Footpaths in Bayside are well established, with footpaths in centres generally provided on both side of the road. However, crossings are not always provided on all legs of signalised intersections and waiting times can be lengthy for both pedestrians and cyclists. There are also long distances between crossings on several key roads including Forest Road, General Holmes Drive and Botany Road.

Bayside has a network of cycleways that are predominately on road with some shared paths in recreational areas such as along Grand Parade foreshore and along the Alexandra Canal (though this may be lost with the delivery of the Sydney Gateway project). The topography is well suited to cycling and as part of the Transport Strategy currently being prepared by Council, a Bike Plan will also be prepared. This Bike Plan, in conjunction with the priority corridors identified in the TfNSW Principle Bicycle Network and connections to the regional networks, aim to make bicycle riding a feasible transport option.

Bayside has four Green Grid Corridors that are networks of high quality green spaces connecting town centres, public transport and residential areas. There will be opportunities to extend these networks using Bayside's parks and streets.

Bayside also has major road connections north – south and connecting to Sydney Airport and Port Botany. This includes the Princes Highway, M5, Foreshore Drive, General Holmes Drive/M1 and Forest Road. These are important freight routes, connecting to the Sydney CBD, the two trade gateways and destinations further afield.

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The NSW State Government has also identified in the Future Transport 2056 a number of projects that are being planned as well as a number of visionary projects that could impact on the planning of Bayside over the next 20 years. This includes the following road projects: WestConnex (under construction), M6 Extension Stage 1 and the Sydney Gateway. Also at the planning stage is the Port Botany Rail Duplication project that will allow more freight to move by rail, though this will not offset the forecast increased freight movement. Figure 13, Bayside Transport Network Map, shows the Future Transport 2056 projects.

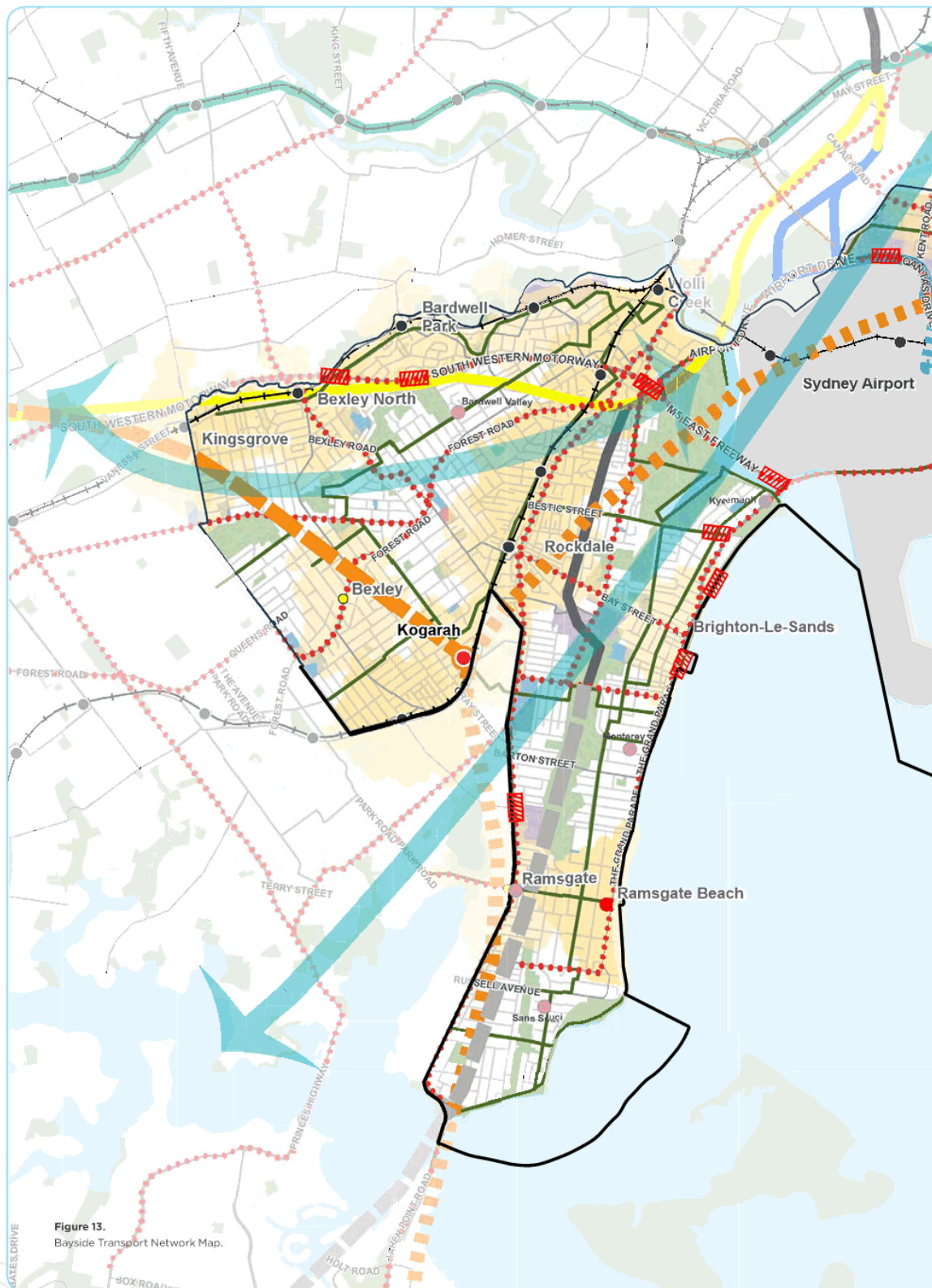
It will be important to ensure that land use planning does not jeopardise future opportunities for uplift associated with visionary transport corridors. This includes the Kogarah to Parramatta and south-east mass transit link to Miranda. The potential light rail extension from Kingsford to Maroubra-Eastgardens and train link/mass transit from Central to Maroubra Junction/Long Bay will also need to be considered in land use planning.

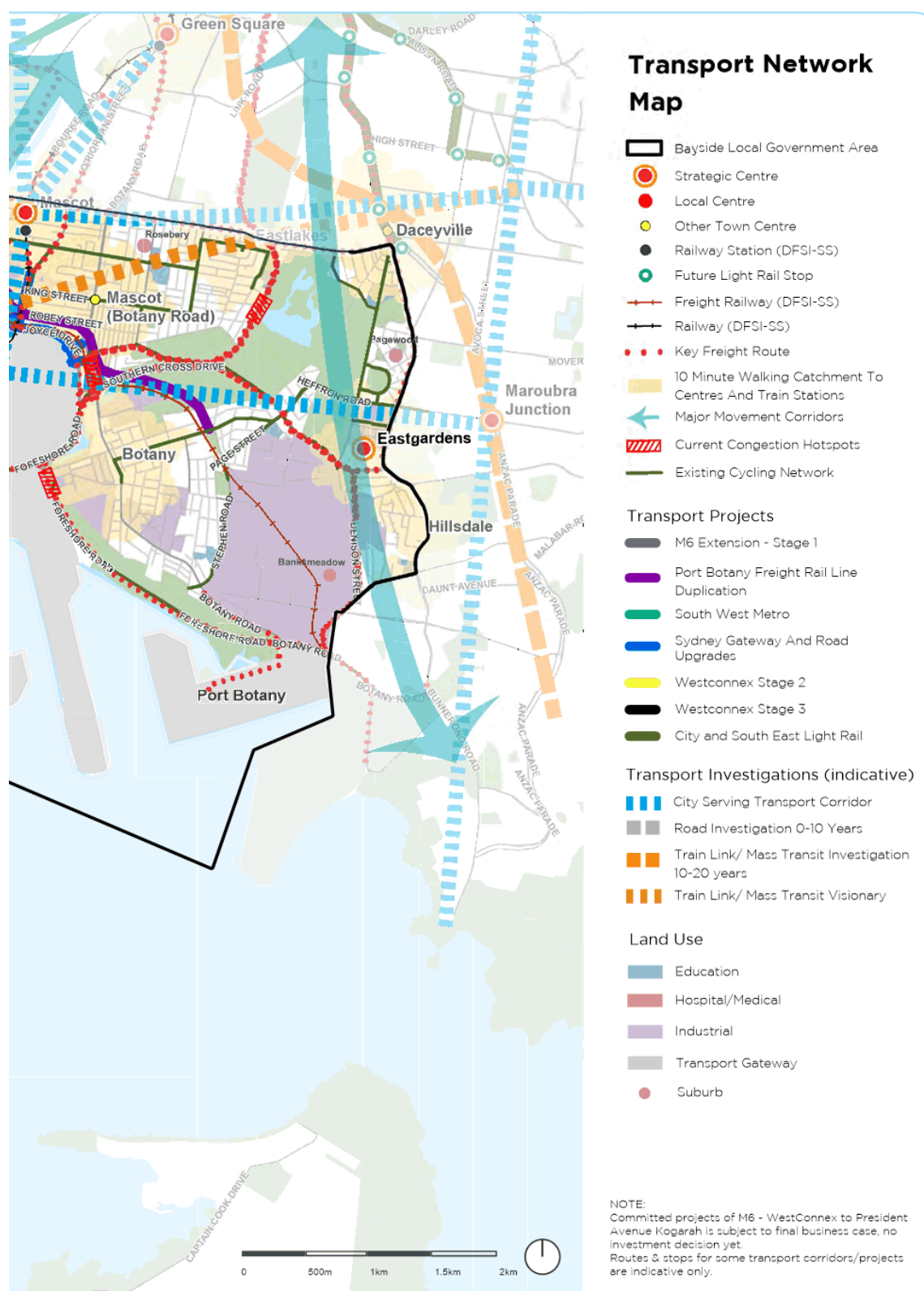
Council is currently preparing a Transport Strategy that will provide Council with an understanding of transport locally, including the need to plan for and manage freight and logistics activities that are generated as part of the growth in town centres and residential density in Bayside, and in relation to Greater Sydney, set long term strategies and a transport vision for Bayside. It will provide an evidence base for making planning decision.

Initial issues raised include the need for more east-west links and that Bayside needs an active, inclusive and sustainable network of footpaths and bike paths to ensure there are walkable centres, pedestrian friendly routes and cycleways. The presence of the two trade gateways also means access to Sydney Airport and Port Botany is a priority for freight routes.

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Land use limitations

Bayside has significant areas or precincts that may not be suited to certain land uses such as high density residential or open space. This is as a consequence of constraints including major infrastructure projects, historical contamination, heritage or proximity to Port Botany and Sydney Airport.

Council has undertaken a *Land Use Limitations Study* to identify these constraints. Whilst some constraints may partially or totally sterilise the land from future development or redevelopment, other constraints may only require uses to be controlled or managed for development to occur. These constraints are shown in Table 2.

For example, an exclusion zone for sensitive land uses may be required around an area manufacturing dangerous goods but in other instances the land use limitation may only require specific design standards such as not allowing a building over a specific height to meet aircraft operational safety.

These land use constraints will be considered in land use planning for Bayside.



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PROJECTS, OPERATIONS AND ACTIVITIES (POAS)		DESCRIPTION
1	Sydney Gateway – Port Botany freight rail duplication	Proposed freight rail upgrade
2	Sydney Gateway – new airport road connections	Proposed motorway
3	M6 Motorway Extension (Stage 1)	Proposed motorway
4	M6 Motorway Extension (Stage 2)	Proposed motorway
5	Potential development of Port Botany as a cruise ship hub	Investigation of alternative sites nominated
6	Growth in freight transport at Port Botany and Sydney Airport	Protection of freight routes, port/airport operations, and supporting industrial lands from reverse amenity impacts
7	Use and production of dangerous goods	Safety risks associated with industrial activity and dangerous goods at the BIP
8	Transport of dangerous goods along Denison Street	Safety risks associated transporting dangerous goods including to/from the BIP and NSW Ports
9	Sydney Airport Rail Link	Underground rail link to Sydney Airport
10	Dangerous goods pipelines	High pressure dangerous goods pipelines in the LGA
11	Jet fuel pipeline to Western Sydney Airport	Investigation of potential supply routes to the new Western Sydney Airport
12	Kurnell desalinated water delivery pipeline	Underground water delivery system
13	Port vessel traffic service (VTS) transmission links	Communication infrastructure for managing ship movements in Port Botany
14	Aircraft noise	Noise impacts of flights to/from Sydney Airport
15	Design and land use restrictions for aircraft operational safety	Restrictions on land use and design to ensure safety of flights to/from Sydney Airport
16	Public Safety Area (PSA) for Sydney Airport	Proposed restrictions on land use to promote safety on the ground in the event of an aircraft impact.
17	Southern and Western Suburbs Ocean Outfall Sewer curtilage	Heritage listed sewer main
18	Heritage items and heritage conservation areas	Items of environmental heritage in the LGA
19	Soil and groundwater contamination	Sites with potential or observed contamination
20	Developments associated with flooding risk	Land within 1:100-year flood risk levels
21	Developments associated with tsunami risk	Impacts of inundation by tsunami event
22	Developments within coastal areas	Protecting ecological and social values of coastal land
23	Developments within biodiverse land	Protecting ecological values of biodiverse land

Table 2.
Land use limitations.



Community engagement

Council undertook extensive consultation both in the preparation of the draft Bayside Local Strategic Planning Statement and during the subsequent public exhibition of the document. This included a series of surveys, workshops, stakeholder interviews and information sessions. The exhibition was advertised in local newspapers, through Council's eNewsletter and Facebook. A survey was placed on Council's Have Your Say website and individual submissions could be sent through to a dedicated email address. A number of common themes were raised and this is what we heard.

Infrastructure

- ▶ Bayside needs more pedestrian and cycling infrastructure that connects places, safer pedestrian crossings and improved lighting at night
- ▶ Accessible public transport with greater frequency of services
- ▶ More bus routes with increased east-west connections
- ▶ New light rail to connect town centres

Liveability

- ▶ Community facilities need to be within walking distance and part of a hub
- ▶ Need more cultural spaces and programs that reflect diversity and aging population
- ▶ More affordable housing and choice to cater for all types of buyers and renters
- ▶ Need to preserve existing character and sense of community
- ▶ Need to protect areas of historical significance and cultural and natural landscapes
- ▶ Protect existing open space, beach and bushland to encourage an active and healthy lifestyle
- ▶ Need more open space in high density areas, look at shared use with schools and more multipurpose spaces
- ▶ Need to embrace Aboriginal heritage as part of our rich history and character
- ▶ High density residential development is not appropriate everywhere

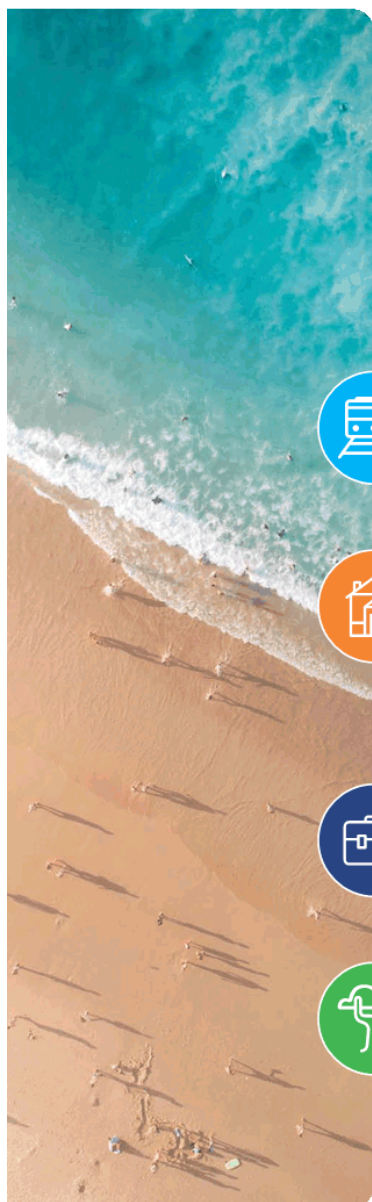
Productivity

- ▶ Town centres need to be supported by adequate parking and transport services
- ▶ Encourage vibrant town centres - enliven streets and laneways, more small bars and more activities
- ▶ Need to expand health and other services in our town centres
- ▶ More local jobs, including in our local and neighbourhood centres

Sustainability

- ▶ Need to preserve green corridors
- ▶ Consider having more community gardens
- ▶ Improve the water quality of the rivers, wetlands and Botany Bay
- ▶ Consider impacts of air quality and noise on residential living
- ▶ Need a climate change policy to look at sea level rise and provide flood level advice
- ▶ Regular maintenance of stormwater network to improve water quality and mitigate flooding
- ▶ Plant more trees

Bayside planning priorities



The Bayside Local Strategic Planning Statement provides a 20 year vision for land-use planning in Bayside. It sets the direction for Council's economic, social and environmental planning priorities and will help guide future planning policy.

The Bayside LSPS gives effect to the Greater Sydney Commission's Eastern City District Plan, which in turn implements the Greater Sydney Region Plan – A Metropolis of Three Cities.

The Eastern City District Plan has 22 Planning Priorities grouped across four themes and ten directions.

The themes and directions are:

INFRASTRUCTURE AND COLLABORATION

- ▶ **A city supported by infrastructure**
Infrastructure supporting new developments
- ▶ **A collaborative city**
Working together to grow a Greater Sydney



LIVEABILITY

- ▶ **A city for people**
Celebrating diversity and putting people at the heart of planning
- ▶ **Housing the city**
Giving people housing choices
- ▶ **A city of great places**
Designing places for people



PRODUCTIVITY

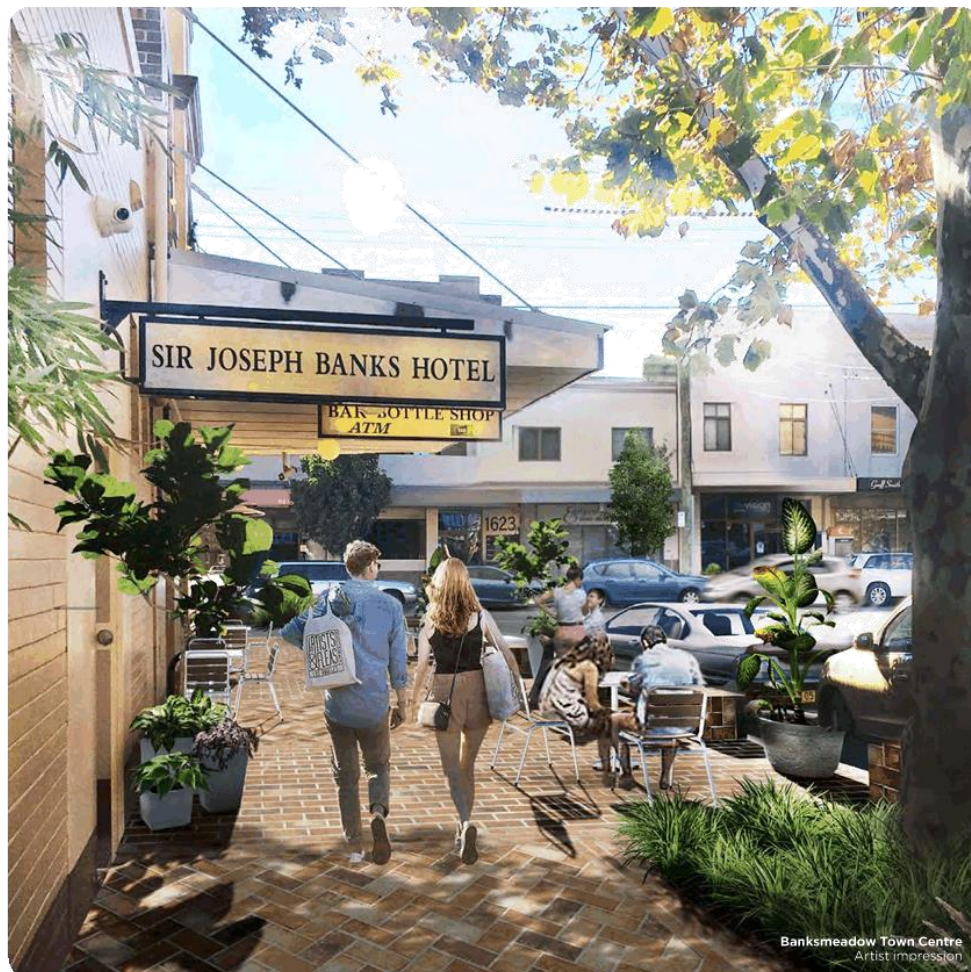
- ▶ **A well-connected city**
Developing a more accessible and walkable city
- ▶ **Jobs and skills for the city**
Creating the conditions for a stronger community



SUSTAINABILITY

- ▶ **A city in its landscape**
Valuing green spaces and landscape
- ▶ **An efficient city**
Using resources wisely
- ▶ **A resilient city**
Adapting to a changing world

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The Bayside LSPS has 24 Planning Priorities and 147 Actions grouped under the Eastern City District Plan themes and directions to enable a 'line of sight' between the two documents.

The Bayside LSPS also works with the Bayside Community Strategic Plan 2030 which outlines how Council will work to meet the community's needs. The Bayside Community Strategic Plan 2030 has the following themes:

- ▶ Bayside will be a vibrant place
- ▶ Our people will be connected in a smart city
- ▶ Bayside will be green, leafy and sustainable
- ▶ We will be a prosperous community

A table at *Appendix A* provides a more detailed 'line of sight' between the Eastern City District Plan, Bayside Community Strategic Plan and Bayside LSPS.

This is the first LSPS for Bayside and does not include specific place based recommendations as the evidence base required to justify land use change is still being developed.

A review of the Bayside LSPS will commence in 2020 with the commencement of the new term of Council.

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Infrastructure and collaboration



As cities grow they require the provision of infrastructure and services to ensure they are liveable, productive and sustainable.

The Eastern City District Plan identifies two directions for Infrastructure and Collaboration, being Infrastructure supporting new developments and Working together to grow a Greater Sydney. It also identifies two planning priorities:

- ▶ **E1: Planning for a city supported by infrastructure**
- ▶ **E2: Working through collaboration**

The Bayside Community Strategic Plan 2030 identified two Strategic Directions that relate to Infrastructure and Collaboration being:

- ▶ Bayside CSP Strategic Direction: The transport system works
- ▶ Bayside CSP Strategic Direction: Opportunities for economic development are recognised



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Infrastructure supporting new developments

To become more liveable, productive and sustainable Greater Sydney will need additional infrastructure and services in the right place at the right time. It is a collaborative process that involves all levels of government, industry and the community. It also requires the alignment of local environmental plans, transport programs and other agency programs to ensure implementation.

Significant infrastructure investments contributing to the shape and connectivity of Greater Sydney is planned or proposed for investigation by State Government agencies and many of these are located in or adjacent to Bayside. Bayside will also be delivering infrastructure and services to support new growth areas, renewing existing neighbourhoods and local centres and providing services for our community.

BAYSIDE PLANNING PRIORITY 1

Align land use planning and transport infrastructure planning to support the growth of Bayside.

ACTIONS:

- 1.1 Finalise and adopt the Bayside Transport Strategy.
- 1.2 Develop an implementation plan for the Bayside Transport Strategy.
- 1.3 Finalise and adopt the Bayside Bike Plan.
- 1.4 Develop an implementation plan for the Bayside Bike Plan.
- 1.5 Council will consider proposed Transport Infrastructure planned and under investigation outlined in Table 3 in all land use and asset planning decisions.
- 1.6 Council will advocate for the investigation and construction of M6 Stage 2.
- 1.7 Council will advocate for an integrated approach to public transport provision by providing input to the preparation of the South Eastern Sydney Transport Strategy.
- 1.8 Council will prepare submissions to the NSW Government in relation to State Significant development applications (and similar) for projects including Sydney Gateway, Port Botany Rail Duplication, Metro Rail and others as they arise.

BAYSIDE PLANNING PRIORITY 2

Align land use planning with the delivery and management of assets by Bayside Council to support our community.

ACTIONS:

- 2.1 Council will take a place based approach to land use and asset planning to ensure growth aligns with infrastructure provision.
- 2.2 Council will align the City Projects Program (capital works) with the Bayside Long Term Financial Plan.

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PUBLIC TRANSPORT PROJECTS

0-10 YEARS INVESTIGATION

- ▶ Eastern Suburbs to Inner West Rapid Bus Link – Future Transport 2056 (FT 2056) & Greater Sydney Services & Infrastructure Plan (GSSIP)
- ▶ Green Square to La Perouse rapid bus link – GSSIP
- ▶ New and expanded bus services to the airport – FT 2056 & Sydney Airport Master Plan 2039 (SAMP 2039)
- ▶ Reallocate and prioritise road space for on road rapid transport links for buses and high efficiency vehicles – Infrastructure NSW State Infrastructure Strategy 2018 (INSW SIS 2018)
- ▶ On road rapid transit links for buses and high efficiency vehicles between Greater Parramatta and surrounding strategic centres such as Kogarah – INS SIS 2018
- ▶ More trains services including T4 and T8 lines – INSW SIS 2018

10-20 YEARS INVESTIGATION

- ▶ Parramatta to Bankstown, Hurstville/Kogarah rapid bus link – GSSIP
- ▶ Light rail extension to Maroubra Junction – GSSIP (note would have more impact for Bayside if extended to Eastgardens)
- ▶ Parramatta to Kogarah mass transit link – GSSIP

20+ YEARS VISIONARY

- ▶ Extension of south east mass transit train link to Miranda – GSSIP

MAJOR ROAD PROJECTS

COMMITTED/UNDER CONSTRUCTION

- ▶ WestConnex – Sydney Motorway Corporation (SMC)
- ▶ M6 Extension Stage 1 – GSSIP
- ▶ Sydney Airport Road Upgrade – NSW Freight & Ports Plan (NSW FPP)

0-10 YEARS INVESTIGATION

- ▶ Sydney Gateway – FT 2056
- ▶ M6 Extension Stage 2 (Kogarah to Loftus) FT 2056

FREIGHT PROJECTS

COMMITTED 0-10 YEARS

- ▶ Port Botany Rail Line Duplication – NSW FPP, INSW SIS 2018 & GSSIP
- ▶ Capacity upgrade to Foreshore road at Port Botany – NSW FPP, INSW SIS 2018 & GSSIP
- ▶ Protect strategically important ports, airports, industrial lands, freight precincts and key corridors from incompatible uses – INSW SIS 2018

WALKING & CYCLING PROJECTS

0-10 YEARS INVESTIGATION

- ▶ Inner Sydney Regional Bike network/Greater Sydney Principle Bicycle Network – City of Sydney, FT 2056 & GSSIP
- ▶ Network of protected cycleways linking major strategic centres – INSW SIS 2018 & FT 2056

NO TIMING

- ▶ Provide safe cycling and walking connections to Sydney Airport and Port Botany – ECDP
- ▶ M6 Extension Stage 1 shared cycle and pedestrian paths – RMS

Table 3.
Transport Infrastructure – Planned and proposed transport projects.



Working together to grow a Greater Sydney

Collaboration in the planning and delivery of infrastructure, housing, jobs and great places is important in areas subject to growth. Creating great places is not the responsibility of just one organisation, but includes a range of stakeholders.

Located within both the Georges River LGA and the Bayside LGA is the Kogarah Collaboration Area, a Health and Education Precinct where the Greater Sydney Commission has been leading a focused consultative process of vision setting, problem definition and co-creation of priorities and solutions with the aim of identifying opportunities for more jobs, education and private sector investment. Bayside Council and Georges River Council have been key stakeholders in this process.

BAYSIDE PLANNING PRIORITY 3

Working through collaboration.

ACTIONS:

- 3.1 Identify opportunities for Bayside to work collaboratively with a range of stakeholders to deliver desired outcomes and great places.
- 3.2 Continue to collaborate with relevant stakeholders in the delivery of the Kogarah Place Strategy.

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Liveability



**B4
B5**



**B6
B7
B8**



**B9
B10
B11**

Liveability is about the quality of life that people enjoy in their neighbourhoods and work places. Quality of life requires housing, infrastructure and a good level of service that meets the community's needs. It means that a range of housing types are available in the right location and that affordable housing for those that require it is available. Centres have walkable and cycle access. Community facilities, open space and recreation are close by.

Improving liveability is also about creating and renewing great places, neighbourhoods and local centres. The Eastern City District Plan identifies three directions for Liveability and four priorities.

A city for people

- ▶ **E3: Providing services and social infrastructure to meet people's changing needs**
- ▶ **E4: Fostering healthy, creative, culturally rich and socially connected communities**

Housing the city

- ▶ **E5: Providing housing supply, choice and affordability with access to jobs, services and public transport**

A city of great places

- ▶ **E6: Creating and renewing great places and local centres and respecting the District's heritage**

The Bayside Community Strategic Plan 2030 identifies eight Strategic Directions that relate to Liveability being:

- ▶ Bayside CSP Strategic Direction: Our places connect people
- ▶ Bayside CSP Strategic Direction: Local housing, employment and business opportunities are generated
- ▶ Bayside CSP Strategic Direction: Our places are people focussed
- ▶ Bayside CSP Strategic Direction: My place will be special to me
- ▶ Bayside CSP Strategic Direction: Our places are accessible to all
- ▶ Bayside CSP Strategic Direction: The community is valued
- ▶ Bayside CSP Strategic Direction: We treat each other with dignity and respect
- ▶ Bayside CSP Strategic Direction: We are unified and excited about our future





A city for people

Population growth in Bayside needs to be supported by high quality, flexible and well located social infrastructure to ensure a healthy and vibrant urban life. Social infrastructure includes open space, recreation facilities and community facilities such as libraries, youth centres, senior citizens halls and meeting rooms.

Bayside heard from our community who said:

- ▶ More open space is needed in high density areas
- ▶ There is a need for more cultural spaces and programs that reflect our diversity and aging population
- ▶ Facilities need to be in walking distance and part of a hub – they should stay local
- ▶ There should be more multi-use and flexible spaces
- ▶ Look at shared and joint use of school facilities and open space
- ▶ Protect existing open space, beaches and bushland

It will be important to plan for the long term and provision must be adaptable to changing needs. It must be responsive to the diversity of the Bayside community and appropriate for their diverse needs, providing spaces for people to come together and connect. Walkable neighbourhoods promote active and healthy lifestyles as well as socially connected communities. Convenient access to health and personal services, local retail, fresh healthy food, infrastructure and recreation in local and neighbourhood centres is also important.

Social infrastructure is required to support housing growth and support the development of liveable communities. It will provide opportunities to support local economies and employment and contribute to the development of diverse and vibrant places across Bayside.

Council is preparing a Social Infrastructure Strategy that includes a social infrastructure needs assessment (open space, recreation and community facilities) and will provide the evidence base for future planning decisions.



BAYSIDE PLANNING PRIORITY 4

Provide social infrastructure to meet the needs of the Bayside Community.

ACTIONS:

- 4.1 Finalise and adopt the Social Infrastructure Strategy for Bayside.
- 4.2 Develop a Social Infrastructure Implementation Plan.
- 4.3 Ensure social infrastructure planning is considered at the earliest stages of planning for change to ensure there is an adequate level of provision to meet the incoming population's needs and that it is part of a place based planning approach.
- 4.4 Strategic Planning to develop a reporting framework to ensure that all relevant stakeholders are aware of anticipated population growth, infrastructure projects and contributions.
- 4.5 Develop a Bayside Local Infrastructure Contributions Plan.
- 4.6 Develop a Voluntary Planning Agreement Policy informed by the social infrastructure strategy.
- 4.7 Advocate with state agencies for continuing long term leases for use of land as public open space.
- 4.8 Investigate opportunities for joint and shared use of facilities with NSW Department of Education.

Cultural richness and diversity is one of Greater Sydney's and Bayside's key strengths. Bayside is culturally diverse, with 46% of people born overseas and 53% speaking a language other than English at home. The top five languages spoken are Greek (7.1%), Mandarin (6.7%) Arabic (5.8%), Cantonese (3.8%) and Macedonian (3%).

Supporting social connections and cultural and creative expression brings a sharing of values and trust and can develop resilience within communities.

Healthy and active lifestyles can improve health outcomes. This means the design and management of streets, places and neighbourhoods are important, including access to daily needs such as fresh food, services and facilities within walking and cycling distance.

The Eastern City District Plan characterises places with high concentrations of social connectors as having:

- ▶ Access to good public transport
- ▶ Cultural and economic activity
- ▶ High levels of volunteering
- ▶ High provision of social infrastructure, access to education and learning, walkable town centres or eat streets and a diverse housing mix (density, tenure and affordability)

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BAYSIDE PLANNING PRIORITY 5

Foster healthy, creative, culturally rich and socially connected communities.

ACTIONS:

- 5.1 Deliver healthy, safe and inclusive places for people of all ages and abilities that support active, resilient and socially connected communities:
 - a) Prioritise opportunities for people to walk, cycle and use public transport when planning for existing or future centres.
 - b) Plan for local communities to access daily needs and essential services by walking and cycling to local and neighbourhood centres.
 - c) Investigate co-location of community and cultural facilities based on recommendations from the Social Infrastructure Strategy including joint-use opportunities.
 - d) Increase community awareness of Council's community garden policy to encourage the establishment of more community gardens.
 - e) Continue to implement the Bayside Disability Inclusion Action Plan.
 - f) Finalise a Community Safety Plan.
 - g) Prepare a Positive Aging Strategy.
 - h) Prepare a Child, Youth and Family Strategy.
- 5.2 Facilitate opportunities for creative and artistic expression and participation:
 - a) Review the Bayside Public Art Policy to reflect emerging trends.
 - b) Improve and grow the Sculptures @ Bayside exhibition to ensure increased participation.
 - c) Work with Bayside Arts Festival and Council's Events program to include opportunities to bring events and cultural activities into our local centres to increase social connectedness, strengthen resilience and grow the business economy.
 - d) Identify opportunities for late night trading precincts in centres identified by the Bayside Centres and Employment Lands Strategy.
 - e) Review planning controls to encourage more diverse trading including performance, culture and unlicensed businesses in late night trading precincts.
- 5.3 Engage and consult with Local Aboriginal Land Councils and Elders to better understand their communities and their economic aspirations as they relate to land use planning through the development of a Reconciliation Action Plan.

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Housing the city

The Department of Industry and Environment anticipates that by 2036 Bayside will need an additional 28,000 dwellings to accommodate population demand. This is a linear projection based on historical dwelling delivery. Bayside's historical dwelling delivery has relied on brownfield sites that are now reaching capacity. Bayside doesn't have more brownfield sites to continue its high level of housing supply. Accordingly, Bayside will provide an updated long term dwelling target using an analysis of opportunities and constraints in the forthcoming Local Housing Strategy (2020).

In the short to medium term, Bayside is on track to meet its dwelling targets. The Eastern City District Plan sets out a short term dwelling target for 2016 to 2021 of 10,150 dwellings. 75% of the required dwellings have been built in 58% of the time period between July 2016 and May 2019 (most recent data). Capacity in the existing planning framework will help delivery dwellings in the medium term.

In planning for more growth and the location of that growth the following locational criteria should be met:

- ▶ Accessible to jobs and services
- ▶ Near railway lines and other public transport services to achieve the aspiration of a 30-minute city
- ▶ Pleasant to walk around, with services and shops within a reasonable walking distance
- ▶ Near significant infrastructure investment which creates opportunities for housing redevelopment
- ▶ Have access to open space, recreational facilities and community facilities, either existing or planned

Bayside also heard from our community who said:

- ▶ Housing growth needs to be supported by infrastructure
- ▶ Concerned with transport congestion associated with increased density
- ▶ Development should be close to public transport, centres and employment opportunities
- ▶ More housing choice is required to accommodate families, multi-generational households and an ageing population
- ▶ Better apartment design
- ▶ More affordable and social housing

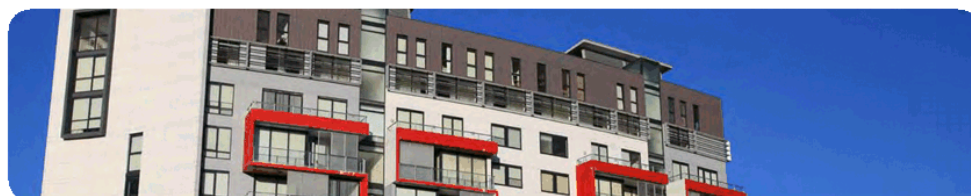
Residential development opportunities will have to recognise land use limitations identified in the Bayside Land Use Limitations Study, including land use conflict arising from incompatible neighbouring uses, environmental risks and environmental factors such as aircraft noise and height limitations due to proximity to the airport. In particular the two trade gateways of Sydney Airport and Port Botany are important not just for the economy of Bayside, but are of regional and national significance. These trade gateways are anticipated to handle significantly more freight by 2036 and the supporting industrial and urban services lands will need to be retained for industrial and urban services.

The NSW State Government Future Transport 2056 also identified a number of visionary projects that could impact on the planning of the LGA over the next 20 years. This includes:

- ▶ Kogarah to Parramatta mass transit (10-20 years)
- ▶ South-eastern suburbs to Miranda mass transit link
- ▶ Kingsford to Maroubra-Eastgardens potential light rail extension
- ▶ Central to Maroubra Junction/Long Bay train link/mass transit

It will be important to ensure that land use planning undertaken now does not jeopardise future opportunities for uplift associated with visionary transport corridors.

Bayside is preparing a Local Housing Strategy that will provide direction as to where future growth can occur and the housing diversity required.



Areas that have capacity for growth without the need for rezoning includes Rockdale, Banksia, Arncliffe, Mascot (along Botany Road and part of O'Riordan Street) and Eastgardens for residential flat buildings and shop top housing. The dwellings in these areas will be predominately apartments. There is also a need to ensure housing diversity, including semi-detached dwellings, attached dwellings and row houses is part of the housing mix being planned and delivered.

The Department of Planning, Industry and Environment also requested Council to investigate opportunities for growth at Arncliffe west of the rail line, Turrella and Bardwell Park.

To meet the demand for housing the following opportunities have been identified:

IMMEDIATE (next 12 months)

- ▶ Development of Banksia and Arncliffe in accordance with recently amended planning controls (approximately 3,500 dwellings)

SHORT (1-5 years)

- ▶ Investigate opportunities for urban growth in Brighton Le Sands (Stage 1)
- ▶ Infill development in the existing business zoned areas of Rockdale, Mascot and Botany for residential flat buildings and shop top housing
- ▶ Development of a high density site in Eastgardens
- ▶ Infill development in the existing medium density zoned land for medium density housing. The land use planning controls will need to be amended
- ▶ Investigate opportunities for rezoning in Arncliffe to the west of the rail line for additional residential development
- ▶ Investigate opportunities for new residential development at Bardwell Park and Turrella (non-industrial land)
- ▶ Investigate opportunities for urban growth at west Kogarah

MEDIUM (6-10 years)

- ▶ Investigate opportunities for urban growth at Bexley North
- ▶ Investigate opportunities for residential growth in other centres identified by the Local Housing Strategy and the Centres and Employment Lands Strategy

LONG (10+ years)

- ▶ In conjunction with the planning for a potential future Kogarah to Parramatta rail link, investigate opportunities for residential growth at Bexley
- ▶ In conjunction with the planning for a potential future Kogarah to Parramatta rail link and Hurstville to Campsie mass transit link, investigate opportunities for residential growth at Kingsgrove
- ▶ In conjunction with the planning for a potential future visionary mass transit link from the Eastern Suburbs to Miranda, investigate opportunities for residential growth at Ramsgate, Ramsgate Beach and Kyeemagh
- ▶ In conjunction with a potential future visionary mass transit link from the Eastern Suburbs to Miranda investigate opportunities for additional urban growth at Brighton Le Sands

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BAYSIDE PLANNING PRIORITY 6

Support sustainable housing growth by concentrating high density urban growth close to centres and public transport corridors.

ACTIONS:

- 6.1 Finalise and adopt the Local Housing Strategy to inform investigation of opportunities for residential growth.
- 6.2 Continue to facilitate housing development in areas with capacity available under current planning controls.
- 6.3 Investigation of opportunities for growth will have regard to the Bayside Land Use Limitation Study.
- 6.4 Ensure that current land use planning does not jeopardise future opportunities for residential growth associated with visionary transport corridors.
- 6.5 Advocate for a train/metro station to be located in the Bexley town centre area as part of a potential future Kogarah to Parramatta Line.
- 6.6 Develop a rolling City projects program to schedule new and upgraded local infrastructure capital works to meet the needs of the growing community.

BAYSIDE PLANNING PRIORITY 7

Provide choice in housing to meet the needs of the community.

In the past ten years 80% of new dwellings built have been apartments, most of which have been only 1 or 2 bedrooms. To continue to provide housing choice for the Bayside community it will be necessary to ensure that a range of dwelling types (semi-detached dwellings, attached dwellings, row houses and apartments) and apartment mix is delivered.

These dwellings also need to meet the needs of a range of household types, including families with children, couples with no children, lone person households and group households. The ageing population also means that housing should be designed to allow people to age in place.

The Local Housing Strategy, to be finalised in 2020, will provide an evidence base for planning for greater housing choice.

ACTIONS:

- 7.1 Review planning controls to deliver a greater range of dwelling types, size and standards:
 - a) Require a mix of apartments (number of bedrooms) in new developments.
 - b) Harmonise the R2 and R3 residential zone's land use tables and floor space ratios in Bayside LEP 2020 to encourage more medium density development.
 - c) Review the development controls to achieve better built form outcomes for medium density development.
 - d) Review the planning controls to increase the amount of housing that is universally designed.

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BAYSIDE PLANNING PRIORITY 8

Provide housing that is affordable.

A lack of affordable housing is a serious and increasing problem across the Sydney Metropolitan area and for Bayside. It is important to maintain socio-economic diversity to ensure lower income households can continue to live and work in the local area. As house prices increase and outpace incomes, property ownership becomes more unattainable for many people and more households are reliant on the private rental sector. People with very low incomes may need access to government subsidised housing or community housing. The different housing needs of different parts of the community and the housing policy response is shown in the Housing Continuum at Figure 14.

Whilst the NSW Government plans for and provides social housing and the community housing sector provides non-market housing, Council can also have a role in providing affordable rental housing in the non-market housing sectors. This includes provision of services and crisis accommodation, through requiring development contributions for affordable rental housing as well as by negotiating for affordable rental housing through voluntary planning agreements (VPAs). The Metropolis of Three Cities includes affordable rental housing targets of between 5-10% of new residential floor space subject to viability.

Bayside has commenced the preparation of the Bayside Local Housing Strategy that will identify the affordable housing need which may lead to the development of an affordable housing contributions scheme.

ACTIONS:

- 8.1 Prepare an affordable housing policy to meet the requirements of the Eastern City District Plan in relation to affordable rental housing and the different mechanisms Council will use to address this need.
- 8.2 Develop an affordable housing contributions scheme that sets out how, where and at what rate development contributions can be collected by Council for affordable rental housing.
- 8.3 Develop a community housing provider governance framework to facilitate the ongoing management and delivery of affordable rental housing.
- 8.4 Develop a Voluntary Planning Agreement (VPA) Policy to facilitate VPAs in instances where an Affordable Housing Contributions Scheme does not apply.
- 8.5 Work with key agencies, including NSW Land and Housing Corporation and other stakeholders, to deliver affordable rental housing and advocate for policies and controls that promote housing.



Figure 14.
Housing Continuum, (source: GSC A Metropolis of Three Cities)

A city of great places

Great places build on the existing character, the local people, history, culture, arts, built form and natural features to create a sense of place. Great places include open space, streets, centres, neighbourhoods and its residential, commercial and industrial streetscapes.

Some of the neighbourhoods in Bayside have distinctive identities such as Brighton Le Sands with its cafes and beach location, Botany with its heritage streetscapes and Bardwell Park's mid twentieth century suburban character.

Bayside also heard from our community who said:

- ▶ We value the character and heritage of our suburbs
- ▶ View corridors are important
- ▶ We should require design excellence and respect existing character
- ▶ We need to know Aboriginal heritage and stories – it's part of a rich history
- ▶ Recognition for Aboriginal peoples is important – we should work together
- ▶ Incorporate heritage and historical character into the design of new buildings such as some of our main streets
- ▶ We need to protect our cultural landscape items

BAYSIDE PLANNING PRIORITY 9

Manage and enhance the distinctive character of the LGA through good quality urban design, respect for existing character and enhancement of the public realm.

ACTIONS:

- 9.1 Council will encourage good built form outcomes through Design Excellence Competitions, Design Excellence Guidelines and Design Review Panel.
- 9.2 Update planning controls for Bayside DCP 2020 to give clearer guidance to applicants and their architects about Council's expectations for high standards of design.
- 9.3 Ensure compliance with the Apartment Design Guide.
- 9.4 Adopt a place-based approach to planning by integrating elements of NSW Planning and Environment Character Toolkit into our policy framework, following the finalisation of the Character Overlay Policy by NSW State Government.
- 9.5 Council will take a place based approach and finalise and adopt the master plans/urban design studies for the local centres of Rockdale, Eastlakes and Brighton Le Sands.
- 9.6 Council will take a place based approach for each local centre and prepare master plans/urban design studies or public domain plans to create great places including the following centres at west Kogarah, Carlton, Kingsgrove, Bexley, Bexley North, Ramsgate, Hillsdale, Botany, Mascot (Coward/Botany Road) and Mascot Station Precinct.
- 9.7 Prepare an implementation plan to schedule local centre planning and design across a number of years.
- 9.8 Integrate future planning for capital works in centres into the Bayside City Projects Program and the Long Term Financial Plan.

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Future planning in Bayside will need to maintain and enhance the identity and character of the area by protecting Aboriginal heritage and heritage buildings, streetscapes, views and key features and by encouraging development that respects the scale and character of the area's heritage.

BAYSIDE PLANNING PRIORITY 10

Value, protect and conserve Aboriginal heritage.

ACTIONS:

- 10.1 Council will finalise and adopt the Bayside Aboriginal Heritage Study and implement the recommendations.
- 10.2 Aboriginal heritage values will inform place making, including landscape design.
- 10.3 Council will protect, celebrate and promote Bayside's rich Aboriginal cultural heritage.

BAYSIDE PLANNING PRIORITY 11

Develop clear and appropriate controls for development of heritage items, adjoining sites and within conservation areas.

ACTIONS:

- 11.1 Finalise and adopt the Bayside Heritage Strategy.
- 11.2 Include the Bayside Heritage Strategy recommendations into the Bayside LEP 2020 and Bayside DCP 2020.
- 11.3 Council will protect, celebrate and promote Bayside's rich cultural heritage.

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Productivity



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B14 B17
B15 B18

Productivity is about driving opportunities for investment, business and jobs growth, supporting economic diversity and supporting internationally competitive industry sectors. It also requires there is good access to a range of jobs and services delivering a well-connected 30-minute city.

The Eastern City District Plan identifies two directions for Productivity and seven priorities.

A well connected city

- ▶ **E10: Delivering integrated land use and transport planning and 30-minute city**

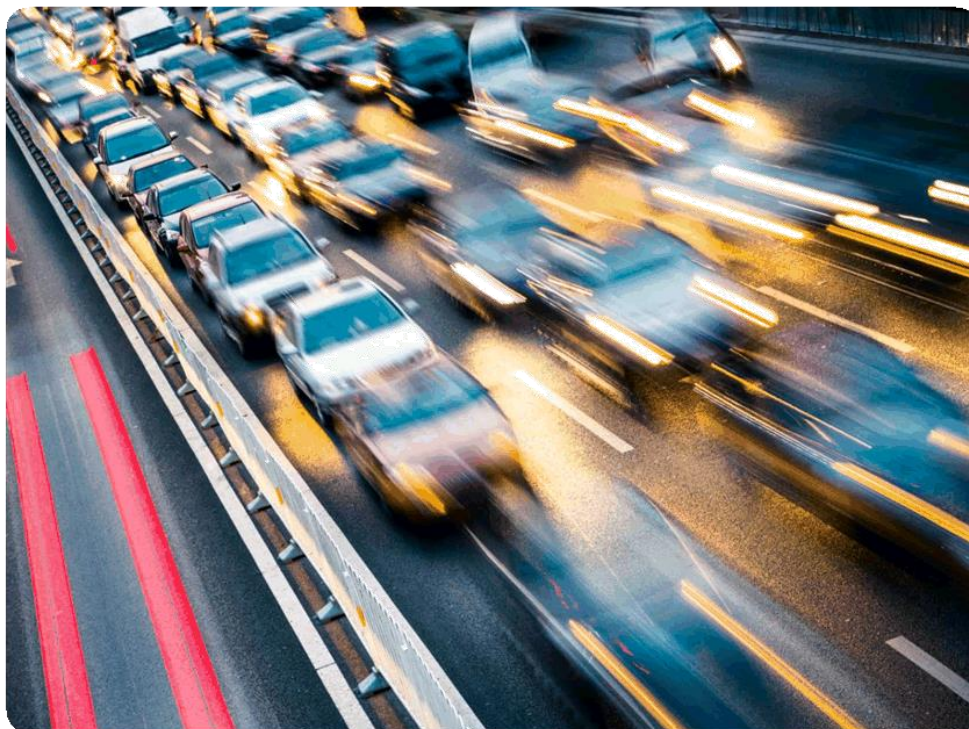
Jobs and skills for the city

- ▶ **E 7: Growing a stronger and more competitive harbour CBD**
- ▶ **E8: Growing and investing in health and education precincts and the Innovation Corridor**
- ▶ **E9: Growing international trade gateways**
- ▶ **E11: Growing investment, business opportunities and jobs in strategic centres**
- ▶ **E12: Retaining and managing industrial and urban services land**
- ▶ **E13: Supporting growth of targeted industry sectors**

The Bayside Community Strategic Plan 2030 identifies seven Strategic Directions that relate to productivity being:

- ▶ Bayside CSP Strategic Direction: My place will be special to me
- ▶ Bayside CSP Strategic Direction: The transport system works
- ▶ Bayside CSP Strategic Direction: Our places are accessible to all
- ▶ Bayside CSP Strategic Direction: Opportunities for economic development are recognised
- ▶ Bayside CSP Strategic Direction: We benefit from technology
- ▶ Bayside CSP Strategic Direction: We are unified and excited about our future
- ▶ Bayside CSP Strategic Direction: Local housing, employment and business opportunities are generated
- ▶ Bayside CSP Strategic Direction: We are prepared for a sharing economy





A well connected city

The aspiration of a 30-minute city is important in providing convenient and reliable access to strategic centres, local centres and places of employment, whether by public transport, walking or cycling and by car. Reducing travel time through an improved public transport and walking or cycling has a positive outcome for liveability, productivity and sustainability.

In 2016 there were approximately 91,000 jobs in Bayside (ABS 2016) and with the exception of Mascot, the majority of these jobs are not centre focused, but located towards Sydney Airport, Port Botany and industrial precincts. Job containment is 23.3% which means that 23.3% of Bayside residents work in Bayside. The majority of the our remaining residents work in the adjoining LGAs of City of Sydney (30%), Randwick (7.2%) and Georges River (5.8%).

Access to public transport for those suburbs located along the two rail corridors is relatively good. However, access to public transport is more limited in the eastern part of Bayside, particularly the suburbs of Hillsdale, Botany, Pagewood, Banksmeadow and Eastlakes. It is also more limited in the suburbs fringing Botany Bay to the west, including Sans Souci, Ramsgate Beach, Brighton Le Sands and Kyeemagh.

Improving public transport with additional routes and services would reduce the need for our residents to drive to work. Improving pedestrian and cycling connections to Bayside's strategic centres, local centres and employment precincts would be part of planning for a 30-minute city. Already planned or proposed transport infrastructure is detailed in the Infrastructure and Collaboration Section of this Local Strategic Planning Statement.

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**BAYSIDE PLANNING PRIORITY 12**

Delivering an integrated land use and a 30-minute city.

ACTIONS:

- 12.1 Plan for high amenity and walkability within a 10-minute walk of centres.
- 12.2 Advocate for and work with relevant stakeholders for safe cycling and walking connections to Sydney Airport and Port Botany as outlined in the Eastern City District Plan.
- 12.3 Seek funding to implement the missing links identified by the Bayside Bike Plan to deliver on a 30-minute city.
- 12.4 Plan for urban development, new centres, better places and employment uses that are integrated with existing transport infrastructure and proposed transport projects.
- 12.5 Advocate for increased east-west public transport links to connect the suburbs east of the airport to the suburbs west of the airport.
- 12.6 Advocate for increased bus routes and frequency of services to those centres and suburbs that are less well serviced and provide more east west links:
 - a) To connect Kyeemagh, Brighton Le Sands, Ramsgate Beach and Sans Souci with Rockdale train station.
 - b) To connect Hillside, Botany, Pagewood, Banksmeadow and Eastlakes with Mascot train station and the Randwick education and health precinct.
 - c) To connect Kingsgrove, Bexley, North Bexley, Bardwell Park and Turrella with Rockdale and the Botany Bay foreshore.
 - d) To connect Bondi Junction with Miranda via Sydney Airport.
- 12.7 Ensure a degree of self-sufficiency of local services on either side of the Airport to ensure access to services and jobs.

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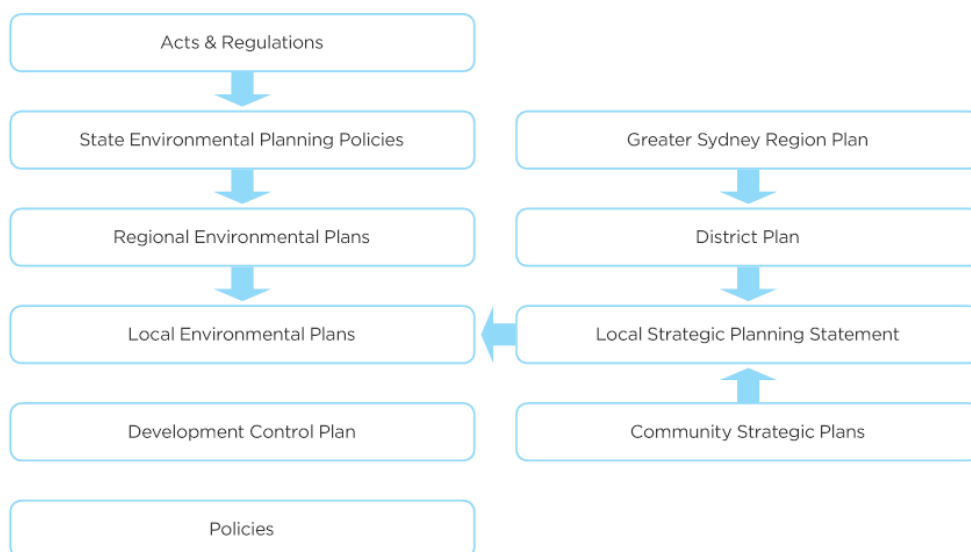
Jobs and skills for the city

The Eastern City District contains more than a third of Sydney's jobs (900,000) and generates half of its economic activity. Bayside (and the City of Sydney) accommodate industrial precincts that play an important role in the regional and national economy. Bayside's proximity to both the Sydney Airport and Port Botany trade gateways, location at the southern extent of the Eastern Economic Corridor, the deep customer market of Sydney CBD and the highly educated labour market of Greater Sydney, make it highly attractive to a range of businesses and industries up and down the global and local supply chain.

The Eastern City District Plan requires all councils in the Eastern City District, including Bayside, to retain and manage all existing industrial and urban services land, safeguarding them from competing pressures especially residential and mixed-use zones.

In addition the importance of the two trade gateways of Sydney Airport and Port Botany are recognised as being of national importance, with specific objectives in both the *A Metropolis of Three Cities (Objective 16 - Freight and logistics network is competitive and efficient)* and the *Eastern City District Plan (Planning Priority E9 - Growing international trade gateways)*. These identify the importance of ensuring these essential economic trade gateways are safeguarded. Demand for industrial zoned land in Bayside, particularly in areas serving the trade gateways, is anticipated to grow over the next 20 years and therefore retention of appropriately zoned land to meet this demand is essential.

Two areas in Bayside are not currently subject to either the Botany LEP 2013 or Rockdale LEP 2011 as they are subject to state or Sydney regional environmental policies.



In the hierarchy of planning instruments the State Environmental Planning Policy (Three Ports) 2013 (SEPP) and the Sydney Regional Environmental Planning Policy (SREP) No. 33 Cooks Cove take precedence over a Local Environmental Plan.



STATE ENVIRONMENTAL PLANNING POLICY (THREE PORTS) 2013

This is the principal environmental planning instrument that sets the land use planning and assessment framework for development at three NSW ports including at Port Botany.

An amendment to this State Environmental Planning Policy (SEPP) has been exhibited. The proposed amendments relevant to Bayside are: new categories of exempt and complying development; rezoning of land at Hale Street and Wentworth Avenue, Botany and the inclusion of the land in the SEPP; and potential options to discourage the subdivision of land at Port Botany. These proposed amendments aim to strengthen and support Port Botany as a trade gateway and align with the Eastern City District Plan which has identified the growth of the international trade gateways as a planning priority.

The Bayside LEP 2020 will not apply to land subject to this policy.

SYDNEY REGIONAL ENVIRONMENTAL PLAN (SREP) NO. 33 COOKS COVE

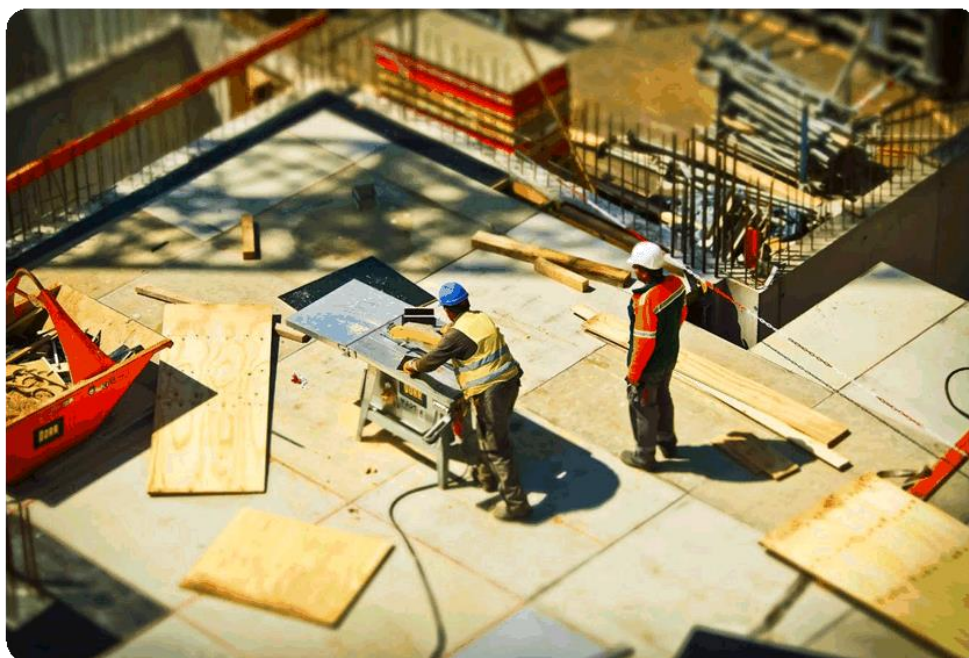
This SREP establishes the primary planning framework applying to the land. The precinct is largely zoned Open Space, with the northern part of the precinct zoned Trade and Technology, with a Special Uses zone reflecting the existing M5 Corridor running east-west and a potential future transport corridor north south.

The Bayside West Precinct Plan 2036 Plan was released September 2018 and identified three precincts - Arncliffe, Banksia and Cooks Cove. Whilst the planning for Arncliffe and Banksia included the rezoning of land, the Department of Planning, Industry and Environment left the assessment of Cooks Cove to Bayside Council. The Bayside West Precinct Plan did identify a number of planning principles that now form Local Planning Direction 7.10 (under Section 9.1(2) of the Environmental Planning and Assessment Act 1979). These must be considered when a planning authority prepares a planning proposal for land subject to this SREP.

Council is progressing a number of strategies that may be relevant to this site, including the Centres and Employment Lands Strategy, the Social Infrastructure Strategy and the Land Use Limitation Study.

Local Planning Direction 7.9 'Implementation of Bayside West Precincts 2036 Plan' (the Plan) applies to land in Arncliffe, Banksia and Cooks Cove. The direction requires that a planning proposal authority must ensure that any planning proposal for land in Bayside West is consistent with 'the Plan'.

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Bayside is located at the southern extent of the Eastern Economic Corridor, which stretches from Macquarie Park, Chatswood, St Leonards, the Harbour CBD and Randwick to Green Square, Mascot and the international trade and tourism gateways of Sydney Airport and Port Botany. This corridor supports the Harbour CBD which underpins Greater Sydney's global and national economic strength. The Harbour CBD growth is essential for the region to remain competitive. Whilst Bayside is not part of the Harbour CBD, it nonetheless has an important role in supporting the Harbour CBD being located at its edge and being part of the Eastern Economic Corridor.

BAYSIDE PLANNING PRIORITY 13

Contribute to growing a stronger and more competitive Harbour CBD.

ACTIONS:

- 13.1 Finalise and adopt the Bayside Centres and Employment Lands Strategy.
- 13.2 Implement the recommendations of the Centres and Employment Lands Strategy to facilitate appropriate industrial and commercial growth in Bayside and support the Harbour CBD.

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**BAYSIDE PLANNING PRIORITY 14**

Protect and grow the international trade gateways.

ACTIONS:**PORT BOTANY**

- 14.1 Retain the industrial and urban services zoned lands surrounding Port Botany.
- 14.2 Review the business and industrial land use tables to ensure they accommodate appropriate land uses.
- 14.3 Review the planning controls in relation to minimum lot size to ensure that subdivision does not erode the freight and container handling function.
- 14.4 Prevent the encroachment of sensitive uses that can impact the operation of the industrial lands through land use planning controls.
- 14.5 Protect Port Botany's function as an international gateway for freight and logistics and supporting port-related land uses and infrastructure in the area around the port.
- 14.6 Manage potential land use conflict by preventing residential and commercial encroachment on the industrial areas and along freight corridors through land use planning controls.
- 14.7 Manage safety risks associated with the industrial activity and dangerous goods at the Botany Industrial Park through land use planning controls that take into account the quantitative risk assessment modelling undertaken for the Botany Industrial Park.
- 14.8 Manage safety risks associated with transporting dangerous goods along Dennison Street to the Botany Industrial Park through land use planning controls that take into account the quantitative risk assessment modelling undertaken for the Botany Industrial Park.
- 14.9 Collaborate with Port Botany on creating safe cycling and walking connections to Port Botany.

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SYDNEY AIRPORT

- 14.10 Following the adoption of the Bayside Centres and Employment Lands Strategy, review the land use planning controls for key employment and urban services lands in and near the Sydney Airport precinct, including those land use that support the role of Sydney Airport as a trade gateway, and implement any recommendations.
- 14.11 Ensure airport and aviation-related requirements are recognised in strategic land use planning policies and processes by giving effect to the National Airports Safeguarding Framework and its guidelines.
- 14.12 Protect Sydney Airport's function as an international gateway for passengers and freight and support airport and aviation support related land uses, including but not limited to, airfreight and logistics and warehousing, maintenance facilities, flight training centres, catering facilities and car rental facilities.
- 14.13 Manage potential land use conflict by preventing residential and commercial encroachment on the industrial and urban services areas and along freight corridors through land use controls.
- 14.14 Assessment of proposals for airport related uses to have regard to uses on adjoining properties, including businesses, during construction and operation.
- 14.15 Collaborate with Sydney Airport to provide safe cycling and walking connections to the Airport, particularly to Mascot Station.

FREIGHT HANDLING AND LOGISTICS NETWORK

- 14.16 Protect current and future freight corridors by ensuring appropriate controls to limit incompatible uses adjacent to areas expected to have intense freight activity.
- 14.17 Manage land use conflict to minimise negative impacts on urban amenity.
- 14.18 Review land use planning controls to prevent high traffic generating developments, such as large scale retail and high density residential, on roads that service Sydney Airport and Port Botany to reduce conflicts with dangerous goods vehicles.
- 14.19 Review traffic modelling requirements for developments in and around the Eastgardens-Maroubra Junction Strategic Centre and Pagewood to identify impacts on road intersections along Wentworth Avenue.
- 14.20 Explore changes in the freight and logistics sector (including the significant and ongoing growth in eCommerce related freight) to ensure the precinct provides a cutting-edge environment that supports time-sensitive logistics functions.

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BAYSIDE PLANNING PRIORITY 15

Growing investment, business opportunities and jobs in Bayside's strategic centres and centres.

The strategic centre of Mascot – Green Square houses the ninth largest office precinct in Sydney and is home to 59,500 jobs (ABS 2016). It is forecast to grow to between 75,000-80,000 jobs by 2036. It will be important to ensure that the land use mix and planning controls support opportunities for growth.

The strategic centre of Eastgardens – Maroubra Junction is centred on two retail centres being Westfield Eastgardens in Bayside and Pacific Square at Maroubra Junction. There are currently 6,900 jobs (ABS 2016) and is forecast to grow to between 8,000-9,000 jobs by 2036. The Eastern City District Plan has identified opportunities for growth along Maroubra Road to connect the two centres.

Bayside also has ten local centres identified by the Eastern City District plan. These local centres play a key role in providing local services, shops, facilities, connecting our communities and providing local jobs.

ACTIONS:

MASCOT – GREEN SQUARE

- 15.1 Finalise and adopt the Bayside Centres and Employment Lands Strategy to inform the review of the Bayside LEP 2020 and Bayside DCP 2020 to ensure that the land use mix and planning controls strengthens the capacity for job growth and the economic role of the centre.
- 15.2 Collaborate with the City of Sydney to strengthen and diversify the centre, with clear complementary roles for Mascot and Green Square.
- 15.3 Plan for safe walking and cycling through the centre and from Mascot Station to Sydney Airport in collaboration with City of Sydney, Sydney Airport and relevant agencies.
- 15.4 Retain and manage surrounding employment, industrial and urban services lands and their role in supporting the Harbour CBD and Bayside.

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EASTGARDENS – MAROUBRA JUNCTION

- 15.5 Collaborate with Randwick Council and identify opportunities to strengthen the economic role of the Eastgardens – Maroubra Junction centre based on the Bayside Centres and Employment Lands Strategy, with clear complementary roles for Eastgardens and Maroubra Junction.
- 15.6 Promote place making initiatives and walking and cycling connections to open space and the Green Grid including:
 - a) The priority north-south cycle link identified in Future Transport 2056 linking Port Botany and Eastgardens with Randwick and green space in both Bayside and Randwick LGAs.
 - b) Support the east-west link identified in Future Transport 2056 to connect Maroubra Junction with East Gardens and west to Mascot and Green Square and green space in both Bayside and Randwick LGAs.
- 15.7 Advocate to Transport for NSW, Department of Planning, Industry and Environment and Greater Sydney Commission for improved public transport provision to the centre.

LOCAL CENTRES

- 15.8 Ensure each local centre has sufficient retail floor space to meet future demand.

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BAYSIDE PLANNING PRIORITY 16

Contribute to growing the health and education precincts of Kogarah, Randwick and Camperdown.

Kogarah and Randwick have been identified as health and education precincts. Bayside is collaborating with the Greater Sydney Commission, Georges River Council and other stakeholders in relation to the Kogarah Precinct.

Bayside is located in close proximity to both Randwick and Kogarah, with many students and workers choosing to live locally, thereby supporting a 30-minute city. Opportunities also exist for advanced manufacturing associated with the Randwick and Camperdown-Ultimo Health and Education Precincts to locate in Bayside.

ACTIONS:

- 16.1 Continue to plan for the Kogarah Collaboration Area (also refer to Bayside Planning Priority 3) and work with the Greater Sydney Commission and Georges River Council to implement the actions developed in the Place Strategy.
- 16.2 Investigate opportunities for student and worker housing within 30 minutes of the Kogarah Health and Education Precinct and the Randwick Health and Education Precinct.
- 16.3 Make provision for Research and Development and fabrication functions in appropriate zones in support of the health and education precincts at Randwick and Camperdown.
- 16.4 Investigate opportunities for Rockdale and Kogarah to have complementary centre roles.

BAYSIDE PLANNING PRIORITY 17

Retain and manage industrial and urban services lands.

ACTIONS:

- 17.1 Retain and manage industrial and urban services and business park land to support local need generated by small business parks, business and trade supplies and population services such as smash repairs and storage.
- 17.2 Review the planning controls to ensure they meet the needs of current and emerging industrial and urban services trends including increased building heights and floor space.

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**BAYSIDE PLANNING PRIORITY 18**

Support the growth of targeted industry sectors.

ACTIONS:

- 18.1 Investigate opportunities for increasing the tourism sector in Bayside and to leverage on Bayside's location close to Sydney Airport.
- 18.2 Review the regulatory environment as new technological advances and changes occur to help deliver innovative and new knowledge intensive jobs and business opportunities.
- 18.3 Partner with key institutions such as the University of Technology Sydney's Tech Lab to support the growth of technological development and commercialisation in Botany.
- 18.4 Explore the opportunities to grow an advanced manufacturing sector in Botany that takes advantage of the trade gateway's international access and freight function, proximity to the Harbour CBD and access to Greater Sydney's labour market.

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Sustainability



**B19
B20
B21
B22**



B23



B24

Planning for a sustainable Bayside encompasses valuing and managing the existing landscapes, reducing our environmental footprint and adapting to climate change and the impacts of urban and natural hazards.

The Eastern City District Plan identifies three directions for Sustainability and seven priorities.

A city in its landscape

- ▶ **E14: Protecting and improving the health and enjoyment of Sydney Harbour and the District's waterways**
- ▶ **E15: Protecting and enhancing bushland and biodiversity**
- ▶ **E16: Protecting and enhancing scenic and cultural landscapes**
- ▶ **E17: Increasing urban tree canopy cover and delivering Green Grid connections**
- ▶ **E18: Delivering high quality open space**

An efficient city

- ▶ **E19: Reducing carbon emissions and managing energy, water and waste efficiently**

A resilient city

- ▶ **E20: Adapting to the impacts of urban and natural hazards and climate change**

The Bayside Community Strategic Plan 2030 identifies five Strategic Directions that relate to Sustainability being:

- ▶ Bayside CSP Strategic Direction: Waterways and green corridors are regenerated and preserved
- ▶ Bayside CSP Strategic Direction: Our waste is well managed
- ▶ Bayside CSP Strategic Direction: We are prepared for climate change
- ▶ Bayside CSP Strategic Direction: We increase our use of renewable energy
- ▶ Bayside CSP Strategic Direction: My place will be special to me





A city in its landscape

Bayside has a number of waterways and water courses that are an important part of the Greater Sydney's Blue Grid and it will be important to manage and improve these local waterways. They include:

- ▶ Botany Bay
- ▶ Cooks River
- ▶ Alexandra Canal
- ▶ Georges River
- ▶ Mill Stream
- ▶ Wolli Creek
- ▶ Bardwell Creek
- ▶ Botany and Rockdale Wetlands

Water quality testing has shown that the majority of the Bayside waterways have poor water quality and there is significant ground water contamination in the eastern part of Bayside due to past heavy industrial developments.

The Georges Riverkeeper, Cooks River Alliance and Sydney Coastal Councils Group support Bayside Council's work to improve waterway health. The Botany Bay and Catchment Water Quality Improvement Plan also provide guidance to Bayside Council on waterway health.

In addition, the Bayside LGA is home to areas of significant bushland and coastal environment including Bardwell Valley, Fry's Reserve, Foreshore Beach and Lady Robinsons Beach and despite its highly urbanised environment, the LGA is home to over thirty threatened and significant species as well as a number of remnant vegetation communities.

Bayside's coastline and waterways are a natural asset, cultural resource and recreational destination. Managing the waterways and enhancing community access to the waterways will be important.

The biodiversity corridors – Rockdale Wetlands Corridor, Coastline Corridor, Bardwell Creek and Wolli Creek Corridor and Millstream Corridor – are important fauna and flora habitat as well as providing fauna movement corridors.

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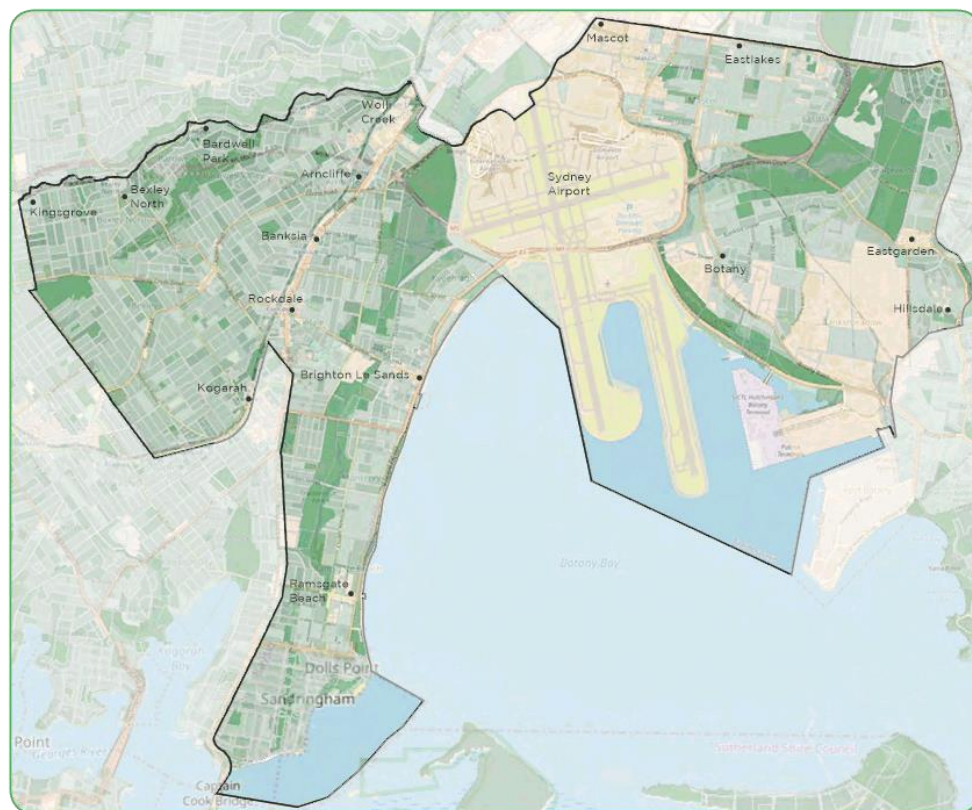


Figure 15.
Bayside vegetation cover.
(Source: Land and Property
Information 2015)

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We heard from our community and they said:

- ▶ We need to preserve green corridors
- ▶ Protect existing open space, beach and bushland
- ▶ Need to improve the health of Bayside's waterways and wetlands
- ▶ Need to reduce impact on biodiversity
- ▶ Enhance native fauna and flora in the Bayside LGA

Council will continue to build on the work already commenced and work collaboratively with key stakeholders to achieve improved water quality and biodiversity outcomes.

The Eastern City District Plan identifies five priority Green Corridors and four of these are located in Bayside, being:

- ▶ Mill Stream and Botany Wetlands Open Space Corridor
- ▶ Bardwell Valley Park
- ▶ Rockdale Wetlands
- ▶ Cooks River Open Space Corridor

The Mill Stream and Botany Wetlands Open Space Corridor includes the Sydney Airport Wetlands owned by Sydney Airport and the Botany Wetlands owned by Sydney Water. These four Green Grid Corridors provide a network of high quality green space that connects centres, public transport, major residential areas and areas of open space and foreshore. With green spaces adding to quality of life, helping keep the city cool, providing shade and ultraviolet ray (UV) protection, enhancing biodiversity and ensuring ecological resilience, they are a key component of liveability. Through public domain works on streets, footpaths and cycleways, an extended green grid connecting parks and open space, schools, employment, centres and health and transport hubs can be delivered.

Increasing the tree canopy and green cover across Bayside aligns with the NSW Premier's priority of Greening the City, with Council receiving funding under the 5 Million Tree Programme.



BAYSIDE PLANNING PRIORITY 19

Protect and improve the health of Bayside's waterways and biodiversity.

ACTIONS:

- 19.1 Finalise and implement the key findings of the review of Bayside's environmental planning controls into Bayside LEP 2020 and Bayside DCP 2020 and associated technical specifications to improve Bayside's waterways and biodiversity.
- 19.2 Update Council's assessment process for planning proposals, development applications and Council's environmental assessments.
- 19.3 Review biodiversity mapping in Bayside's 2020 Local Environmental Plan.
- 19.4 Continue Bayside's annual natural resource management programs in Bayside's priority natural areas including Sir Joseph Banks Park, Bardwell Valley and Scarborough Park.
- 19.5 Continue to support and enhance Bayside Council's community engagement and Bushcare volunteer programs.
- 19.6 Develop and adopt a Bayside Environmental Strategy.
- 19.7 Develop an implementation plan for the Bayside Environmental Strategy.
- 19.8 Develop and adopt a Bayside Biodiversity Strategy.
- 19.9 Develop an implementation plan for the Bayside Biodiversity Strategy.
- 19.10 Finalise, adopt and commence implementation of Bayside's Water Management Strategy.
- 19.11 Develop and implement a water quality monitoring program for Bayside's key waterways.
- 19.12 Improve public connection and access along waterway and foreshores.
- 19.13 Implement high priority actions from the Georges River Estuary Coastal Zone Management Plan (and future Georges River Coastal Management Program).
- 19.14 Advocate for positive natural environmental outcomes for the Bayside LGA to be a key consideration in the development of the Cooks River Management Program by the Cooks River Alliance.
- 19.15 Advocate to Sydney Water to ensure its assets are managed to enhance the health of Bayside's waterways and biodiversity.
- 19.16 Work collaboratively with Sydney Water on the naturalisation of the Muddy Creek Project Stage 1.
- 19.17 Advocate to State Government that State Significant Infrastructure projects within the Bayside LGA recognise and respond to the importance of Bayside's waterways, Botany Bay and biodiversity.
- 19.18 Advocate for outcomes that improve Bayside's waterways and biodiversity at agency and stakeholder meetings.

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BAYSIDE PLANNING PRIORITY 20

Increase urban tree canopy cover and enhance green grid connections.

ACTIONS:

- 20.1 Finalise and implement the key findings of the review of Bayside's Environmental planning controls into Bayside LEP 2020 and Bayside DCP 2020 and associated technical specifications to improve urban tree canopy cover.
- 20.2 Develop, adopt and implement a Bayside Urban Tree Canopy Strategy. The Urban Tree Canopy Strategy to identify opportunities for increased connections to the Green Grid.
- 20.3 Ensure the update of Council's Plans of Management include the protection and enhancement of the urban tree canopy as a priority action.
- 20.4 Advocate for the update of other agency Plans of Management to include the protection and enhancement of urban tree canopy as a priority action.
- 20.5 Develop and commence implementation of Masterplans for the priority green grid corridors of:
 - a) Mill Stream and Botany Wetlands Open Space Corridor. Consult with Sydney Airport and Sydney Water in the development of the Masterplans, including opportunities to access the corridors in their ownership.
 - b) Bardwell Valley Parkland.
 - c) Rockdale Wetlands Open Space Corridor.
- 20.6 Implement Bayside Council's Stage 1 of the 5 Million Tree Programme grant to enhance urban canopy in Banksmeadow, Mascot, Kyeemagh and Sans Souci.
- 20.7 Apply for funding for Stage 2 of the 5 Million Tree Programme grant.

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BAYSIDE PLANNING PRIORITY 21

Deliver high quality open space.

Public open space enhances our neighbourhoods and supports a healthy and active lifestyle and increases social connectedness through bringing people together. As Bayside grows, the demand for open space and sport infrastructure will increase. However, opportunities to deliver more open space will be limited. Instead Council will need to place an emphasis on the delivery of high quality spaces that are linked by a network of paths and cycleways and public transport to increase accessibility. In urban renewal areas planning for additional public open space is essential.

We heard from our community and they said:

- ▶ Need more open space in high density areas and look at shared use with schools and more multipurpose spaces
- ▶ Protect existing open space, beach and bushland to encourage an active and healthy lifestyle

ACTIONS:

- 21.1 Review current open space and sport infrastructure provision and identify opportunities to provide and/or enhance open space to meet user needs consistent with the Social Infrastructure Strategy.
- 21.2 Require large urban renewal areas to include the provision or access to local open space as part of the planning.
- 21.3 Negotiate joint and shared use of open space with the Department of Education.
- 21.4 Increase connectivity between and through open space and green grid corridors for walking and cycling.
- 21.5 Support and assist in the implementation of the District Sport Infrastructure Plans (when completed).

BAYSIDE PLANNING PRIORITY 22

Protect and enhance scenic and cultural landscapes.

Scenic and cultural landscapes such as waterways, coastline and bushland make an important contribution to the identity of Bayside and help people appreciate the natural environment, protect heritage and culture and create opportunities for recreation and tourism.

In Bayside, of particular importance are Botany Bay and the Cooks River which are culturally significant and scenically important. They also offer an opportunity to reflect on Aboriginal and non-Aboriginal heritage.

ACTIONS:

- 22.1 Review the existing provisions relating to scenic and cultural landscape protection and consider the inclusion of a local provision in the Bayside LEP 2020.

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An efficient city

Reducing energy consumption, increasing water efficiency and reducing waste is required to minimise Bayside's environmental footprint and will be especially important with a growing population and economy.

Figure 16 shows the greenhouse gas emission reduction potential from each intervention for the LGA, based on the Greater Sydney Commission's Exploring Net Zero Emissions for Greater Sydney Report Assumptions (2017).

The breakdown of Bayside's emissions for 2016-17 show 64.4% of Bayside's greenhouse gas emissions come from energy used in buildings. The Eastern City District Plan highlights pathways towards net-zero emissions, including improved building efficiency, and building and precinct scale renewables.

Other pathways with the potential to have a marked reduction in emissions include waste diversion and transport and parking.

Bayside has adopted the Waste Avoidance and Resource Recovery Strategy which identifies five key Strategic Actions that will avoid and reduce waste, recover resources, manage problem waste, reduce illegal dumping and litter prevention. Council's 2030 vision is to move towards a circular economy model whereby waste is diverted from landfill and is optimised as a resource that returns to nature or the economy.

Bayside has large industrial areas and precincts undergoing urban renewal. There may be opportunities to achieve precinct wide energy, water and waste efficiencies to achieve a circular economy.

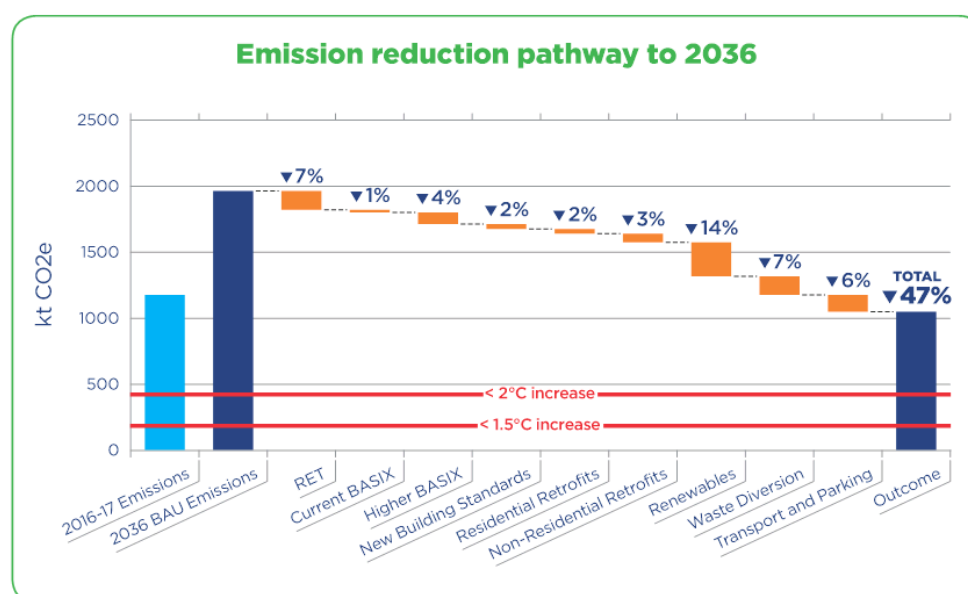


Figure 16.

Bayside emission reduction pathway to 2036. (source: Resilient Sydney Platform - www.resilientsydney.com.au)



Council is working to develop actions around carbon emissions and reduced energy, water and waste and are also developing a number of strategies related to energy, water and waste.

Reducing emissions from transport and reducing the need to travel by promoting self-containment in terms of employment, education, and services will also help enhance liveability, sustainability and resilience for the LGA.

We heard from our community and they said:

- ▶ Planning controls to be improved to incorporate energy efficiency
- ▶ Residents to be encouraged to include water sensitive urban design on private properties
- ▶ Council to consider green star rating system to improve future developments
- ▶ Enhance community engagement of the importance of reducing energy and water usage and waste production



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**BAYSIDE PLANNING PRIORITY 23**

Reduce carbon emissions through improved management of energy, water and waste.

ACTIONS:

- 23.1 Work with Resilient Sydney to implement Metropolitan Carbon Emission project to develop a Bayside action plan to improve management of energy, water and waste.
- 23.2 Develop and commence implementation of Bayside Environmentally Sustainable Development Policy and Guidelines.
- 23.3 Finalise and implement the key findings from the review of Bayside's Environmental Planning and Waste Controls into Bayside's 2020 LEP and DCP and associated technical specifications that improve Bayside's management of energy, water and waste.
- 23.4 Continue implementation of priority actions in Bayside's Waste Avoidance and Resource Recovery (WARR) Strategy.
- 23.5 Continue to work with SSROC to deliver the Our Energy Future Program to improve community participation in energy efficiency initiatives.
- 23.6 Continue monitoring and implementation of energy and water efficiency initiatives on Council's facilities.
- 23.7 Identify energy and water performance targets for Council facilities.
- 23.8 Advocate to State Government for more stringent and expanded BASIX requirements.
- 23.9 Collaborate with other councils and stakeholders to understand the potential economic opportunities associated with the principles of the circular economy.

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A resilient city

Natural hazards such as flooding, heatwaves, storms and coastal erosion will be exacerbated by climate change. It is likely that Bayside will experience more frequent, longer and more extreme periods of uncomfortable heat and heatwaves in the future. Coastal erosion is already occurring at Cahill Park and Lady Robinsons Beach and stormwater management is a key consideration in some of our urban renewal areas. Due to the historical industry that occurred in the Bayside LGA, Council also needs to manage a number of urban hazards including contaminated land and groundwater. The collection of data and understanding the hazards is important in helping to embed the consideration of resilience in future land use and infrastructure planning.

Bayside is part of Resilient Sydney which is a member of the 100 Resilient Cities initiative pioneered by the Rockefeller Foundation. This initiative aims to help cities become more resilient to the physical, social and economic challenges affecting communities.

What we heard from the community:

- ▶ Request for policy on climate change to acknowledge and to adapt to sea level rise
- ▶ Want ground water to be safe to use



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BAYSIDE PLANNING PRIORITY 24

Reduce community risk to urban and natural hazards and improve the community's resilience to social, environmental and economic shocks and stressors.

ACTIONS:

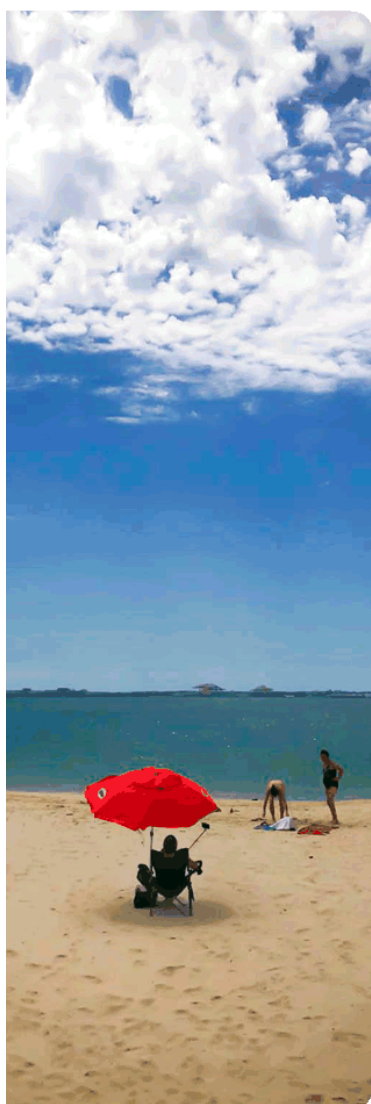
- 24.1 Work with Resilient Sydney to develop and implement a Bayside Resilient Program.
- 24.2 Develop, adopt and implement a Bayside Urban Heat Map and Action Plan.
- 24.3 Advocate to State Government and work with key stakeholders for improved management of significant sites of contaminated land and ground water.
- 24.4 Finalise and implement the key findings from the review of Bayside's Environmental Planning Controls into Bayside's 2020 LEP and DCP to improve Bayside's management of contaminated land and ground water, ensuring it is undertaken in accordance with the requirements of State Environmental Planning Policy 55 – Remediation of land.
- 24.5 Update and implement exemption maps to the exempt and complying development in relation to natural and urban hazards.
- 24.6 Work with State Government to improve the community's understanding of responding to urban and natural hazards.
- 24.7 Update Council's policies and procedures to manage Council owned and community assets impacted by urban and natural hazards to ensure the risk to the community, users and the environment is minimised and acceptable.
- 24.8 Review Council's policies and technical specifications to include provisions for well designed shade to be incorporated in public domain works.
- 24.9 Advocate for outcomes that reduce the community's risk to urban and natural hazards at agency and stakeholder meetings.
- 24.10 Update Bayside's flood risk management studies and plans.
- 24.11 Consider long term exposure to air pollution and noise in land use planning and design of neighbourhoods.

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Implementation

The Bayside Local Strategic Planning Statement is structured around the four themes of Infrastructure and Collaboration, Liveability, Productivity and Sustainability, 24 Planning Priorities and 147 Actions and gives effect to the Eastern City District Plan. The Bayside LSPS also aligns with the Strategic Directions of the Bayside Community Strategic Plan 2030.



The Bayside Local Strategic Planning Statement will provide the framework for the development of land use planning policy and decision making to achieve the Bayside Land Use 2036 Vision. It will also inform asset planning to ensure growth aligns with infrastructure provision.

Two of the key land use planning documents to be prepared that will give effect to the Bayside LSPS are:

- ▶ Bayside Local Environmental Plan 2020
- ▶ Bayside Development Control Plan 2020

The Bayside LSPS identifies actions that require collaboration with other Councils and a range of government agencies to give effect to the delivery of the vision for a future Bayside.

The LSPS will be implemented through the following Action and Monitoring Plan. Each action has a time period allocated for the implementation.

The LSPS will also form part of Council's Integrated Planning and Reporting framework to ensure that Planning Priorities and Actions can be incorporated into the Delivery Program and Operational Plan.

The time periods referred to in this table are as follows:

Short term	1-2 years
Medium term	3-5 years
Ongoing	1-10 years



Infrastructure and collaboration

PLANNING PRIORITY	ACTION	TIMING
1. Align land use planning and transport infrastructure planning to support the growth of Bayside.	1.1 Finalise and adopt the Bayside Transport Strategy.	Short term
	1.2 Develop an implementation plan for the Bayside Transport Strategy.	Short term
	1.3 Finalise and adopt the Bayside Bike Plan.	Short term
	1.4 Develop an implementation plan for the Bayside Bike Plan.	Short term
	1.5 Council will consider proposed Transport Infrastructure planned and under investigation outlined in Table 3 in all land use and asset planning decisions.	Ongoing
	1.6 Council will advocate for the investigation and construction of M6 Stage 2.	Short term / medium term
	1.7 Council will advocate for an integrated approach to public transport provision by providing input to the preparation of the South Eastern Sydney Transport Strategy.	Short term / medium term
	1.8 Council will prepare submissions to the NSW Government in relation to State Significant development applications (and similar) for projects including Sydney Gateway, Port Botany Rail Duplication, Metro Rail and others as they arise.	Ongoing
2. Align land use planning with the delivery and management of assets by Bayside Council to support our community.	2.1. Council will take a place based approach to land use and asset planning to ensure growth aligns with infrastructure provision.	Ongoing
	2.2. Council will align the City Projects Program (capital works) with the Bayside Long Term Financial Plan.	Ongoing
3. Working through collaboration.	3.1. Identify opportunities for Bayside to work collaboratively with a range of stakeholders to deliver desired outcomes and great places.	Ongoing
	3.2. Continue to collaborate with relevant stakeholders in the delivery of the Kogarah Place Strategy.	Ongoing

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Liveability



PLANNING PRIORITY	ACTION	TIMING
4. Provide social infrastructure to meet the needs of the Bayside Community.	4.1. Finalise and adopt the Social Infrastructure Strategy for Bayside.	Short term
	4.2. Develop a Social Infrastructure Implementation Plan.	Short term
	4.3. Ensure social infrastructure planning is considered at the earliest stages of planning for change to ensure there is an adequate level of provision to meet the incoming population's needs and that it is part of a place based planning approach.	Ongoing
	4.4. Strategic Planning to develop a reporting framework to ensure that all relevant stakeholders are aware of anticipated population growth, infrastructure projects and contributions.	Short term
	4.5. Develop a Bayside Local Infrastructure Contributions Plan.	Short term
	4.6. Develop a Voluntary Planning Agreement Policy informed by the Social Infrastructure Strategy.	Short term
	4.7. Advocate with state agencies for continuing long term leases for use of land as public open space.	Ongoing
	4.8. Investigate opportunities for joint and shared use of facilities with NSW Department of Education.	Short term / medium term
5. Foster healthy, creative, culturally rich and socially connected communities.	5.1. Deliver healthy, safe and inclusive places for people of all ages and abilities that support active, resilient and socially connected communities: a) Prioritise opportunities for people to walk, cycle and use public transport when planning for existing or future centres. b) Plan for local communities to access daily needs and essential services by walking and cycling to local and neighbourhood centres. c) Investigate co-location of community and cultural facilities based on recommendations from the Social Infrastructure Strategy including joint-use opportunities. d) Increase community awareness of Council's community garden policy to encourage the establishment of more community gardens. e) Continue to implement the Bayside Disability Inclusion Action Plan. f) Finalise a Community Safety Plan. g) Prepare a Positive Aging Strategy. h) Prepare a Child, Youth and Family Strategy.	Short term / medium term



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PLANNING PRIORITY	ACTION	TIMING
5. Foster healthy, creative, culturally rich and socially connected communities. (cont.)	5.2. Facilitate opportunities for creative and artistic expression and participation: a) Review the Bayside Public Art Policy to reflect emerging trends. b) Improve and grow the Sculptures @ Bayside exhibition to ensure increased participation. c) Work with the Bayside Arts Festival and Council's Events program to include opportunities to bring events and cultural activities into our local centres to increase social connectedness, strengthen resilience and grow the business economy. d) Identify opportunities for late night trading precincts in centres identified by the Bayside Centres and Employment Lands Strategy. e) Review planning controls to encourage more diverse trading including performance, culture and unlicensed businesses in late night trading precincts.	Short term / medium term
	5.3. Engage and consult with Local Aboriginal Land Councils and Elders to better understand their communities and their economic aspirations as they relate to land use planning through the development of a Reconciliation Action Plan.	Short term / medium term
6. Support sustainable housing growth by concentrating high density urban growth close to centres and public transport corridors.	6.1. Finalise and adopt the Local Housing Strategy to inform investigation of opportunities for residential growth.	Short term
	6.2. Continue to facilitate housing development in areas with capacity available under current planning controls.	Ongoing
	6.3. Investigation of opportunities for growth will have regard to the Bayside Land Use Limitation Study.	Ongoing
	6.4. Ensure that current land use planning does not jeopardise future opportunities for residential growth associated with visionary transport corridors.	Ongoing
	6.5. Advocate for a train/metro station to be located in the Bexley town centre area as part of a potential future Kogarah to Parramatta Line.	Ongoing
	6.6. Develop a rolling City Projects Program to schedule new and upgraded local infrastructure capital works to meet the needs of the growing community.	Short term / medium term
7. Provide choice in housing to meet the needs of the community.	7.1. Review planning controls to deliver a range of dwelling types, size and standards: a) Require a mix of apartments (number of bedrooms) in new developments. b) Harmonise the R2 and R3 residential zone's land use tables and floor space ratios in Bayside LEP 2020 to encourage more medium density development. c) review the development controls to achieve better built form outcomes for medium density development. d) Review the planning controls to increase the amount of housing that is universally designed.	Short term





PLANNING PRIORITY	ACTION	TIMING
8. Provide housing that is affordable.	8.1. Prepare an affordable housing policy to meet the requirements of the eastern City District Plan in relation to affordable rental housing and the different mechanisms Council will use to address this need.	Short term
	8.2. Develop an affordable housing contributions scheme that sets out how, where and at what rate development contributions can be collected by Council for affordable rental housing.	Short term
	8.3. Develop a community housing provider governance framework to facilitate the ongoing management and delivery of affordable rental housing.	Short term
	8.4. Develop a Voluntary Planning Agreement (VPA) Policy to facilitate VPAs in instances where an Affordable Housing Contributions Scheme does not apply.	Short term
	8.5. Work with key agencies, including NSW Land and Housing Corporation and other stakeholders, to deliver affordable rental housing and advocate for policies and controls that promote housing.	Ongoing
9. Manage and enhance the distinctive character of the LGA through good quality urban design, respect for existing character and enhancement of the public realm.	9.1. Council will encourage good built form outcomes through Design Excellence Competitions, Design Excellence Guidelines and Design Review Panel.	Ongoing
	9.2. Update planning controls for Bayside DCP 2020 to give clearer guidance to applicants and their architects about Council's expectations for high standards of design.	Short term
	9.3. Ensure compliance with the Apartment Design Guide.	Ongoing
	9.4. Adopt a place-based approach to planning by integrating elements of NSW Planning and Environment Character Toolkit into our policy framework, following the finalisation of the Character Overlay Policy by NSW State Government.	Medium term
	9.5. Council will take a place based approach and finalise and adopt the master plans/urban design studies for the local centres of Rockdale, Eastlakes and Brighton Le Sands.	Short term
	9.6. Council will take a place based approach for each local centre and prepare master plans/urban design studies or public domain plans to create great places including the following centres at west Kogarah, Carlton, Kingsgrove, Bexley, Bexley North, Ramsgate, Hillsdale, Botany, Mascot (Coward/Botany Road) and Mascot station Precinct.	Ongoing
	9.7. Prepare an implementation plan to schedule local centre planning and design across a number of years.	Short term
	9.8. Integrate future planning for capital works in centres into the Bayside City Projects Program and the Long Term Financial Plan.	Ongoing
10. Value, protect and conserve Aboriginal heritage.	10.1. Council will finalise and adopt the Bayside Aboriginal Heritage Study and implement the recommendations.	Short term
	10.2. Aboriginal heritage values will inform place making, including landscape design.	Ongoing
	10.3. Council will protect, celebrate and promote Bayside's rich Aboriginal cultural heritage.	Ongoing
11. Develop clear and appropriate controls for development of heritage items, adjoining sites and within conservation areas.	11.1. Finalise and adopt the Bayside Heritage Strategy.	Short term
	11.2. Include the Bayside Heritage Strategy recommendations into the Bayside LEP 2020 and Bayside DCP 2020.	Short term
	11.3. Council will protect, celebrate and promote Bayside's rich cultural heritage.	Ongoing

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Productivity

PLANNING PRIORITY	ACTION	TIMING
12. Delivering an integrated land use and a 30-minute city.	12.1 Plan for high amenity and walkability within a 10-minute walk of centres.	Ongoing
	12.2 Advocate for and work with relevant stakeholders for safe cycling and walking connections to Sydney Airport and Port Botany as outlined in the Eastern City District Plan.	Ongoing
	12.3 Seek funding to implement the missing links identified by the Bayside Bike Plan to deliver on a 30-minute city.	Ongoing
	12.4 Plan for urban development, new centres, better places and employment uses that are integrated with existing transport infrastructure and proposed transport projects.	Ongoing
	12.5 Advocate for increased east-west public transport links to connect the suburbs east of the airport to the suburbs west of the airport.	Ongoing
	12.6 Advocate for increased bus routes and frequency of services to those centres and suburbs that are less well serviced and provide more east west links: a) To connect Kyeemagh, Brighton Le Sands, Ramsgate Beach and Sans Souci with Rockdale train station. b) To connect Hillsdale, Botany, Pagewood, Banksmeadow and Eastlakes with Mascot train station and the Randwick education and health precinct. c) To connect Kingsgrove, Bexley, North Bexley, Bardwell Park and Turrella with Rockdale and the Botany Bay foreshore. d) To connect Bondi Junction with Miranda via Sydney Airport.	Ongoing
	12.7 Ensure a degree of self-sufficiency of local services on either side of the Airport to ensure access to services and jobs.	Ongoing
13. Contribute to growing a stronger and more competitive Harbour CBD.	13.1. Finalise and adopt the Bayside Centres and Employment Lands Strategy.	Short term
	13.2 Implement the recommendations of the Centres and Employment Lands Strategy to facilitate appropriate industrial and commercial growth in Bayside and support the Harbour CBD.	Short term
14. Protect and grow the international trade gateways.	PORT BOTANY	
	14.1. Retain the industrial and urban services zoned lands surrounding Port Botany.	Ongoing
	14.2. Review the business and industrial land use tables to ensure they accommodate appropriate land uses.	Short term
	14.3. Review the planning controls in relation to minimum lot size to ensure that subdivision does not erode the freight and container handling function.	Short term
	14.4. Prevent the encroachment of sensitive uses that can impact the operation of the industrial lands through land use planning controls.	Ongoing
	14.5. Protect Port Botany's function as an international gateway for freight and logistics and supporting port-related land uses and infrastructure in the area around the port.	Ongoing
	14.6. Manage potential land use conflict by preventing residential and commercial encroachment on the industrial areas and along freight corridors through land use planning controls.	Ongoing
	14.7. Manage safety risks associated with the industrial activity and dangerous goods at the Botany Industrial Park through land use planning controls that take into account the quantitative risk assessment modelling undertaken for the Botany Industrial Park.	Ongoing



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PLANNING PRIORITY	ACTION	TIMING
14. <i>Protect and grow the international trade gateways.</i> (cont.)	14.8. Manage safety risks associated with transporting dangerous goods along Dennison Street to the Botany Industrial Park through land use planning controls that take into account the quantitative risk assessment modelling undertaken for the Botany Industrial Park.	Ongoing
	14.9. Collaborate with Port Botany on creating safe cycling and walking connections to Port Botany.	Ongoing
	SYDNEY AIRPORT	
	14.10. Following the adoption of the Bayside Centres and Employment Lands Strategy, review the land use planning controls for key employment and urban services lands in and near the Sydney Airport precinct, including those land use that support the role of Sydney Airport as a trade gateway, and implement any recommendations.	Short term
	14.11. Ensure airport and aviation-related requirements are recognised in strategic land use planning policies and processes by giving effect to the National Airport Safeguarding Framework and its guidelines.	Ongoing
	14.12. Protect Sydney Airport's function as an international gateway for passengers and freight and support airport and aviation support related land uses, including but not limited to, airfreight and logistics and warehousing, maintenance facilities, flight training centres, catering facilities and car rental facilities.	Ongoing
	14.13. Manage potential land use conflict by preventing residential and commercial encroachment on the industrial and urban services areas and along freight corridors through land use controls.	Ongoing
	14.14. Assessment of proposals for airport related uses to have regard to uses on adjoining properties, including businesses, during construction and operation.	Ongoing
	14.15. Collaborate with Sydney Airport to provide safe cycling and walking connections to the airport, particularly to Mascot station.	Ongoing
	FREIGHT HANDLING AND LOGISTICS NETWORK	
	14.16. Protect current and future freight corridors by ensuring appropriate controls to limit incompatible uses adjacent to areas expected to have intense freight activity.	Ongoing
	14.17. Manage land use conflict to minimise negative impacts on urban amenity.	Ongoing
	14.18. Review land use planning controls to prevent high traffic generating developments, such as large scale retail and high density residential, on roads that service Sydney Airport and Port Botany to reduce conflicts with dangerous goods vehicles.	Short term
	14.19. Review traffic modelling requirements for developments in and around the Eastgardens-Maroubra Junction Strategic Centre and Pagewood to identify impacts on road intersections along Wentworth Avenue.	Short term
	14.20. Explore changes in the freight and logistics sector (including the significant and ongoing growth in eCommerce related freight) to ensure the precinct provides a cutting edge environment that supports time-sensitive logistics functions.	Short term / medium term



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PLANNING PRIORITY	ACTION	TIMING
15. Growing investment, business opportunities and jobs in Bayside's strategic centres and centres.	MASCOT – GREEN SQUARE	
	15.1. Finalise and adopt the Bayside Centres and Employment Lands Strategy to inform the review of the Bayside LEP 2020 and Bayside DCP 2020 to ensure that the land use mix and planning controls strengthens the capacity for job growth and the economic role of the centre.	Short term
	15.2. Collaborate with the City of Sydney to strengthen and diversify the centre, with clear complementary roles for Mascot and Green square.	Short term / medium term
	15.3. Plan for safe walking and cycling through the centre and from Mascot Station to Sydney Airport in collaboration with City of Sydney, Sydney Airport and relevant agencies.	Short term
	15.4. Retain and manage surrounding employment, industrial and urban services lands and their role in supporting the Harbour CBD and Bayside.	Ongoing
	EASTGARDENS – MAROUBRA JUNCTION	
	15.5 Collaborate with Randwick Council and identify opportunities to strengthen the economic role of the Eastgardens – Maroubra Junction centre based on the Bayside Centres and Employment Lands Strategy, with clear complementary roles for Eastgardens and Maroubra Junction.	Short term / medium term
	15.6. Promote place making initiatives and walking and cycling connections to open space and the Green Grid including: a) The priority north-south cycle link identified in Future transport 2056 linking Port Botany and Eastgardens with Randwick and green space in both Bayside and Randwick LGAs. b) Support the east-west link identified in Future transport 2056 to connect Maroubra Junction with Eastgardens and west to Mascot and Green Square and green space in both Bayside and Randwick LGAs.	Ongoing
	15.7. Advocate to Transport for NSW, Department of Planning, Industry and Environment and Greater Sydney Commission for improved public transport provision to the centre.	Ongoing
	LOCAL CENTRES	
	15.8. Ensure each local centre has sufficient retail floor space to meet future demand.	Short term / medium term
16. Contribute to growing the health and education precincts of Kogarah, Randwick and Camperdown.	16.1. Continue to plan for the Kogarah Collaboration Area (also refer to Bayside Planning Priority 3) and work with the Greater Sydney Commission and Georges River Council to implement the actions developed in the Place Strategy.	Ongoing
	16.2. Investigate opportunities for student and worker housing within 30 minutes of the Kogarah Health and Education Precinct and the Randwick Health and Education Precinct.	Short term / medium term
	16.3. Make provision for Research and Development and fabrication functions in appropriate zones in support of the health and education precincts at Randwick and Camperdown.	Short term / medium term
	16.4. Investigate opportunities for Rockdale and Kogarah to have complementary centre roles.	Short term / medium term





PLANNING PRIORITY	ACTION	TIMING
17. Retain and manage industrial and urban services lands.	17.1. Retain and manage industrial and urban services and business park land to support local need generated by small business parks, business and trade supplies and population services such as smash repairs and storage.	Ongoing
	17.2. Review the planning controls to ensure they meet the needs of current and emerging industrial and urban services trends including increased building heights and floor space.	Short term / medium term
18. Support the growth of targeted industry sectors.	18.1. Investigate opportunities for increasing the tourism sector in Bayside and to leverage on Bayside's location close to Sydney Airport.	Short term / medium term
	18.2. Review the regulatory environment as new technological advances and changes occur to help deliver innovative and new knowledge intensive jobs and business opportunities.	Ongoing
	18.3. Partner with key institutions such as the University of Technology Sydney's Tech Lab to support the growth of technological development and commercialisation in Botany.	Ongoing
	18.4. Explore the opportunities to grow an advanced manufacturing sector in Botany that takes advantage of the trade gateway's international access and freight function, proximity to the Harbour CBD and access to Greater Sydney's labour market.	Short term / medium term

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Sustainability



PLANNING PRIORITY	ACTION	TIMING
19. Protect and improve the health of Bayside's waterways and biodiversity.	19.1. Finalise and implement the key findings of the review of Bayside's environmental planning controls into Bayside LEP 2020 and Bayside DCP 2020 and associated technical specifications to improve Bayside's waterways and biodiversity.	Short term / medium term
	19.2. Update Council's assessment process for planning proposals, development applications and Council's environmental assessments.	Short term
	19.3. Review biodiversity mapping in Bayside's 2020 LEP.	Short term
	19.4. Continue Bayside's annual natural resource management programs in Bayside's priority natural areas including Sir Joseph Banks Park, Bardwell Valley and Scarborough Park.	Ongoing
	19.5. Continue to support and enhance Bayside Council's community engagement and bush care volunteer programs.	Ongoing
	19.6. Develop and adopt a Bayside Environmental Strategy.	Short term
	19.7. Develop an implementation plan for the Bayside Environmental Strategy.	Short term
	19.8. Develop and adopt a Bayside Biodiversity Strategy.	Medium term
	19.9. Develop an implementation plan for the Bayside Biodiversity Strategy.	Medium term
	19.10. Finalise, adopt and commence implementation of Bayside's Water Management Strategy.	Short term / medium term
	19.11. Develop and implement a water quality monitoring program for Bayside's key waterways.	Short term / medium term
	19.12. Improve public connection and access along waterway and foreshores.	Short term / medium term
	19.13. Implement high priority actions from the Georges River Estuary Coastal Zone Management Plan (and future Georges River Coastal Management Program).	Ongoing
	19.14. Advocate for positive natural environmental outcomes for the Bayside LGA to be a key consideration in the development of the Cooks River Management Program by the Cooks River Alliance.	Short term
	19.15. Advocate to Sydney Water to ensure its assets are managed to enhance the health of Bayside's waterways and biodiversity.	Ongoing
	19.16. Work collaboratively with Sydney Water on the naturalisation of the Muddy Creek Project Stage 1.	Short term / medium term
	19.17. Advocate to State Government that State Significant Infrastructure projects within the Bayside LGA recognise and respond to the importance of Bayside's waterways, Botany Bay and biodiversity.	Ongoing
	19.18. Advocate for outcomes that improve Bayside's waterways and biodiversity at agency and stakeholder meetings.	Ongoing





PLANNING PRIORITY	ACTION	TIMING
20. Increase urban tree canopy cover and enhance green grid connections.	20.1. Finalise and implement the key findings of the review of Bayside's environmental planning controls into Bayside LEP 2020 and Bayside DCP 2020 and associated technical specifications to improve urban tree canopy cover.	Short term / medium term
	20.2. Develop, adopt and implement a Bayside Urban Tree Canopy Strategy. The Urban Tree Canopy Strategy to identify opportunities for increased connections to the Green Grid.	Short term
	20.3. Ensure the update of Council's Plans of Management include the protection and enhancement of the urban tree canopy as a priority action.	Short term / medium term
	20.4. Advocate for the update of other agency Plans of Management to include the protection and enhancement of urban tree canopy as a priority action.	Ongoing
	20.5. Develop and commence implementation of Masterplans for the priority green grid corridors of: a) Mill Stream and Botany Wetlands Open Space Corridor. Consult with Sydney Airport and Sydney Water in the development of master plans, including opportunities to access the corridors in their ownership. b) Bardwell Valley Parkland. c) Rockdale Wetlands Open space Corridor.	Short term / medium term
	20.6. Implement Bayside Council's stage 1 of the 5 Million Tree Programme grant to enhance urban canopy in Banksmeadow, Mascot, and Kyeemagh and Sans Souci.	Short term
	20.7. Apply for funding for Stage 2 of the 5 Million Tree Programme grant.	Short term
21. Deliver high quality open space.	21.1. Review current open space provision and identify opportunities to provide and/or enhance open space to meet user needs consistent with the social infrastructure strategy.	Short term / medium term
	21.2. Require large urban renewal areas to include the provision or access to local open space as part of the planning.	Ongoing
	21.3. Negotiate joint and shared use of open space with the Department of Education.	Short term / medium term
	21.4. Increase connectivity between and through open space and green grid corridors for walking and cycling.	Ongoing
	21.5. Support and assist in the implementation of the District Sport Infrastructure Plans (when completed).	Ongoing
22. Protect and enhance scenic and cultural landscapes.	22.1. Review the existing provisions relating to scenic and cultural landscape protection and consider the inclusion of a local provision in the Bayside LEP 2020.	Short term
23. Reduce carbon emissions through improved management of energy, water and waste.	23.1 Work with Resilient Sydney to implement Metropolitan Carbon Emission Project to develop a Bayside Action Plan to improve management of energy, water and waste.	Ongoing
	23.2. Develop and commence implementation of Bayside Environmentally Sustainable Development Policy and Guidelines.	Short term / medium term
	23.3. Finalise and implement the key findings from the review of Bayside's Environmental Planning and Waste Controls into Bayside's LEP 2020 and DCP and associated technical specifications that improve Bayside's management of energy, water and waste.	Short term / medium term





PLANNING PRIORITY	ACTION	TIMING
23. Reduce carbon emissions through improved management of energy, water and waste. (cont.)	23.4. Continue implementation of priority actions in Bayside's Waste Avoidance and Resource Recovery (WARR) Strategy.	Ongoing
	23.5. Continue to work with SSROC to deliver the Our Energy Future Program to improve community participation in energy efficiency initiatives.	Ongoing
	23.6. Continue monitoring and implementation of energy and water efficiency initiatives on Council's facilities.	Ongoing
	23.7. Identify energy and water performance targets for Council facilities.	Short term / medium term
	23.8. Advocate to State Government for more stringent and expanded BASIX requirements.	Ongoing
	23.9 Collaborate with other councils and stakeholders to understand the potential economic opportunities associated with the principles of the circular economy.	Ongoing
24. Reduce community risk to urban and natural hazards and improve the community's resilience to social, environmental and economic shocks and stressors.	24.1 Work with Resilient Sydney to develop and implement a Bayside Resilient Program.	Medium term
	24.2 Develop, adopt and implement a Bayside Urban Heat Map and Action Plan.	Medium term
	24.3 Advocate to State Government and work with key stakeholders for improved management of significant sites of contaminated land and ground water.	Ongoing
	24.4 Finalise and implement the key findings from the review of Bayside's Environmental Planning Controls into Bayside's 2020 LEP and DCP to improve Bayside's management of contaminated land and ground water, ensuring it is undertaken in accordance with the requirements of State Environmental Planning Policy 55 - Remediation of land.	Short term / medium term
	24.5 Update and implement exemption maps to the exempt and complying development in relation to natural and urban hazards.	Short term
	24.6 Work with State Government to improve the community's understanding of responding to urban and natural hazards.	Ongoing
	24.7 Update Council's policies and procedures to manage Council owned and community assets impacted by urban and natural hazards to ensure the risk to the community, users and the environment is minimised and acceptable.	Short term / medium term
	24.8 Review Council's policies and technical specifications to include provisions for well designed shade to be incorporated in public domain works.	Ongoing
	24.9 Advocate for outcomes that reduce the community's risk to urban and natural hazards at agency and stakeholder meetings.	Short term
	24.10 Update Bayside's flood risk management studies and plans.	Short term
	24.11 Consider long term exposure to air pollution and noise in land use planning and design of neighbourhoods.	Ongoing

Annexure 1

Comparison of Eastern City District Plan, Bayside Strategic Planning Statement and Bayside Community Strategic Plan 2030 Planning Priorities, Strategic Directions and Actions.

EASTERN CITY DISTRICT PLAN PLANNING PRIORITIES	BAYSIDE LSPS PLANNING PRIORITIES	BAYSIDE CSP 2030 STRATEGIC DIRECTIONS	BAYSIDE CSP 2030 ACTIONS
E1 – Planning for a city supported by infrastructure	Bayside Planning Priority B1 Align land use planning and transport infrastructure planning to support the growth of Bayside Bayside Planning Priority B2 Align land use planning with the delivery and management of assets by Bayside Council to support our community	The transport system works	We can easily travel to work by accessible, reliable public transport
E2 – working through collaboration	Bayside Planning Priority B3 Working through collaboration	Opportunities for economic development are recognised	Major employers support/partner with local small business
E3 – Providing services and social infrastructure to meet people's changing needs	Bayside Planning Priority B4 Provide social infrastructure to meet the needs of the Bayside Community	Our places connect people Our places are accessible to all We treat each other with dignity and respect We are unified and excited about our future	Open space is accessible and provides a range of active and passive recreation opportunities to match our growing community Assets meet community expectations Our public buildings are important community hubs and are well maintained and accessible
E4 – Fostering healthy, creative, culturally rich and socially connected communities	Bayside Planning Priority B5 Foster healthy, creative, culturally rich and socially connected communities	Our places connect people Our places are people focussed Our places are accessible to all The community is valued We treat each other with dignity and respect	Walking and cycling is easy in the City and is located in open space where possible We are one community with shared objectives and desires There is an appropriate and community owned response to threats Bayside provides safe and engaging spaces, places and interactions We are healthy community with access to active recreation and health education All segments of our community are catered for - children, families, young people and seniors Opportunities for passive and active activities are available to community members, including people with pets The value of pets in the community is recognised and they are welcomed across the City Aboriginal culture and history is recognised and celebrated We can participate in cultural and arts events which reflect and involve the community Cultural diversity is reflected and celebrated in the City's activities

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EASTERN CITY DISTRICT PLAN PLANNING PRIORITIES	BAYSIDE LSPS PLANNING PRIORITIES	BAYSIDE CSP 2030 STRATEGIC DIRECTIONS	BAYSIDE CSP 2030 ACTIONS
E5 – Provide housing supply, choice and affordability with access to jobs, services and public transport	Bayside Planning Priority B6 Support sustainable housing growth by concentrating high density urban growth close to centres and public transport corridors	–	–
	Bayside Planning Priority B7 Provide choice in housing to meet the needs of the community	Our places are accessible to all	People who need to can access affordable housing
	Bayside Planning Priority B8 Provide housing that is affordable	Local housing, employment and business opportunities are generated	People who need to can access affordable housing
E6 – Creating and renewing great places and local centres, and respecting the District's heritage	Bayside Planning Priority B9 Manage and enhance the distinctive character of the LGA through good quality urban design, respect for existing character and enhancement of the public realm	My place will be special to me Our places are people focussed We are unified and excited about our future	Local developments reflect innovative, good design and incorporate open space and consider vertical families Places have their own village atmosphere and sense of identity The public spaces I use are innovative and put people first We are proud of where we live Local areas are activated with cafes, restaurants, and cultural events My community and council work in partnership to deliver better local outcomes
	Bayside Planning Priority B10 Value, protect and conserve Aboriginal heritage	Our places connect people	Our heritage and history is valued and respected
	Bayside Planning Priority B11 Develop clear and appropriate controls for development of heritage items, adjoining sites and within conservation areas	Our places connect people	Our heritage and history is valued and respected
E7 – Growing a stronger and more competitive harbour CBD	Bayside Planning Priority B13 Contribute to growing a stronger and more competitive Harbour CBD	–	–
E8 – Growing and investing in health and education precincts and the Innovation Corridor	Bayside Planning Priority B16 Contribute to growing the health and education precincts of Kogarah, Randwick and Camperdown	–	–
E9 – Growing international trade gateways	Bayside Planning Priority B14 Protect and grow the international trade gateways	Opportunities for economic development are recognised	We are an international hub for transport and logistics related business
E10 – Delivering integrated land use and transport planning and a 30-minute city	Bayside Planning Priority B12 Delivering an integrated land use and a 30-minute city	My place will be special to me The transport system works	Traffic and parking issues are a thing of the past We can easily travel to work by accessible, reliable public transport

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EASTERN CITY DISTRICT PLAN PLANNING PRIORITIES	BAYSIDE LSPS PLANNING PRIORITIES	BAYSIDE CSP 2030 STRATEGIC DIRECTIONS	BAYSIDE CSP 2030 ACTIONS
E11 – Growing investment, business opportunities and jobs in strategic centres	Bayside Planning Priority B15 Growing investment, business opportunities and jobs in Bayside's strategic and local centres	Local housing, employment and business opportunities are generated We are unified and excited about our future	We are all included and have a part to play in the City The City is run by, with and for the people
E12 – Retaining and managing industrial and urban services land	Bayside Planning Priority B17 Retain and manage industrial and urban services lands	Opportunities for economic development are recognised	Industrial lands and employment lands are preserved - partnering with major employers to support local jobs
E13 – Supporting growth of targeted industry sectors	Bayside Planning Priority B18 Support the growth of targeted industry sectors	We benefit from technology Local housing, employment and business opportunities are generated We are prepared for a sharing economy Our places are accessible to all We benefit from technology	Council engages with us and decision making is transparent and data driven Innovative businesses are supported to locate in Bayside Local Plans and regulations have kept pace with the sharing economy SMART Cities - making life better through smart use of technologies We can access information and services online and through social media Technological change has been harnessed and we are sharing the benefits We welcome visitors and tourists to our City Gateway sites are welcoming and attractive
E14 – Protecting and improving the health and enjoyment of Sydney Harbour and the District's waterways E15 – Protecting and enhancing bushland and biodiversity	Bayside Planning Priority B19 Protect and improve the health of Bayside's waterways and biodiversity	Waterways and green corridors are regenerated and preserved	The community are involved in the preservation of our natural areas
E16 – Protecting and enhancing scenic and cultural landscapes	Bayside Planning Priority B22 Protect and enhance scenic and cultural landscapes	-	-
E17 – Increasing urban tree canopy cover and delivering Green Grid connections	Bayside Planning Priority B20 Increase urban tree canopy cover and enhance green grid connections	We are prepared for climate change Waterways and green corridors are regenerated and preserved	Our streetscapes are green and welcoming We have an enhanced green grid/canopy
E18 – Delivering high quality open space	Bayside Planning Priority B21 Deliver high quality open space	-	-

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EASTERN CITY DISTRICT PLAN PLANNING PRIORITIES	BAYSIDE LSPS PLANNING PRIORITIES	BAYSIDE CSP 2030 STRATEGIC DIRECTIONS	BAYSIDE CSP 2030 ACTIONS
E19 – Reducing carbon emissions and managing energy, water and waste efficiently	Bayside Planning Priority B23 Reduce carbon emissions through improved management of energy, water and waste	We increase our use of renewable energy Waterways and green corridors are regenerated and preserved My place will be special to me Our waste is well managed	Our City promotes the use of renewable energy through community consultations Water is recycled and re-used I can reduce my waste through recycling and community education Our City models use of renewable energy and reports gains benefits to the community Illegal dumping is a thing of the past
E20 – Adapting to the impacts of urban and natural hazards and climate change	Bayside Planning Priority B24 Reduce community risk to urban and natural hazards and improve community's resilience to social, environmental and economic shocks and stressors	We are prepared for climate change	We understand climate change, and are prepared for the impacts Our City is prepared for/able to cope with severe weather events



Bayside Customer Service Centres

Rockdale Library, 444-446 Princes Highway, Rockdale
Westfield Eastgardens, 152 Bunnerong Road, Eastgardens
Monday to Friday 8:30am - 4:30pm, Saturday 9am - 1pm

Phone **1300 581 299 | 9562 1666**

Email **council@bayside.nsw.gov.au**

Web **www.bayside.nsw.gov.au**

Greater Sydney
Commission



COLLABORATION AREA

Kogarah

Place Strategy



CA Collaboration Area
– Place Strategy

Draft November 2019

Acknowledgement of Country

The Greater Sydney Commission acknowledges the Bidjegal people of the Eora Nation, the traditional owners of the lands that include the Kogarah Collaboration Area, and the living culture of the traditional custodians of these lands.

The Commission recognises that the traditional owners have occupied and cared for this Country over countless generations and celebrates their continuing contribution to the life of Greater Sydney.

List of shortened terms

BC	Bayside Council
CBD	Central Business District
CO ₂ -e	Carbon dioxide equivalent (standard unit for measuring greenhouse gas emissions)
DCP	Development control plan
DoE	NSW Department of Education
DPC	Department of Premier and Cabinet
DPIE-EES	Department of Planning, Industry and Environment – Environment, Energy and Science Group
DPIE-PDPS	Department of Planning, Industry and Environment – Place Design Public Spaces Group
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
GANSW	Government Architect NSW
GRC	Georges River Council
GSC	Greater Sydney Commission
HI NSW	Health Infrastructure NSW
LAHC	Land and Housing Corporation
NSW Health	Representing the Health Cluster
RMS	Former Roads and Maritime Services
SINSW	School Infrastructure NSW
SES	State Emergency Service
SESLHD	South Eastern Sydney Local Health District
SMaRT	Sustainable Materials Research and Technology
SSE	Sydney School of Entrepreneurship
SSMRF	St George and Sutherland Medical Research Foundation
SSROC	Southern Sydney Regional Organisation of Councils
TAFE NSW	Technical and Further Education New South Wales
TfNSW	Transport for NSW
UNSW	University of NSW

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Foreword

Dr Deborah Dearing
Eastern City District
Commissioner



Kogarah will be a successful health and education precinct that services the communities and boosts the economies of both the South and Eastern City districts.

Anchored by St George Hospital, St George Private Hospital, Calvary Health Care Kogarah, Wesley Hospital Kogarah, Westpac Bank, TAFE NSW, UNSW St George and Sutherland Clinical School, Netstrata Jubilee Stadium and 12 schools, Kogarah's institutions combine to create a cluster of health, knowledge and wellness.

Peter Poulet
Central City District
Commissioner



This Place Strategy is a first for planning in Kogarah. It brings together the ambitions of two councils and multiple organisations that have a stake in Kogarah's future. It sets a shared vision, priorities and actions that will leverage the area's existing assets and bring about new opportunities as the area evolves. It emphasises wellness and promotes population health and community wellbeing.

The Place Strategy addresses issues such as better public transport connections to other major economic centres such as Randwick, Bankstown and Parramatta and better physical connections between Kogarah and Rockdale. It draws on planned transport infrastructure to change how people access and move around Kogarah. This will encourage investment and bring in more jobs, helping to further develop the centre's health and education functions.

The Place Strategy identifies the area's specialisations to create a brand and identity that supports Kogarah as a destination. It uses these specialisations to reveal and expand connections and relationships between different sectors to foster innovation and support research activities.

Sustainable modes of transport, including walking and cycling, will enable seamless connectivity. Centres will be vibrant, busy and well designed. Social infrastructure, services and facilities will meet the needs of the changing population.

Housing and accommodation will support the economic functions of the centre and the accommodation requirements of a health, knowledge and wellness precinct.

As Kogarah grows, investment in new infrastructure gives us the opportunity to introduce precinct-wide energy, water and waste efficiency solutions to ensure a healthy and resilient precinct.

This is an ambitious plan for Kogarah. The Place Strategy is the roadmap that guides collaboration, prioritises investment and brings together expertise and local knowledge to support Kogarah's evolution.

1

Introduction

Kogarah is identified as a Collaboration Area owing to its significant presence of health and education assets in the South District. The ambition for Kogarah is that it will be a hub of knowledge-intensive jobs and industries for the Eastern City District, the South District and Greater Sydney. As one of only two health and education precincts and knowledge intensive centres in the South District, it is also critical in achieving the vision for a 30-minute city and supporting communities in the south of Sydney.

Over the next 20 years it is anticipated that Kogarah will become an important transport interchange, with connectivity to the Eastern City and Central City through mass transit links which will transform the centre.

Supported by both Bayside Council and Georges River Council and located within the Eastern City District and South District, **Kogarah's planning and governance as a strategic centre, health and education precinct and Collaboration Area is unique.**

The Kogarah Collaboration Area is loosely bounded by Bestic Street to the north, the Rockdale Wetlands Corridor in the east, Jubilee Avenue in the south, and Caledonian Street to the west (see Figure 1). Including both Kogarah and Rockdale town centres, it is 14 kilometres south of the Harbour CBD, 20 kilometres from Greater Parramatta and in close proximity to Sydney Airport and Port Botany.

This Kogarah Collaboration Area Place Strategy was collectively designed by the stakeholders involved in planning for the future of the Collaboration Area. Specifically, it:

- establishes a vision for the Kogarah Collaboration Area, based on the community's vision expressed in the South and Eastern City District Plans, Bayside Council and Georges River Council's Community Strategic Plans and the Rockdale Town Centre and Kogarah North Precinct masterplans.
- identifies the impediments and opportunities within the Collaboration Area
- sets out the priorities for the Collaboration Area
- identifies actions to deliver the vision.

This Place Strategy will inform both public and private policy and investment decisions. It identifies and recognises the complex, place-specific issues that may inhibit growth and change and the many opportunities that growth and change can bring.

For the purposes of this Place Strategy, references to Kogarah Town Centre aligns with the Kogarah strategic centre identified within the Greater Sydney Region Plan and South District Plan. Similarly, references to the Rockdale Town Centre are reflective of the Rockdale local centre identified in the Eastern City District Plan.

6 Introduction

1.1 Places in the Kogarah Collaboration Area

The Collaboration Area includes several places, as described below and illustrated in Figure 1.

Health, knowledge and wellness core

Located in Kogarah Town Centre, this is a cluster of major health, knowledge and wellness services including:

- St George Public Hospital and St George Private Hospital
- TAFE NSW St George sites on Princes Highway and Montgomery Street
- Moorefield Girls High School and James Cook Boys Technology High School
- The Microbiome Research Centre
- UNSW St George and Sutherland Clinical School

This cluster has the highest intensity of jobs in the Collaboration Area.

Kogarah Town Centre

Kogarah Town Centre is a civic destination with services and retail to support residents, students, workers and visitors, particularly those who use the health, knowledge and wellness core.

Rockdale Town Centre

Rockdale Town Centre includes several distinct and definable precincts. It provides civic and population serving functions and facilities and is complementary to the Kogarah Town Centre.

Kogarah North

Kogarah North will be a focus for new housing close to the health, knowledge and wellness education core.

Kogarah West

Kogarah West is identified by Bayside Council as an investigation area for urban growth. The area will enable housing close to jobs, future transport connections and services located within the Kogarah Town Centre.

Rockdale Wetlands Corridor

Rockdale Wetlands Corridor is a north-south corridor of public spaces for recreation, infrastructure and biodiversity.

Jubilee Stadium

Containing Netstrata Jubilee Stadium and Kogarah Park, this precinct provides high performance training facilities and is home to the St George Dragons national rugby league team, an anchor tenant. It will continue to support sporting, entertainment and health functions, with additional yet intermittent transport demand during events.

Industrial and urban services land

The two industrial and urban services land precincts to the east of the Collaboration Area at Production Avenue and West Botany Street have the potential to contribute to the health and knowledge functions of the Collaboration Area through emerging technologies.¹

¹ Bayside Council Centres and Employment Lands Discussion Paper 2019 - Prepared by SGS Economics and Planning

Figure 1: Places in the Kogarah Collaboration Area (GSC 2019)



Greater Sydney Commission | Collaboration Area – Kogarah Place Strategy

2

Vision for Kogarah Collaboration Area

By 2036, the Kogarah Collaboration Area will be a vibrant health and knowledge precinct that fosters innovation, provides access to comprehensive education, is home to research institutions and is well-connected to major economic centres by efficient transport links.

The Collaboration Area will emphasise wellness with efficient, healthy and resilient natural and urban environments, places and movement networks that are high amenity and promote population health and community wellbeing.

2.1 Shared objectives

The Kogarah Collaboration Area stakeholder group has identified six shared objectives to guide the area's growth and change. These objectives act as markers so that all future projects contribute to achieving the vision.

The Kogarah Collaboration Area is a place that:

- has a distinct identity with high quality green infrastructure and public spaces, and sporting and cultural facilities, to support wellness and wellbeing, and sustainably designed buildings concentrated around transport hubs
- has strong relationships and connections to major economic centres such as Sydney Airport and Port Botany and other health and education precincts at Westmead, Randwick and Bankstown
- provides seamless connectivity between health, financial and education institutions, Kogarah and Rockdale town centres and other nearby centres
- prioritises active, vibrant connections, with a focus on east-west walking, cycling and public transport links that reinforce a desirable place for people to dwell, work and live

provides accommodation for patients, students and professionals in hotels, serviced apartments and specialist student accommodation, and facilities that attract national and international visitors and support opportunities for research, collaboration and innovation

- is a healthy, resilient and efficient precinct, where sustainable transport, developments, water, energy, air quality and waste initiatives help to mitigate climate change risks.

Rockdale Town Centre and Kogarah North have established visions that are supported by this work.

Kogarah North Precinct will be a renewed neighbourhood village for the community – an authentic place where the community enjoys attractive and safe pedestrian and cycle paths and facilities, green infrastructure, and a variety of public open spaces.

Rockdale Town Centre will be easily accessible with a great public open space network and a strong civic focus, responding to the needs of a diverse and growing community and celebrating its historical and topographic setting.

2.2 Complex urban issues

Achieving a vibrant health, knowledge and wellness precinct with jobs, a mix of dwellings and a level of appropriate infrastructure requires a deliberate and coordinated effort to resolve impediments.

There are numerous issues facing Kogarah and these vary in size, scale and impact. These issues are spread across a variety of themes and create complexity for the growth of the Kogarah Collaboration Area over time. Achieving the vision requires cross council and multi-agency action to address these complexities including:

- the reduced frequency of train services and existing train services that operate beyond capacity
- impacts on traffic around Kogarah Town Centre when M6 Stage 1 is introduced
- the effect of topography, transport corridors, infrastructure barriers and limited wayfinding on the area's urban structure and legibility
- movement corridors limit access and complicate travel within and around the Collaboration Area
- pressure on and deficiency of existing open spaces, lack of access and poor quality of some open spaces and limited opportunities to deliver new open spaces
- limited urban tree canopy cover and high urban heat impacts and vulnerability
- increased development and additional dwellings in Kogarah North and Rockdale Town Centre that put pressure on existing infrastructure
- an adequate provision of student and key worker housing, as well as short to medium-term accommodation to support the health, knowledge and wellness core
- limited cultural infrastructure and night-time activities in the Rockdale and Kogarah town centres
- the interaction of two nearby yet disconnected centres, each with complementary functions
- limited connections to other economic centres and Greater Parramatta
- the requirement for a strong governance framework and Council partnership given the Collaboration Area is in two LGAs, two districts, and Kogarah is designated a Strategic Centre and Health and Education precinct

3

Summary of priorities and actions

	Connectivity			Liveability		
Priorities:	Priority 1: Create a transport network that meets immediate and future needs.	Priority 2: Provide integrated and connected movement options that balance movement and place	Priority 3: Enable digital connections to support knowledge-intensive jobs and potential for innovation	Priority 4: Plan for housing and accommodation for residents, workers and visitors to support economic activity	Priority 5: Encourage a flourishing culture and night-time economy	Priority 6: Create high quality public spaces and facilities that focus on wellness
Actions:	<p>Action 1: Review how existing transport networks service Kogarah Collaboration Area, including service frequency in peaks, and the ability to provide local access to jobs to meet strategic targets.</p> <p>Action 2: Investigate a future network of Rapid Bus Lines, better service frequencies and mass transit links from Parramatta to Kogarah, Randwick to Kogarah and Kogarah to Miranda.</p> <p>Action 3: Develop a place-based integrated transport strategy that includes a funding and implementation plan.</p> <p>Action 4: Identify and investigate how NSW Government-owned land can be used to build connections.</p> <p>Action 5: Initiate projects to encourage walking and cycling with schools and major employers.</p>	<p>Action 6: Use the Movement and Place framework to achieve the desired future character for streets and places in the Collaboration Area.</p> <p>Action 7: Revitalise the Muddy Creek corridor and other local creeks to:</p> <ul style="list-style-type: none"> • improve walking and cycling between Rockdale and Kogarah town centres • improve the interface with the creek line • create new open space and seamless connections between key places • create an east-west Green Grid connection linking major open spaces. <p>Action 8: Refine and plan for the Green Grid in the Collaboration Area.</p>	<p>Action 9: Use partnerships and technology to build connections and develop a digital data connectivity strategy.</p>	<p>Action 10: Investigate and identify locations for student and affordable housing, short-term accommodation and serviced apartments close to transport.</p>	<p>Action 11: Develop a Cultural Infrastructure Strategy and Cultural Program for the Collaboration Area focused on:</p> <ul style="list-style-type: none"> • Kogarah Town Centre • Rockdale Town Centre • Jubilee Stadium Precinct • Areas around major transport nodes, interchanges, hospitals and anchor institutions • Shopfront Youth Arts Precinct. <p>Action 12: Develop a night-time economy strategy for the Collaboration Area.</p>	<p>Action 13: Develop a Collaboration Area Urban Design Framework to provide a vision and coordinate actions for public spaces in the Collaboration Area that considers:</p> <ul style="list-style-type: none"> • the movement and place framework • government owned land • the Green Grid • resilience initiatives • precinct vision, brand and marketing • car parking • EV charging stations. <p>Action 14: Develop a master plan and public domain plan for the Collaboration Area that emphasises wellbeing, amenity, safety and safe crossings, cultural infrastructure and activity, with costing and funding plan.</p> <p>Action 15: Investigate opportunities for joint or shared use, multi-use spaces, sporting facilities and social infrastructure in existing and future spaces.</p>

Immediate imperatives

Action 3: Develop a place-based integrated transport strategy that includes a funding and implementation plan

Action 14: Develop a master plan and public domain plan for the Collaboration Area that emphasises wellbeing, amenity, safety and safe crossings, cultural infrastructure and activity, with costing and funding plan.

Action 16: Develop a vision, brand and marketing plan that creates an identity for the precinct and promotes the vision for the Collaboration Area.

Action 23: Develop a climate resilience strategy that:

- identifies climate change risks
- develops and implements an adaptation plan

Action 37: Establish an enduring precinct governance structure and group to deliver the actions in the Place Strategy which includes a partnership between Georges River and Bayside Council and with key anchor institutions in the Collaboration Area

Productivity		Sustainability			Governance
<p>Priority 7: Increase knowledge-intensive jobs and support the area's role as a health, knowledge and wellness precinct.</p> <p>Action 16: Develop a vision, brand and marketing plan that creates an identity for the precinct and promotes the vision for the Collaboration Area.</p> <p>Action 17: Identify and market areas of specialisation and key differentiators of the health, knowledge and wellness institutions and how they respond to emerging health issues.</p> <p>Action 18: Investigate the potential for alternative modes of care to alleviate pressure on health services, including collaboration with public and private hospitals.</p> <p>Action 19: Leverage international health and research connections for knowledge sharing, innovation, investment and economic development.</p> <p>Action 20: Investigate the potential for, and viability of, medical research institute associated with St George Public Hospital and investigate space for research activities to support the MRC.</p>	<p>Priority 8: Support the growth of education and next steps to tertiary education.</p> <p>Action 21: Leverage partnerships between Kogarah's primary, secondary and tertiary education institutions and encourage education uplift programs</p> <p>Action 22: Explore opportunities for an enhanced tertiary education presence in the Collaboration Area.</p>	<p>Priority 9: Mitigate and adapt to the impacts of climate change</p> <p>Action 23: Develop a climate resilience strategy that:</p> <ul style="list-style-type: none"> identifies climate change risks develops and implements an adaptation plan. <p>Action 24: Investigate a net-zero emissions plan that targets catalyst sites and projects and addresses:</p> <ul style="list-style-type: none"> precinct-based battery power renewable energy waste efficiency circular economy energy efficiency with large energy users the LED street lights program run by Ausgrid through SSROCs 'Lighting the Way'. <p>Action 25: investigate ways to mitigate the urban heat island effect for the Collaboration Area.</p>	<p>Priority 10: Prioritise sustainable transport, development and water and energy use and reduce waste</p> <p>Action 26: Explore precinct wide and site-specific energy efficiency initiatives, with a focus on NSW Government-owned land, high energy users and catalyst projects.</p> <p>Action 27: Address precinct wide and localised flooding and drainage issues through capital works projects and sustainability initiatives in the Rockdale Wetlands Corridor and Muddy Creek.</p> <p>Action 28: Prioritise renewable energy by:</p> <ul style="list-style-type: none"> auditing potential solar install sites increasing renewable energy percentage in the Power Purchase Agreement incentivising installation of renewable energy generators. <p>Action 29: Plan for sustainable development through controls for new buildings and higher BASIX targets.</p> <p>Action 30: Prioritise sustainable transport options.</p> <p>Action 31: Develop a precinct-wide water strategy.</p> <p>Action 32: Create a smarter waste economy by focusing on:</p> <ul style="list-style-type: none"> waste flow reduction organics recovery joint and localised waste recycling plants. 	<p>Priority 11: Protect and enhance the natural environment, increase the quantity, access to and quality of open space and enhance the urban tree canopy</p> <p>Action 33: Develop a biodiversity strategy, maintain a species list and enhance biodiversity protection through LEPs.</p> <p>Action 34: Map open space deficiencies, explore the expansion of open space, investigate acquisition of land for new open space and investigate initiatives for large roof surface areas and car parks for open space.</p> <p>Action 35: Increase the percentage of urban tree canopy in:</p> <ul style="list-style-type: none"> town centres and main streets areas with high pedestrian activity and high vulnerability and high urban heat island effect NSW Government-owned land including hospitals areas with low urban tree canopy cover Green Grid routes. <p>Action 36: Support the vision for a wellness precinct by investigating ways to maintain and improve air quality.</p>	<p>Priority 12: Establish precinct wide and cross council governance to ensure the success of the Collaboration Area into the future and deliver the vision.</p> <p>Action 37: Establish an enduring precinct governance structure and group to deliver the actions in the Place Strategy which includes a partnership between Georges River and Bayside Council and with key anchor institutions in the Collaboration Area.</p> <p>Action 38: Develop an infrastructure plan that includes funding requirements and innovative funding solutions.</p>

4

A collaborative process

Collaboration Areas are a place-based multi-stakeholder approach to solving complex urban issues, conducted over 12 months. The *Greater Sydney Region Plan* identifies Kogarah as a Strategic Centre, Health and Education Precinct and Collaboration Area, requiring a Place Strategy to realise the area's metropolitan role. The Collaboration Area process involved stakeholder engagement through workshops and discussions.

The process uncovered and explored the area's challenges and opportunities within the context of the NSW Government's strategic planning framework, and puts people and quality of public space, liveability and amenity considerations at the forefront of planning.

Figure 2: The Collaboration Area Process (GSC, 2019)



The Greater Sydney Commission, Bayside Council and Georges River Council established the Kogarah Collaboration Area stakeholder group in December 2018. This stakeholder group worked under a Collaboration Area Agreement that set out the shared vision and purpose, outputs and membership of the Kogarah Collaboration Area. The Commission chaired the stakeholder group, which includes:

- NSW Ambulance
- Create NSW
- Department of Planning, Industry and Environment
 - Place and Infrastructure Team
 - Greater Sydney Team
 - Energy Environment and Science Team
 - Public Spaces Team
 - Green and Resilient Places Team
 - Government Architect NSW
- Greater Sydney Local Land Services
- NSW Health - Health Infrastructure
- NSW Treasury – including former Jobs for NSW
- NSW Land and Housing Corporation
- Office of Sport
- Department of Education - School Infrastructure NSW
- South Eastern Sydney Local Health District
- South Sydney Regional Organisation of Councils
- St George Police Area Command
- State Emergency Service
- Sydney Water
- TAFE NSW
- Transport for NSW - including former Roads and Maritime Services
- University of New South Wales

The Commission also engaged other stakeholders who provided input through the Kogarah Collaboration Area Reference Group. This group was represented by:

- Advanced Diversity Services
- Catholic Archdiocese of Sydney
- Hot Desk Heaven
- Kogarah Community Services
- Rockdale Community Services
- St George and Sutherland Medical Research Foundation (SSMRF)
- St George Business Chamber
- St George Community Housing
- St George Community Transport
- Sydney Catholic Schools
- VC Enterprises
- Wesley Hospital Kogarah
- Westpac Bank (Property Division)

14 A collaborative process

4.1 Context

The *Greater Sydney Region Plan - A Metropolis of Three Cities* identifies Kogarah for its ability to achieve the vision for Greater Sydney as a 30-minute city. Kogarah will contribute to this vision for Greater Sydney in two key ways.

As a **strategic centre**, Kogarah is expected to accommodate high levels of private sector investment. The *South District Plan* specifies a baseline target of an additional 4,200 jobs and a higher target of 8,700 additional jobs in Kogarah by 2036.

The Kogarah Collaboration Area is also defined as a **health and education precinct**, which can form parts of centres and include major hospitals, universities and medical research institutions.

The following documents should be consulted alongside this Place Strategy to understand the wider policy context:

- *A Metropolis of Three Cities*: the NSW Government's 40-year vision and 20-year plan to rebalance growth and deliver benefits more equally and equitably to residents across Greater Sydney
- *Future Transport Strategy 2056 and the Greater Sydney Services and Infrastructure Plan*, focusing on the decisions the NSW Government needs to make now to address Greater Sydney's growth and change over the next 40 years
- *State Infrastructure Strategy 2018-2038*: the NSW Government's priorities for the next 20 years that, combined with the *Future Transport Strategy 2056* and *A Metropolis of Three Cities*, brings together infrastructure investment and land use planning for cities
- The *Eastern City and South District Plans*: translating the metropolitan-level objectives set out in *A Metropolis of Three Cities* to inform local planning
- *Aligning Movement and Place 2019* developed by the Government Architect NSW, this document provides a framework for balancing the movement and place functions of an area and ensuring that the value of place was considered as a critical element needed for the success of movement-based projects
- *2019-2022 Premier's Priorities* which represent the NSW Government's commitment to making a significant difference to enhance the quality of life of the people of NSW including:
 - **Greener Public Spaces** - Increasing the proportion of homes in urban areas within a 10-minute walk of quality green, open and public space by 10 per cent by 2023
 - **Greening our City** - Planting 1 million trees by 2022
 - **Improving service levels in hospitals** - 100 per cent of all triage category 1, 95 per cent of triage category 2 and 85 per cent of triage category 3 patients commencing treatment on time by 2023.
 - **Improving outpatient and community care** - Reduce preventable visits to hospital by five per cent through to 2023 by caring for people in the community.
 - **Towards zero suicides** - Reduce the rate of suicide deaths in NSW by 20 per cent by 2023.

Other strategies, policies and assessments that have informed this Place Strategy include:

- Bayside Council draft Transport Strategy Discussion paper
- Bayside Council draft Local Strategic Planning Statement (LSPS) and supporting studies
- Bayside Council Waste Avoidance and Resource Recovery Strategy 2030
- Bayside Council Community Strategic Plan
- Better Placed 2018 (GANSW)
- Georges River Council Community Strategic Plan 2018-2028 (Georges River Council)
- Cultural Infrastructure Plan 2025+ (Create NSW)
- Draft Greener Places (GANSW)
- Draft Principal Bicycle Network (TfNSW)
- Draft South Eastern Sydney Transport Strategy (TfNSW)
- F6 Stage 1 Extension EIS and Preferred Infrastructure Report (former RMS)
- Georges River Council Commercial Centres Strategy (2019)
- Georges River Council draft Local Strategic Planning Statement and supporting studies
- Georges River Cultural Strategy (Georges River Council)
- Georges River Economic Development Strategy 2018-2021 (Georges River Council)
- Journey to Excellence Strategy 2018-2021 (SES LHD)
- Kogarah Investment Attraction Strategy (Georges River Council)
- Kogarah New City Plan (Georges River Council)
- Kogarah North Precinct Master Plan and Public Domain Plan (Georges River Council)
- Public Space discussion paper (GANSW)
- Rockdale Town Centre Masterplan 2012 and Public Domain Plan (Bayside Council)
- St George Integrated Health Services Plan 2018 (SESLHD)
- Sydney Green Grid (GANSW)

Figure 3: Collaboration Areas within the framework of Region and District planning (GSC, 2019)



5

Framework and response

5.1 Alignment of priorities and actions in this Place Strategy

To deliver on the vision and shared objectives, this Place Strategy proposes 12 priorities and 38 actions. To align with *A Metropolis of Three Cities*, the *South District Plan* and *Eastern City District Plan*, the priorities and actions are set around five themes:

- connectivity
- liveability
- productivity
- sustainability
- governance.

Throughout the process, participants underscored the importance of appreciating the interrelations between the themes. Many also emphasised the Collaboration Area creates opportunities to simultaneously address multiple issues and areas. For example, delivering the green grid improves local connectivity, ecological outcomes, recreational opportunities and the local economy.

Priorities and actions that span multiple themes have been allocated to the chapter aligned with the structure of the *Eastern City* and *South District Plans*.

The following actions are immediate imperatives:

- **Action 3:** Develop a place-based integrated transport strategy that includes a funding and implementation plan
- **Action 14:** Develop a master plan and public domain plan for the Collaboration Area that emphasises wellbeing, amenity, safety and safe crossings, cultural infrastructure and activity, with costing and funding plan.
- **Action 16:** Develop a vision, brand and marketing plan that creates an identity for the precinct and promotes the vision for the Collaboration Area.
- **Action 23:** Develop a climate resilience strategy that:
 - identifies climate change risks
 - develops and implements an adaptation plan
- **Action 37:** Establish an enduring precinct governance structure and group to deliver the actions in the Place Strategy which includes a partnership between Georges River and Bayside Council and with key anchor institutions in the Collaboration Area

5.2 How to use this Place Strategy

This Place Strategy focuses on leveraging existing assets, networks and activity through a place-based framework. It is not primarily concerned with land use and development – rather, it guides stakeholder decision-making to achieve the Collaboration Area vision.

The Place Strategy illustrates an understanding of the Collaboration Area at a point in time. In time, some components may no longer be relevant. Its implementation requires a governance arrangement that gives industry, institutions, State agencies and other partners a roadmap for interactions, investment and development.

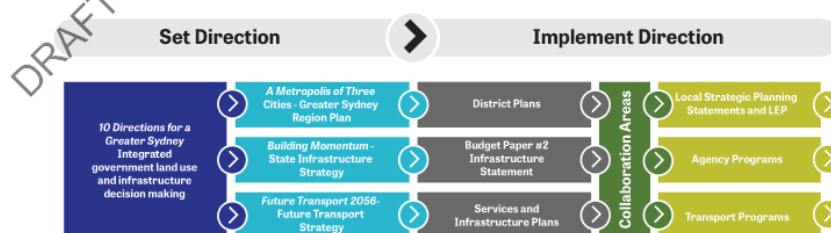
The Place Strategy uses the following terms:

- **Priorities:** The focus areas to progress *A Metropolis of Three Cities, South District Plan* and *Eastern City District Plan*
- **Outcomes:** What the realised priority will achieve by 2036

- **Actions:** Initiatives and projects that stakeholders will lead to realise the outcome
- **Immediate imperatives:** actions of critical importance to be undertaken early
- **Lead:** Stakeholders that provide project management and expertise to implement the action
- **Partner:** Stakeholders who collaborate with leads, assist with integration through their own agency programs, resourcing, technical assistance and advice
- **Considerations and next steps:** guidance on the core focus and potential next steps for each action (see Appendix 1 – Transition to Implementation)

These elements are detailed in the following chapters. They should be considered with those set out in *A Metropolis of Three Cities* and the district plans, current legislation and NSW Government-endorsed policies.

Figure 4: Collaboration Areas within the framework of State Plans



6

Connectivity

6.1 Analysis of opportunities and challenges

Kogarah as a 30-minute city

At present, the Collaboration Area's road and rail connections, and proximity to Sydney Airport and Sydney CBD mean that many people living in the area can access jobs and services within 30 minutes. Approximately 184,000 dwellings are within 30-minute access of Kogarah by public transport. Compared to other strategic centres, such as Liverpool, the number of people able to access Kogarah within 30-minutes is greater. Whilst Kogarah's catchment is large, access is primarily along the north south train corridor, including to the Harbour CBD and south to Miranda. There are limited connections from Kogarah to other major economic centres to the west and east including Bankstown, Parramatta and Randwick.

Future transport priorities

Over the next 20 years future transport infrastructure projects will catalyse the Kogarah health, knowledge and wellness precinct. Transport for NSW's (TfNSW) *Future Transport 2056* identifies the following future projects to better connect to the west and further east:

- **0-10-year investigation** for on-road rapid transit links for buses and high efficiency vehicles between Greater Parramatta and surrounding strategic centres such as Kogarah.
- **10-20-year investigation** of a Parramatta to Bankstown, Hurstville/Kogarah rapid bus link and Parramatta to Kogarah mass transit link
- **20+ year visionary** extension of a south east mass transit train link from Randwick to Miranda via Sydney Airport and Kogarah.

As a result of these links, Kogarah Station will evolve into an interchange with mass transit buses and heavy rail and will enable greater access to other economic centres.

In the short to medium term, major transport projects including the More Trains, More Services program will address travel demand to enhance 30-minute access and address existing connectivity issues that face the area.

Future Transport 2056 also identifies a Movement and Place Framework. This is a framework that assists in balancing the movement and place functions of an area and ensuring that the value of place is considered as a critical element needed for the success of movement-based projects.

[Appendix 2](#) details the Movement and Place Framework for the Collaboration Area, which should be considered alongside planning for new transport.

Travel demand management

People who work or study in Kogarah tend to live nearby, with 49 per cent of all commuter trips between 2.5 and 10 kilometres.² TAFE NSW students commute from different parts of Greater Sydney to Kogarah. In 2018, around 37 per cent of students lived within five kilometres from the TAFE NSW St George campus, 27 per cent from between 5 to 10 kilometres and the remainder (36 per cent) beyond 10 kilometres.³

However, despite their relative proximity, most people travel to Kogarah by car. In 2016, 58 per cent of journeys to work in the Collaboration Area were by car, with just 15 per cent by train and 2 per cent by bus⁴. Supporting mode shift away from cars will help to manage travel demand as the area grows and changes and will contribute to the area being a desirable place to live, work and dwell.

² Australian Bureau of Statistics Census of Population and Housing 2016 Destination zone - Journey to work by distance

³ TAFE NSW St George Campus 2018 Enrolments by Postcode

⁴ Australian Bureau of Statistics Census of Population and Housing 2016 Destination zone - Journey to work by mode

Figure 5: Sydney's population within 30 minutes of Kogarah Strategic Centre AM Peak (TfNSW, 2019)



20 Connectivity

Walking

Between 2010 and 2017, the Kogarah Collaboration Area saw a lower number of kilometres walked per dwelling compared to averages for the South District, Eastern City District and Greater Sydney.⁵ This number is declining, indicating that fewer people may be walking, or people are walking shorter distances.

Several factors discourage walking within the Collaboration Area at present, including:

- a poor pedestrian environment characterised by a lack of quality public spaces and low-quality pedestrian crossings and footpaths
- high traffic speeds and complex intersections on main roads, leading to concerns with pedestrian safety
- urban structure including long blocks and large distances between road crossings points, particularly moving east-west across major corridors

- lack of wayfinding compounded by discontinued sight lines
- traffic noise and pollution

However, in areas where streets are closed to pedestrians and sheltered from surrounding traffic, street life is vibrant and pedestrian space is well used, as is the case in King Street shown in Figure 6.

New spaces that are pedestrian priority will support revitalisation in the area including around the future Kogarah Station's transport interchange to support the influx in transport patrons. Similarly, future upgrades of the Rockdale and Kogarah Stations could address the north south barriers of the train line through better station design, interfaces and links across the corridor for pedestrians.

Figure 6: King Street, Rockdale Town Centre (GSC, 2019)



⁵ Kinesis CCAP City Platform Journey to work data and dwelling numbers

Opportunities to deliver improved pedestrian links to provide seamless connectivity in and around the precinct and to other areas have also been identified through:

- Master Plans for the Rockdale Town Centre and parts of Kogarah
- St George Hospital masterplan
- using the T4 Eastern Suburbs & Illawarra train line corridor as a Green Grid link discussed in the [Sustainability Chapter](#).
- improving Keats Avenue as a key north-south walking connection between Rockdale and Kogarah linking to the Muddy Creek Channel.

Kogarah Town Centre's main streets, highways and corridors interface over council boundaries and with State-managed roads. Complex governance arrangements can be addressed through a joint approach to key streets and corridors that draws on the Movement and Place Framework for the Collaboration Area (See [Appendix 2](#)).

Cycling

Cycling infrastructure is currently limited, disconnected and low quality. It is not well integrated across council boundaries, which limits access between the centres, and to open space and the coastline. The most direct link between Rockdale and Kogarah town centres is the Princes Highway, a hostile environment for pedestrians and cyclists. Concerns around safety and lack of facilities dissuades students using cycling as a mode of transport.

New or enhanced cycling infrastructure is proposed under the following projects:

- Kogarah North and Rockdale Town Centre master plans
- Bayside Council's draft Bike Plan
- TfNSW's Principal Bicycle Network (PBN) to connect to other major regional nodes

- concept designs for the M6 Stage 1 show a new shared cycle path, pedestrian pathways, boardwalk and grade separated connection over President Avenue

- a master plan to rehabilitate the Muddy Creek open and provide a walking and cycling link alongside the channel

There are opportunities to work with TAFE NSW, Schools – including the Kogarah Cluster Group, a group of school principals in the Kogarah Town Centre - and businesses in the area, to encourage walking and cycling to schools and work as an alternate mode of transport.

Public transport

Public transport accounts for a small but growing proportion of transport within the Collaboration Area. In 2016 only 16 per cent of journeys to work by residents in the Collaboration Area were by bus or train; of which 15 per cent were by train.⁶ Just twenty-eight per cent of all kilometres travelled in 2015-16 in the Collaboration Area were by bus or train.⁷

There are limited rail and bus links to other employment centres including Parramatta, Bankstown and the Randwick Health and Education Precinct, which has strong linkages to the UNSW St George and Sutherland Clinical School.

Demand for **train travel** is high, with Kogarah identified as the 19th busiest station in the Sydney Trains network in the AM peak in 2014.⁸ The number of kilometres travelled by train per dwelling in the Collaboration Area is growing, with a more significant increase (29 per cent) in the number of kilometres travelled by train between 2014 and 2015.⁹ 83 per cent of workers who commute from Kogarah to the Sydney CBD for work do so by train.¹⁰

While the Collaboration Area is close to Sydney Airport, the airport station access fee limits the appeal of travelling there by train.

⁶ Australian Bureau of Statistics Census of Population and Housing 2016 destination zone - journey to work by mode

⁷ Kinesis CCAP City Platform

⁸ TfNSW Bureau of Transport Statistics *Train Statistics 2014* p.42 <https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/Train%20Statistics%202014.pdf>

⁹ Kinesis CCAP City Platform Australian Bureau of Statistics Census of Population and Housing Census of Population and Housing 2016 journey to work kilometres data by number of dwellings

¹⁰ TfNSW Bureau of Transport Statistics *Train Statistics 2014* p.22 <https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/Train%20Statistics%202014.pdf>

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Train travel on the T4 Eastern Suburbs & Illawarra train line is affected by:

- congestion due to population growth outside the Collaboration Area, including at Wolli Creek and in the Sutherland Shire. The line operates at capacity between Bondi Junction and Wolli Creek.
- the track bottleneck between Sutherland and Hurstville, which is currently considered the most significant network bottleneck on Sydney's suburban rail network, limits service frequencies.
- the 2013 timetable changes, which had a number of impacts including reduced service frequencies. These changes were focused on benefits for users beyond Kogarah including an extended peak period and reduced peak period crowding on trains.

Demand for train services to and from the Collaboration Area as jobs and student places increase will require a review of service frequency in peak periods, infrastructure investment to increase service frequencies at Kogarah and Rockdale, and alternative public transport services. The NSW Government's \$831 million digital signalling trial, which aims to increase line capacity, and the More Trains, More Services program will address these issues by improving capacity on the T4 Eastern Suburbs & Illawarra Line through increased frequency of services. This will enhance Kogarah's access and strengthen relationships with other economic centres.

Bus services, running along a few main streets, link to many destinations, with passengers entering the Collaboration Area primarily originating from Brighton Le Sands, Bexley, San Souci, Beverley Park, Monterey, Hurstville, Mascot, Ramsgate Beach, Caringbah and Ramsgate.¹¹ Demand for bus services from the south into Kogarah is creating capacity issues, and bus reliability is affected by:

- low travel speeds at major intersections
- major infrastructure corridors and challenging crossing points, which affect bus manoeuvring

Interchange between trains and buses is focused on Rockdale, at the dedicated bus interchange on both

sides of the station. Kogarah Station will be a future key interchange with buses, mass transit and heavy rail, creating opportunities for better access to the rest of Greater Sydney.

St George Community Transport commenced a grant-funded trial shuttle bus in February 2019. This connects to key services, stations, hospitals and aged care facilities in the area and connects Hurstville, Kogarah and Rockdale. The trial is inhibited by the limited number of locations where the bus can stop legally for passengers to board and alight. A review of the bus network, interchanges and stopping locations will ensure services cater to current and future demand and can support Kogarah Station as it evolves into a transport interchange and destination with efficient connections.

Private vehicles and parking

People residing in the area have low car ownership and low and declining private vehicle use. For example, the number of kilometres travelled per dwelling by private car as a passenger and driver declined between 2010 and 2017. Average car use is 47 per cent less than the Greater Sydney average, 46 per cent less than the South District average and slightly lower than the Eastern City District average.

Car use is particularly low in areas adjacent to the T4 Eastern Suburbs & Illawarra train line and stations. In 2016-17, car ownership in the Collaboration Area averaged 1.6 cars per dwelling. It has been consistently lower than the Greater Sydney and South District average and slightly higher than the Eastern City District.

Major road-based movement corridors bisect the Collaboration Area, including the Princes Highway which services about 40,000 vehicles a day. Future road-based projects will affect vehicle congestion, movement and road corridor character. These projects include:

- **The M6 Stage 1** which aims to link the new M5 to Kogarah via a twin tunnel. This project will redirect road traffic and freight underground. Early studies show it could reduce vehicle movements in segments of the Princes Highway north of President Avenue by around five per

¹¹ TfNSW 2016 Opal Trip counts – Buses

Figure 7: Connectivity opportunities and challenges for the Collaboration Area



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cent¹² and reduce the number of trucks on surface roads by more than 2,000 a day by redirecting them into the tunnel.¹³

- TfNSW's **Road Network Plan for the Princes Highway** will guide the future character of this corridor and prioritise works for the short, medium and long term.

The presence of these major road corridors impacts casualty crash rates, which are above average. This is linked to high pedestrian traffic, unsafe crossings and tensions between vehicles and pedestrians in and around major transport nodes and town centres. The redirection of vehicle movements enables change in character of existing movement corridors into places for people, space to promote alternative modes of transport and ability to address safety issues. It will reduce noise and emissions associated with vehicles. However, tunnel related pollution management may create lower air quality for the Collaboration Area in certain areas.

Limited commuter parking near Rockdale Town Centre causes road congestion and public safety issues, and park and ride facilities at Kogarah Station are well utilised. A precinct-wide parking strategy for parking will help to prioritise walking and cycling in the town centres by identifying parking demand. Expected influence of emerging technology, such as autonomous vehicles, car parking and car sharing can promote a shift away from private car use and aid prioritisation of active connections.

Freight

Road and rail freight routes traverse the Collaboration Area. The future M6 Stage 1 will become the primary freight route. Until then, the Princes Highway, though defined as a secondary freight route, is currently the most important freight corridor for the area. Rocky Point Road, President Avenue and Bay Street are tertiary freight routes and all local streets can accommodate local freight services. The T4 Eastern Suburbs & Illawarra train line is part of the rail freight network that connects

Port Kembla and the Illawarra to the Sydney Rail Freight Network. This function will continue.

Less freight, vehicle volumes and noise, combined with public space improvements, better public transport and road space reallocation to walking, cycling and public transport will help to create more attractive local places on several streets and in local centres.

Digital connectivity

Current digital connectivity needs to be improved to enable a high performing health, education and wellness precinct due to lack of appropriate digital infrastructure. Projects are underway to address digital connectivity including:

- the rollout of the NBN, anticipated to arrive in the Collaboration Area between January and June 2020.
- public wi-fi - available at Rockdale Library, King Street Place, Kogarah Library and Kogarah Square.
- the delivery of the ChillOut Hub on Belgrave Street, Kogarah including Wi-fi, smart furniture and charging points

Bayside and Georges River Councils planning will create enhanced digital connectivity through broader public wi-fi capability, sustainability programs driven through data analytics, enhanced online and smartphone services and community safety programs supported by electronics.^{14 15}

However, investment in high speed fibre and advanced wireless internet infrastructure is needed to support innovation, a digitally collaborative culture and a technology-enabled precinct.

¹² RMS F6 Stage 1 New M5 Motorway at Arncliffe to President Avenue at Kogarah Environmental Impact Statement October 2018 Chapter 8 p78

¹³ RMS F6 Stage 1 New Motorway at Arncliffe to President Avenue at Kogarah Project Overview June 2018 p3

¹⁴ Georges River Council Georges River Council Discovery Paper 2019


¹⁵ Bayside Council Bayside Council Digital Strategy 2019

6.2 Connectivity Priorities and Actions

The following priorities and actions underpin the vision for the Kogarah Collaboration Area, while also giving effect to *A Metropolis of Three Cities* and the district plans (including planning priorities and actions). Note shortened terms are listed on page 2.

Priority 1 Create a transport network that meets immediate and future needs.		
Outcome Transport sufficiently services the needs of the area and supports planning for future growth.		
Actions	Lead	Partners
Action 1: Review how existing transport networks service Kogarah Collaboration Area, including service frequency in peaks, and the ability to provide local access to jobs to meet strategic targets.	TfNSW	BC, GRC
Action 2: Investigate a future network of Rapid Bus Lines, better service frequencies and mass transit links from Parramatta to Kogarah, Randwick to Kogarah and Kogarah to Miranda.	TfNSW	BC, GRC
Action 3: Develop a place-based integrated transport strategy that includes a funding and implementation plan	TfNSW	BC, GRC, DPIE – PDPS
Action 4: Identify and investigate how NSW Government-owned land can be used to build connections.	BC, GRC, TfNSW	DoE, TAFE NSW, SESLHD, DPIE – PDPS
Action 5: Initiate projects to encourage walking and cycling with schools and major employers.	TfNSW, DoE, Kogarah Cluster Group	BC, GRC, GANSW, SESLHD, Anchor institutions

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Priority 2 Provide integrated and connected movement options that balance movement and place		
Outcome People have several movement options to connect to, from and within the Collaboration Area..		
 Actions	Lead	Partners
Action 6: Use the Movement and Place framework to achieve the desired future character for streets and places in the Collaboration Area	BC, GRC, TfNSW, GANSW, DPIE - PDPS	
Action 7: Revitalise the Muddy Creek corridor and other local creeks to: <ul style="list-style-type: none"> improve walking and cycling between Rockdale and Kogarah town centres improve the interface with the creek line create new open space and seamless connections between key places create an east-west Green Grid connection linking major open spaces 	BC, GRC, Sydney Water, TfNSW	DPIE - PDPS
Action 8: Refine and plan for the Green Grid in the Collaboration Area	BC, GRC, TfNSW, DPIE - PDPS	GANSW, GSC, Sydney Water

Priority 3 Enable digital connections to support knowledge-intensive jobs and potential for innovation		
Outcome With an increase in knowledge-intensive jobs, individuals and organisations can easily connect locally and internationally.		
 Actions	Lead	Partners
Action 9: Use partnerships and technology to build connections and develop a digital data connectivity strategy.	BC, GRC	NBN, Anchor institutions, Local businesses, 5G network providers, TfNSW, NSW Treasury, DPIE

7

Liveability

7.1 Analysis of opportunities and challenges

Dual centres and established character

The Collaboration Area is supported by the town centres of Rockdale and Kogarah. Where Rockdale Town Centre provides civic services, Kogarah Town Centre has a focus on health, knowledge and wellness jobs and services. Future planning of these centres needs to ensure that uses and activities complement each other to support residents, students, workers, visitors, institutions and businesses.

Rectilinear street networks and rear laneways in Kogarah and Rockdale Town Centres support local access and movement within the precinct. Outside of these town centres, the Collaboration Area's rich history contributes to its character. Many smaller neighbourhoods have their own unique character and structure which can be leveraged and strengthened to provide a unique experience of the place and reinforce Kogarah as a destination.

Changing community demographics

The Collaboration Area community is changing. Families with children are forecast to remain the dominant household type in Kogarah. However, single person households are expected to see the most growth.¹⁶ New housing in Kogarah North is expected to attract predominantly young singles and couples (people aged 18 to 29). As a result, the

number of births in the area is expected to increase.¹⁷

The community is culturally diverse, with 41% of the population born overseas in 2016¹⁸, a decrease from 44% in 2011. China and Nepal are the largest countries of origin for the Collaboration Area's migrant population.

The Collaboration Area's resident population is estimated to grow from 67,887¹⁹ to 92,644 residents by 2036.²⁰ The future community is projected to comprise a diverse cultural mix, young population, non-resident workforce and ageing population.

Social infrastructure

The growing and changing Collaboration Area community will require a range of hard and soft social infrastructure. Housing diversity and affordability, activated Town Centres, green urban spaces and places for culture, entertainment, and recreation underpin quality of life.

New immigrant communities need welcoming and accessible services and a range of spaces for people to connect and feel included in their community.²¹ Services and facilities for students and workers are needed to align with the area's 24-hour hospital activities.

Providing social infrastructure in the area is complex given the different jurisdictions and regulatory restrictions. The Collaboration Area provides an opportunity to address these complex governance arrangements to ensure that infrastructure meets the needs of the community.

¹⁶ Profile .id Forecast household types maps 2016 to 2036 percent change and 2036 number

¹⁷ Georges River Council Draft Evidence Base for Local Housing Strategy prepared by ID January 2019

¹⁸ Australian Bureau of Statistics Census of Population and Housing 2016, 2011 Census of Population of Housing, Population by place of usual residence

¹⁹ Australian Bureau of Statistics Census of Population and Housing, 2011. SA2 Level data including Bexley, Kogarah, Kogarah Bay- Carlton-Allawah and Rockdale-Banksia.

²⁰ Transport for NSW Employment Projections 2011-2056. SA2 level data including Bexley, Kogarah, Kogarah Bay- Carlton-Allawah and Rockdale-Banksia.

²¹ Georges River Council Draft Open Space, Recreation and Community Facilities Strategy 2018

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Cultural infrastructure

Create NSW's cultural infrastructure mapping shows a limited number of cultural infrastructure assets in Kogarah and Rockdale. However, Georges River Council's Cultural Strategy identified 51 sites of cultural activity (refer to Figure 8) in the area including:

- **Kogarah School of Arts** used for theatrical performances, concerts, balls and events, art and education classes, community workshops and meetings, as well as St George Art Society exhibitions.
- **Kogarah Library and the St George Community Centre** host curated collections, programs and events both during the day and after hours.
- **Rockdale Town Hall**, a performing arts and theatre space.
- **The Guild Theatre**, a performing arts theatre with a community theatre group.
- **Shopfront Arts in Carlton** is the only dedicated youth-led arts organisation in southern Sydney and Illawarra region. It is expanding to become a significant youth cultural precinct.

Developing cultural spaces and clustering creative activities is needed. Identifying opportunities to embed arts and culture into local government assets, NSW Government properties and in public spaces can expand cultural infrastructure in the area and respond changing demographics to ensure that culture flourishes.

Sport and recreational infrastructure

The dispersion and availability of community sport infrastructure is limited across the Collaboration Area. Rockdale Wetlands Corridor is the primary source of multiple sporting and recreational facilities including baseball, a PCYC, cricket nets, sporting fields, tennis courts and multi-use courts. These facilities have very high usage.

Georges River Council's Draft **Jubilee Stadium Precinct** Master Plan is at business case stage. It recommends the redevelopment and enhancement of the site to expand fitness and wellness offerings. It also explores 24-hour child care and parking for key workers and visitors of the Collaboration Area.

Schools

There are many schools in the area which have varying utilisation. The 12 schools are in the area which provide education for approximately 4,000 students including:

- six high schools, including a selective school for girls, two single sex public high schools and an Orthodox secondary College for boys
- four primary schools
- one K-12 Boys Christian College and;
- a school for specific purposes.

High school catchments go beyond the Collaboration Area, meaning the capacity of these schools is mixed. Kogarah High School is at capacity while Moorefield Girls and James Cook High remain under capacity.

Kogarah's status as a strategic centre will place additional pressure on these schools, requiring detailed asset planning to take place to cater to change and demand to ensure that this comprehensive education offering is maintained.

Some Schools have sportsfields and playgrounds that could be used to supplement open space access in the area.

Figure 8: Netstrata Jubilee Stadium. Source: Georges River Council



Figure 9: Kogarah School of Arts. Source: Georges River Council



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Retail and shopping

The retail offering in the area is limited. Shopping and retail services are provided in the Collaboration Area at:

- **Kogarah Shopping Centre** within Kogarah Station provides a local supermarket and specialty stores
- **Rockdale Plaza** is the primary supermarket and specialty retail in Rockdale
- fine grain shops line **Railway Parade** along the train line in Kogarah Town Centre and along the **Princes Highway** in Rockdale Town Centre.

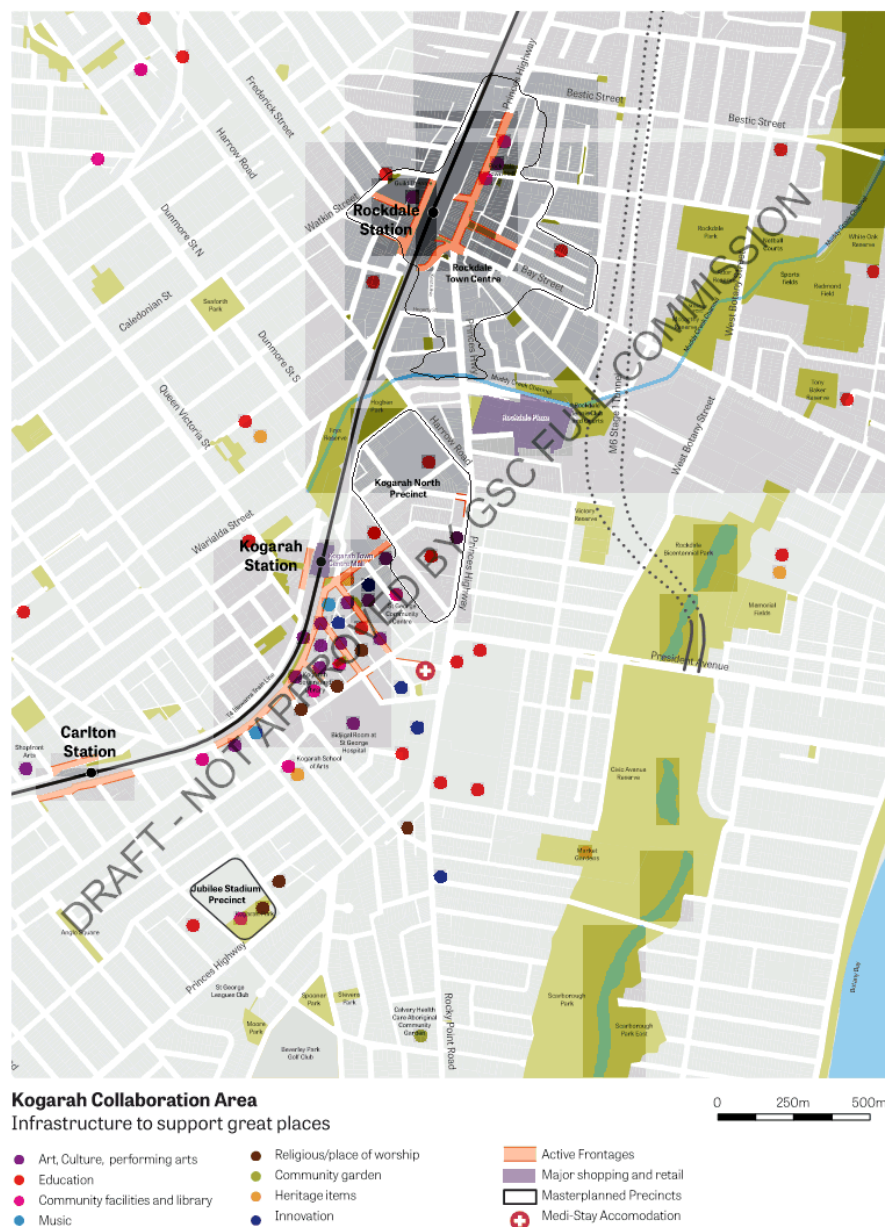
Shops lining the Princes Highway make a limited contribution to the local economy due to the highway's high vehicle volumes and freight noise. The wide road corridor limits connectivity between shops on each side (Refer to Figure 10).

Further, the limited night-time activity and government services do not align with the 24-hour nature of a health and tertiary education services in the area. Night life in town centres could be expanded and laneways activated to provide new places for people and night time activities, enhancing the vibrancy of the area. This can also contribute to increased passive surveillance and safety in the area. Future upgrades of the Jubilee Stadium could improve the attractiveness of the precinct more and provide additional food and beverage options.

Figure 10: Interface of Rockdale Town Centre with the Princes Highway (GSC, 2019)



Figure 11: Infrastructure to support great places in the Collaboration Area (GSC, 2019)



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Housing and accommodation

Housing and accommodation requirements for a health, knowledge and wellness precinct are varied. For visitors, the length of stay fluctuates, and housing offering needs to meet the needs of the changing demographic. This creates demand for a range of accommodation types. Councils' housing strategies will, in detail, determine the type of housing needed to suit the changing population into the future.

The Collaboration Area is experiencing a shift away from traditional lower density housing types and changing demographics. For example, in 2016, 61 per cent of dwellings were apartments in a building with more than four storeys, 26 per cent were in apartment buildings less than four storeys, townhouses, semi-detached or terraces and 25 per cent were detached houses.²² This is linked to high proportions of single person households (18 per cent).²³

Rental stress and lack of **affordable housing** is an issue for very low-income households and residents. Lack of specific policies or guidelines make delivery of assets difficult. Job targets further prompt a need for housing for key workers.²⁴ Mechanisms to deliver affordable housing need to be investigated. Local not-for-profit and community-based organisations are investigating opportunities in the area.

NSW Land and Housing Corporation own only a few **social housing** assets in the area. This is an historical trend; with former Kogarah LGA having the lowest percentage of social housing of all LGAs in Greater Sydney. Housing for females over 55, one-bedroom apartments and accessible accommodation have been identified as areas of need by LAHC. Partnering with other organisations that have land in the area will create opportunities to deliver new social housing assets.

Demand for **short-term accommodation** is created by specialised trauma and acute services, visitors for conferences and business-related travel. Medi-hotel accommodation is emerging in Kogarah Town Centre and short-term accommodation options are increasing in Rockdale Town Centre. Student accommodation is required to support the TAFE NSW campus and future enhanced tertiary presence in the area.

The potential redevelopment of the **Netstrata Jubilee Stadium** provides opportunities for a hotel and/or serviced apartments and conference facilities for small conventions, elite training camps or intercity and interstate visitors to events at the stadium.

Movement and place

As part of the Collaboration Areas process, the stakeholder group piloted the Movement and Place Framework, applying it at a place, precinct and corridor level for key places, neighbourhoods and precincts (Figure 12). This builds on work already undertaken by Council and will evolve as projects are triggered across the Collaboration Area. This framework consists of an opportunities and challenges map, agreed desired future character for streets and places, and challenges and barriers for delivery. It assigns actions to various agencies. More detail is available in Appendix 2 – Movement and Place Framework for implementation.

²² Australian Bureau of Statistics *Census of Population and Housing 2016, Census of Population of Housing 2011, Dwellings by place of enumeration by dwelling structure*

²³ Australian Bureau of Statistics *Census of Population and Housing 2016, Census of Population of Housing 2011, Dwellings by place of usual residence by dwelling structure*

²⁴ Georges River Council *Commercial Centres Strategy*, 2019, p12

Figure 12: Movement and Place Framework for the Kogarah Collaboration Area (GSC, 2019)



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7.2 Liveability priorities and actions

The following priorities and actions underpin the vision for the Kogarah Collaboration Area, while also giving effect to *A Metropolis of Three Cities* and the district plans (including planning priorities and actions) and the Premier's Priorities.

Priority 4

Plan for housing and accommodation for residents, workers and visitors to support economic activity

Outcome

The Collaboration Area includes a range of housing at a variety of price points and accommodation for short, medium and long-term stays

**Actions****Lead****Partners**

Action 10: Investigate and identify locations for student and affordable housing, short-term accommodation and serviced apartments close to transport

BC, GRC, DPIE

St George Community Housing, Landowners, Community housing providers, TfNSW

Priority 5

Encourage a flourishing culture and night-time economy

Outcome

The vibrant culture and the night-time activities provide a diversity of options for residents, visitors and workers

**Actions****Lead****Partners**

Action 11: Develop a Cultural Infrastructure Strategy and Cultural Program for the Collaboration Area focused on:

- Kogarah Town Centre
- Rockdale Town Centre
- Jubilee Stadium Precinct
- Areas around major transport nodes, interchanges, hospitals and anchor institutions
- Shopfront Youth Arts Precinct


BC, GRC

HI, SINSW, TAFE NSW, UNSW, TfNSW, NSW Police, Create NSW

Action 12: Develop a night-time economy strategy for the Collaboration Area

BC, GRC

FACS, SESLHD, DoE, Office of Sport, TfNSW, DPIE – PDPS, Create NSW, Small Business Commission, St George Business Chamber, Bayside Business Chamber

Priority 6 Encourage a flourishing culture and night-time economy		
Outcome The vibrant culture and the night-time activities provide a diversity of options for residents, visitors and workers		
 Actions	Lead	Partners
Action 13: Develop a Collaboration Area Urban Design Framework to provide a vision and coordinate actions for public spaces in the Collaboration Area that considers: <ul style="list-style-type: none"> the movement and place framework government owned land the Green Grid resilience initiatives precinct vision, brand and marketing car parking EV charging stations 	BC, GRC	GANSW, DPIE-PDPS
Action 14: Develop a master plan and public domain plan for the Collaboration Area that emphasises wellbeing, amenity, safety and safe crossings, cultural infrastructure and activities with costing and funding plan.	BC, GRC	TfNSW (M6 Team) Sydney Metro (into the future), DPIE-PDPS Group, GANSW, HI
Action 15: Investigate opportunities for joint or shared use, multi-use spaces, sporting facilities and social infrastructure in existing and future spaces.	BC, GRC	SINNSW, Create NSW, TAFE NSW, UNSW, TfNSW, Sydney Metro, SESLHD, Office of Sport, DPIE – PDPS, Kogarah Cluster Group

8

Productivity

8.1 Analysis of opportunities and challenges

Economic profile and evolution

The Collaboration Area plays a significant role in the economy, contributing \$3.5 billion to Australia's GDP and provides employment to 21,209 workers²⁵. The Kogarah Strategic Centre is a significant contributor to jobs and the economy for the South District with 11,800 jobs estimated in the area in 2016.²⁶ Between 2007 and 2016, the number of jobs in the Kogarah Collaboration Area increased 2.4 per cent on average each year. On these trends, the area will accommodate around 50,100 jobs and contribute \$5.5 billion to the economy by 2036. Into the future, Kogarah will grow to become a stronger centre in the South District that leverages its future connectivity.

The Collaboration Area's businesses and institutions are large contributors to employment and provide a range of jobs. However, the area's main strengths lie in its health, knowledge and wellness jobs. For example, in 2016, hospitals, finance and medical and other health care services were the top three industries in the area.

Figure 13 reflects a specialisation in health care and social assistance where the growth of jobs in this sector is outpacing the Greater Sydney average. It also reflects an increase in the number of people working in construction, financial and insurance services, professional, scientific and technical services and healthcare and social assistance. Employment in manufacturing and retail trade has declined, in line with trends across Greater

Sydney.

Over time, changes in employment, business and commercial activities have directly influenced the Collaboration Area. The key changes affecting the area over the past 12 years is illustrated in Figure 14.

The existing cluster of health, knowledge and wellness industries in the Kogarah Town Centre provide a significant source of employment and add \$1.4 billion to the local economy.²⁷ Whilst there is an existing cluster of health services in the area, the absence of a large research and university presence means the area is currently identified as in the 'cluster' phase on the maturity pathway. Attracting an enhanced tertiary presence to the area and leveraging the health, knowledge and wellness assets in the area will enable the precinct to evolve and mature over time.

Westpac Bank's headquarters located on Montgomery Street in Kogarah Town Centre, is a major contributor to the precinct's economy and provides many of the jobs in the financial services sector. As an important anchor tenant for the area, its presence in Kogarah should be retained to strengthen the area's economic resilience.

Baseline and higher job targets (16,000 and 20,500 respectively) are identified by the South District Plan for Kogarah strategic centre and include employment-generating uses in the area. A proportion of these targets will be provided within the Kogarah Town Centre, which currently has 163,529sqm floor space and 50 vacant commercial premises²⁸.

²⁵ PwC GEM modelling tool 2019

²⁶ Greater Sydney Commission South District Plan March 2018

²⁷ .id Profile, Georges River Council and Bayside Council Economic Profile 2016

²⁸ Georges River Council Draft Commercial Centres Strategy - Part 1 Centres Analysis, 2019

Figure 13: Industry Specialisations and changes in employment in the Kogarah Collaboration Area compared to Greater Sydney 2011 - 2016 (DPIE and ABS, 2016)

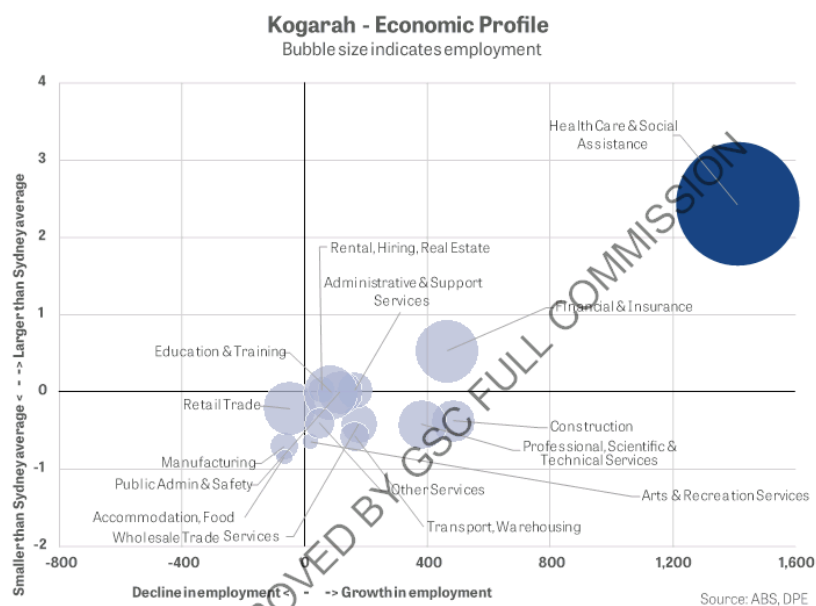
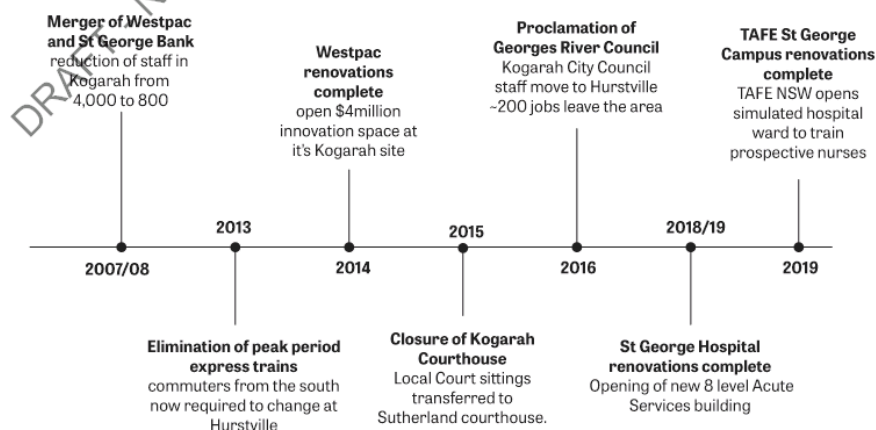


Figure 14: Changes affecting productivity in the Kogarah Collaboration Area (GSC, 2019)



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To meet employment targets, the Kogarah Town Centre will accommodate between 448,360 and 504,602sqm total employment floor space.²⁹ Current planning controls do not enable this to be delivered. Sites will need to be protected for future commercial development and enable jobs creation to support the evolution of the precinct and in line with its vision.

Whilst specialisations are emerging through health and financial services sectors and research, innovation and wellness activities, the complex interrelationships between the different sectors and activities are not currently known.

Revealing and leveraging the alignment and complementary offering of health services and other specialisations in the Collaboration Area will help to create a unique identity and economic offering. Creating unified branding and narrative for the health, knowledge and wellness precinct will further elevate the area and its vision. This will build on Georges River Council's Kogarah Investment Attraction Strategy, which draws on Kogarah's strengths and future vision.

Health and wellness

There are major medical services in the Collaboration Area, some of which are co-located, that provide services to improve population health and community wellbeing. Together create an ecosystem that together support a health and wellness precinct. These anchor institutions include:

- **St George Hospital** - a major teaching hospital of the University of NSW and is a tertiary referral centre providing over 3,000 jobs and is a Level 1 Trauma Centre for SESLHD.
- **St George Private Hospital** - adjacent to the public hospital, is a 280-bed facility and one of the largest and most comprehensive private hospitals in Australia with around 1,000 staff.
- **Calvary Health Care Kogarah** - provides specialist palliative care and rehabilitation services and is one of the largest sub-acute hospitals in NSW with around 500 staff members serving around 12,500 patients a year.
- **Wesley Hospital Kogarah** - a not-for-profit hospital that focuses on treating drug and alcohol,

Figure 15: St George Public Hospital Kogarah (SESLHD, 2019)



²⁹ Georges River Council Draft Commercial Centres Strategy - Part 1 Centres Analysis, 2019

mental health and eating disorders and employs approximately 50 people. The hospital primarily provides services to the local community.

Previous and future investment is identified for many of these institutions. The primary purpose of investment is to meet existing demand and includes major upgrades to existing assets and sites.

The St George hospital has been upgraded over the last five years, and future upgrades are in the pipeline:

- \$43.7 million for a new emergency department, opened in October 2014
- \$277 million expansion which included an eight-level acute services building, completed in 2019.
- \$385 million planned future investment in an ambulatory care unit, outpatient and day surgery services, day rehabilitation unit, increased sub-acute inpatient beds and a hub for community health and home-based services on the existing campus footprint.

A \$25 million redevelopment is currently underway at St George Private Hospital, including a footbridge that links the existing main building to a new facility on South Street.

Wesley Hospital Kogarah are looking to expand but their current site is landlocked and is constrained by planning controls. Co-location and integration on other sites in the area could enable its further expansion.

These major medical services are supported by an ecosystem of allied health, wellbeing and fitness facilities. These include Netstrata Jubilee Stadium, physiotherapy and sports medicine, gyms, yoga studios, seniors' fitness and dance classes. Together with major health institutions in the area, they create a strong foundation for a wellness focussed precinct.

Knowledge

Along with the healthcare and social assistance industry, the professional, scientific and technical services industry is a major employer in the Collaboration Area.³⁰ The presence of jobs in these sectors is attributed to the Westpac Bank head office on Montgomery Street, research work, and several NSW Government and Council-owned facilities that serve the local community.

Innovation is also emerging through several initiatives across these sectors. The tertiary presence provided by TAFE NSW and UNSW's clinical school contribute to knowledge generation in the precinct.

Financial and professional services

Jobs in the Westpac offices are mainly technology-based, with around 2,500 staff who work flexibly between Kogarah and other Westpac offices including Barangaroo.

The Westpac Kogarah building has adequate infrastructure potential to support additional uses including a newly renovated interior, stand-out atrium to attract businesses and partners, meeting rooms and an auditorium. However, the building has strict building access requirements which limits the ability to provide co-working or collaborative spaces.

Westpac's innovation space known as 'the Hive'

is in the offices and enables the bank to test and develop ideas for new products and services for its 12 million-plus customers, contributing to the presence of innovation in the Collaboration Area.

³⁰ id Profile, Kogarah Industry Sector of Employment 2016

40 Productivity

Education

Alongside the 12 schools in the area, **TAFE NSW St George** provides a tertiary presence across four sites, with over 120 courses offered to around 4,000 students. The main campus is near the public and private hospitals and provides courses across industry areas including as electrotechnology, nursing, aged care and community services, ICT, building and construction, carpentry, business services and adult migrant english program. Building M on Montgomery Street offers courses in fine arts and graphic design and Building H on Hogben Street is rented out to private enterprise. TAFE NSW St George has a relationship with local high schools to provide technical and vocational education and training (TVET) to students in years 10 to 12. The campus also has a specialist training centre, which includes simulated hospital wards.³¹

Similarly, the **UNSW St George and Sutherland Clinical School** operates at both St George and Sutherland Hospitals. St George Hospital has been a major teaching hospital since 1966. Approximately 300 staff are employed by or formally affiliated with the school. It offers postgraduate research positions in a diverse range of areas including cancer biology, immunology, rheumatology, renal medicine, regenerative medicine, intensive care, microbiome and others.³² The school is located on the St George Hospital Campus Site within a space owned and managed by the SESLHD.

Whilst TAFE NSW St George and the Clinical School together provide a tertiary presence in the area, establishing a university campus in the Collaboration Area will create jobs and develop tertiary education and research, further establishing the comprehensive education offering in the area.

Figure 16: Westpac's atrium space in St George House on Montgomery Street (HASSALL, 2019)



³¹ Mark Courie MP, NSW Government Open \$4.2 million Health Training Facility at TAFE NSW St George, 2019, <https://www.markcourie.com.au/media/media-releases/nsw-government-open-42-million-health-training-facility-tafe-nsw-st-george>
³² St George & Sutherland Clinical School, About us, <https://stgcs.med.unsw.edu.au/about-us>

Research

While there is no medical research institution in the Collaboration Area, research is emerging through several initiatives:

- **The St George & Sutherland Medical Research Foundation (SSMRF)** is an independent, not-for-profit body that raises awareness and funds for research at St George and Sutherland hospitals and new research. The foundation established the Microbiome Research Centre (MRC) in the St George Hospital's Research and Education Building in August 2019, a collaboration between UNSW and SESLHD. It is UNSW-owned and operated with funding provided by SSMRF and SESLHD.
- The **Microbiome Research Centre** itself provides a business model that links all research on campus. A Professor of Medicine and associated research team has been appointed in association with the UNSW. Once fully established, the MRC's research will contribute to at least eight of the nine Australian National Health Priority Areas.³³ With existing research labs in the centre almost at capacity, additional spaces are needed to enhance the research offering in the area. The MRC is an innovator in research as Australia's first research centre dedicated to studying the microbiota and has global relationships.³⁴
- The **Research and Education Centre** on South Street Kogarah has purpose-built research laboratories for research into cancer, haematology and immunology.
- SESLHD's investigation of alternative model of care including their **Hospital in the Home Service (HITH)**³⁵ and telepath opportunities
- **Optimus Clinical Research** undertakes clinical trials for rheumatic diseases.
- The **Clinical Skills Centre** has two simulation rooms, three seminar rooms, a lecture room and

a breakout area. It also supports post graduate surgical training.

- A branch of the **Women's Health & Research Institute of Australia** in the Blue Shield Specialist Medical Centre at Kogarah undertakes clinical trials in a number of female related health issues.
- The **Centre for Research in Nursing and Health** in St George Hospital undertakes research around chronic disease management, patient safety and health and cultural diversity.
- the **research centre at Calvary Health Care Kogarah**, is one of four virtual research sites across the Calvary Health network.³⁶

This existing presence of research and innovation offers opportunities to leverage new and existing local and international partnerships and networks. Investigating the potential for a medical research institution presence and supporting the existing research currently underway in the area will enable the evolution and maturity of the precinct and foster innovation.

³³ UNSW, Microbiome Research Centre officially opens, 2019, <https://newsroom.unsw.edu.au/news/health/microbiome-research-centre-officially-opens>

³⁴ The Leader, Microbiome Research Centre opens at Kogarah, 2019, <https://www.theleader.com.au/story/6281274/photos-from-vision-to-reality-gut-study-centre-opening-marks-innovative-steps/>

³⁵ The Leader, St George Hospital launches The Hospital in the Home (HITH) service for patients, 2019, <https://www.theleader.com.au/story/6344327/patient-comfort-plan-with-hospitals-new-in-home-service/>

³⁶ Calvary Care, Calvary launches the new Palliative and End of life Care Research Institute, 2017, <https://www.calvarycare.org.au/blog/2017/11/29/calvary-launches-the-new-palliative-and-end-of-life-care-research-institute/>

42 Productivity

Industrial and urban services land

The Collaboration Area has industrial precincts that are well located between Sydney Airport, Port Botany and the Sydney CBD at **Production Avenue** and **West Botany Street**. These areas primarily contribute to the 1,219 Collaboration Area's jobs in the industrial sector in 2016.³⁷ Jobs have reduced by 27 per cent since 2011, reflecting national trends of the decline in manufacturing.

The relationship between industrial areas and health and knowledge industries could be a foundation for skills development in highly technical sectors. Proximity to the airport could drive the development of an advanced manufacturing and freight and logistics hub in the area. Flexible employment areas for potential research and development or fabrication functions will be valuable to the health, knowledge and wellness core. There may also be opportunities to connect with schools in the area.³⁸ New industries and businesses attracted to these areas will likely take different forms differ from traditional manufacturers, meaning areas may look and feel more like business parks than industrial developments.³⁹

Figure 17: West Botany Street Industrial Area (GSC 2019)




³⁷ Australian Bureau of Statistics Census of Population and Housing 2016, "Destination Zones - Jobs by Industry Sector"

³⁸ Georges River Council draft Employment Strategy 2019


³⁹ Bayside Council Bayside Centres and Employment Lands Strategy Background Paper, prepared by SGS Economics and Planning, May 2019

8.2 Productivity priorities and actions

The following priorities and actions underpin the vision for the Kogarah Collaboration Area, while also giving effect to A Metropolis of Three Cities and the district plans (including planning priorities and actions).

Priority 7 Increase knowledge-intensive jobs and support the area's role as a health, knowledge and wellness precinct		
Outcome There are more knowledge-intensive jobs and Kogarah is recognised as a health, knowledge and wellness precinct		
 Actions	Lead	Partners
Action 16: Develop a vision, brand and marketing plan that creates an identity for the precinct and promotes the vision for the Collaboration Area	BC, GRC	Business chambers Local businesses Anchor institutions
Action 17: Identify and market areas of specialisation and key differentiators of the health, knowledge and wellness institutions and how they respond to emerging health issues	SESLHD, HI, UNSW, TAFE NSW, DoE, St George Private Hospital, Wesley Hospital Kogarah, Westpac Bank	BC, GRC, Existing private and allied health service providers and businesses
Action 18: Investigate the potential for alternative modes of care to alleviate pressure on health services, including collaboration with public and private hospitals	SESLHD	BC, GRC, Private hospitals
Action 19: Leverage international health and research connections for knowledge sharing, innovation, investment and economic development	SESLHD, BC, GRC	SSMRF, Medical research institutions, UNSW, NSW Treasury, TAFE NSW
Action 20: Investigate the potential for, and viability of, medical research institute associated with St George Public Hospital and investigate space for research activities to support the MRC	BC, GRC, SESLHD, SSMRF, UNSW	MRC, Research institutes, NSW Health & Medical Research, TAFE NSW

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Priority 8 Support the growth of education and next steps to tertiary education		
Outcome There is a seamless connection and strong partnership between primary, secondary and tertiary education in the area, and an enhanced tertiary education presence		
 Actions	Lead	Partner
Action 21: Leverage partnerships between Kogarah's primary, secondary and tertiary education institutions and encourage education uplift programs	DoE, UNSW, TAFE NSW	NSW Treasury, SSE
Action 22: Explore opportunities for an enhanced tertiary education presence in the Collaboration Area.	BC, GRC	UNSW, Other universities

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9

Sustainability

9.1 Analysis of opportunities and challenges

Landscape, biodiversity and waterways

Scenic landscapes, recreational facilities, biodiverse areas, coastline and parklands are nearby the Collaboration Area and contribute to the area's natural environment and the community's wellbeing. These include the Rockdale Wetlands Corridor, Bardwell Valley and Muddy Creek.

The area is framed by many waterways including Botany Bay to the east, the Cooks River to the north and the Georges River to the south. Many of these have poor water quality. Other local waterways traverse the area underground. Several Sydney Water assets that traverse the area have capacity for growth while others need renewal.

These landscape and water assets and facilities contribute to the area's attractiveness and character and create a natural setting fit for a wellness precinct.

Muddy Creek is a concrete channelised creek that runs diagonally through the precinct. The channel is fenced with some segments in need of renewal. It currently does not add to the area's attractiveness. Naturalisation of the channel presents an opportunity to address multiple challenges facing the area, including retaining water in the landscape to mitigate urban heat impacts and extending the Green and Blue Grid into the Kogarah Town Centre and creating links to other open spaces and waterways.

Protecting the natural environment and exploring new ways to supply and manage stormwater and wastewater in an integrated, cost effective and sustainable way will improve waterway health. It will also contribute to health of the population.

Enhancing existing biodiversity and reinstating native vegetation will improve longevity of the ecosystem and its ability to adapt and respond to climatic changes. Targeted public tree planting and stronger biodiversity protection in land use planning controls can enhance biodiverse links between natural areas

Green Grid

Green Grid connections in the Collaboration Area are identified in the *South and Eastern City District Plans* (see Figure 18). These connections include:

- Rockdale Wetlands Open Space Corridor (priority project)
- T4 Eastern Suburbs & Illawarra train line from Kogarah to Sutherland (project of district importance)

The links need to be refined to align with streets and to reflect local conditions, opportunities and potential for delivery. The development of a finer grain Green Grid that builds on work done in the Kogarah North and the Rockdale Town Centre Master Plans will integrate the walking, cycling and biodiversity network with links to natural assets.

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Urban tree canopy

The suburbs of Kogarah and Rockdale have just 11 to 15 per cent urban tree canopy cover,⁴⁰ this is very low when considered against the NSW Government target of 40 per cent cover in Greater Sydney by 2036.⁴¹ The Premier has set a priority to plant one million trees across NSW by 2022 to help achieve this long-term target.

Open spaces, school sites, lower density housing areas and the TAFE Campus on Princes Highway provide higher percentages of urban vegetation. The Kogarah and Rockdale town centres and hospital sites provide less than 10 per cent cover (see Figure 18).⁴²

Overhead wires and excessive pruning contribute to the loss of urban tree canopy and limit opportunities for new planting. Increasing the urban tree canopy is challenging as new developments result in canopy loss and large floorplate buildings in centres leave little space for planting.

Investigating multiple opportunities to plant trees, including reallocating road space, car parking, planting trees on private and government-owned land and along active transport routes can assist in increasing urban tree canopy.

Open space

The provision of open space in Kogarah and Rockdale town centres is low, and residential areas are further than 400-metres of open space⁴³. Existing open spaces are small, limiting flexibility and function. Many have low levels of embellishment and do not meet community need. New development places additional pressure on existing spaces, compounding reliance on spaces outside the town centres.

The Rockdale Wetlands Corridor to the east contains recreational and sporting infrastructure. It is difficult to access due to indirect connections, few access points, major north-south infrastructure barriers and poor walking and cycling amenity. Future direction for NSW Government-owned land and the Stage 2 and 3 of the M6 are required to understand the Corridor's future recreational value.

New public spaces, through-site links and upgrades in new precincts or projects are planned through master planned areas. Increasing the number of homes within a 10-minute walk of open space is a Premier's Priority that will improve the quality of, and access to, open space. Council-owned sites, schools and health and education facilities can be used to address this priority. Additional work is required to plan for public spaces into the future to promote amenity, population health and community wellbeing.

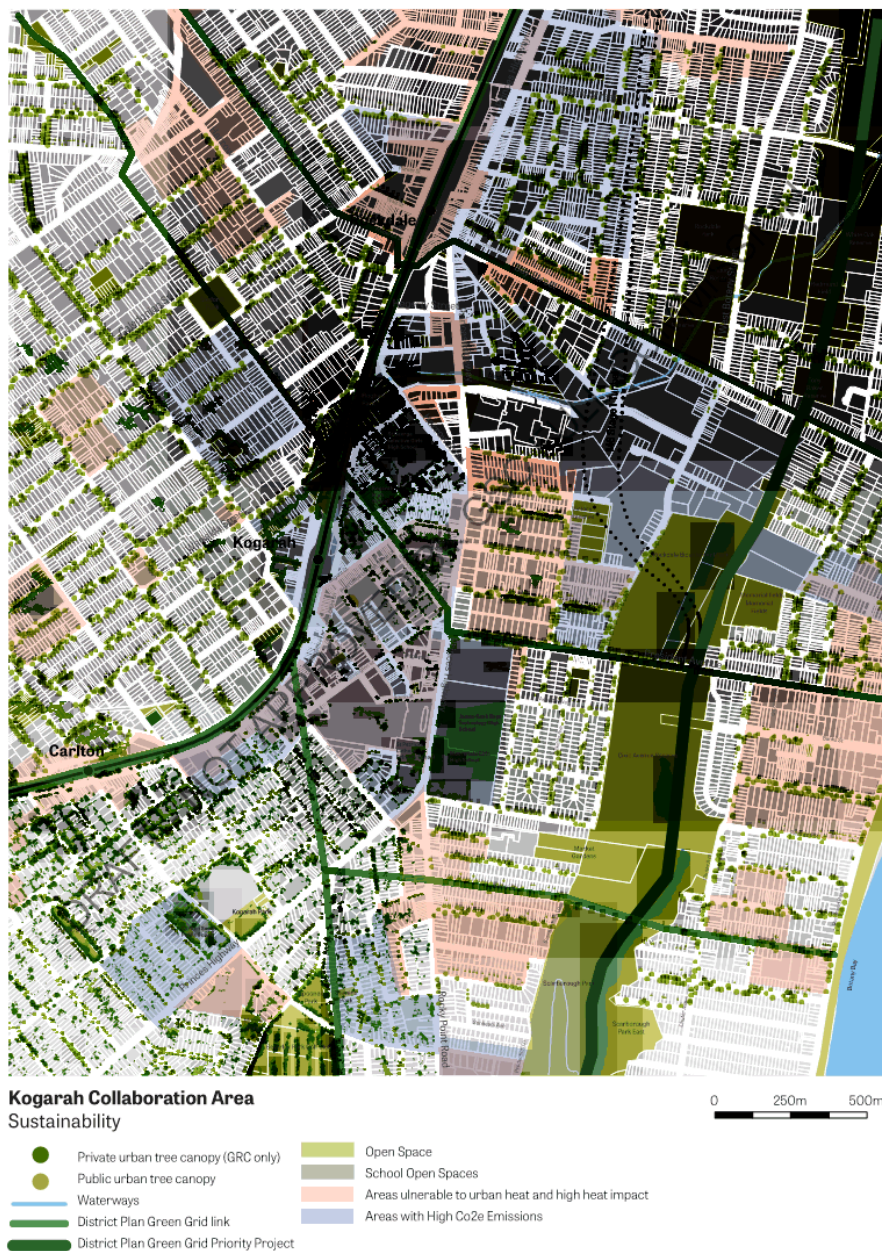
⁴⁰ NSW Department of Planning, Industry and Environment, Five Million Trees for Greater Sydney – Local Government Grant Program 2018-19 Guidelines, 2018

⁴¹ Government Architect NSW Urban Tree Canopy Guide Draft for Discussion Issue No-1, 2018

⁴² SEED Data portal Percentage of urban vegetation

⁴³ Greater Sydney Commission South District Plan March 2018 p 105

Figure 18: Sustainability challenges for the Kogarah Collaboration Area Source: Greater Sydney Commission



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Energy

The Collaboration Area has high energy consumption, with total emissions in 2016-17 (256,651 tonnes of CO₂e⁴⁴) accounting for 10 per cent of the combined emissions of Georges River and Bayside LGAs. This high consumption is attributed to the predominant land uses including health care activities, which requiring high quality, conditioned spaces and critical equipment, and the large educational institutions and industrial areas.

The NSW Government has an aspirational long-term objective of achieving net-zero emissions by 2050. The *Eastern City District Plan* (Action 74) and *South District Plan* (Action 72) support initiatives that contribute to this objective through the establishment of low-carbon precincts in Collaboration Areas.

The top five largest sectors contributing to emissions in the Collaboration Area in 2015-16 were:

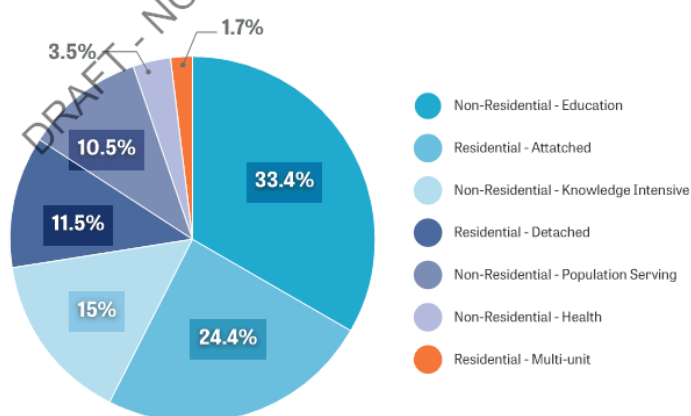
- multi-unit residential areas (33.4 per cent)
- health sector (22.8 per cent)
- population-serving sector (18.3 per cent)
- detached residential areas (15.9 per cent)
- knowledge intensive sector (10.7%).

The major source of emissions in the residential and non-residential sectors were electricity, transport and waste. In 2035-36, electricity, gas and transport will remain as the highest emission generators if mitigation initiatives are not implemented. Figure 19 illustrates the projected emissions for the Collaboration Area by sub sector in 2035-2036.

Increasing population growth places demand on the energy grid, which has limited capacity. This poses a threat to the resilience of the Collaboration Area, and prompts a need to investigate renewable energy generation, storage and target high energy users to reduce consumption. Community, government and industry engagement around energy consumption and mitigation initiatives can establish an energy culture that can achieve net zero emissions.

High-density development and newly constructed buildings offer opportunities to address emissions amongst other sustainability initiatives. Investigation of mechanisms such as planning controls, higher BASIX targets, sustainably designed buildings and energy efficient targets can contribute to a resilient urban environment.

Figure 19: Projected percentage of carbon emissions by subsector in the Kogarah Collaboration Area 2035-36 (Kinesis CCAP Platform, 2019)



44 Kinesis CCAP City Platform – total carbon emissions by destination zone – accessed 3 September 2019

Waste

Waste consumption carbon emissions in the Collaboration Area is above the Greater Sydney average. Waste consumption accounted for 10.6 per cent of the area's carbon emissions in 2015-16.⁴⁵ Composting and organics collection are not provided in the area and the closest organics transfer stations are at capacity. To better manage waste in the area, Councils have leveraged domestic waste contracts to provide basic commercial waste service to almost all Kogarah businesses. Georges River Council's red bin collection currently achieves 56 per cent waste diversion.

Increasing population places pressure on waste services, prompting the need to better manage waste through avoidance, resource recovery and waste diversion. Opportunities to better manage waste in the area include:

- identifying a location for a new organics transfer station to enable collection into the future.
- joint recycling facilities combined loading docks to divert waste from landfill while also reducing truck movements.
- improvement to future contracts and use of models being developed by NSW Treasury
- partnering with SSROC and UNSW's Sustainable Materials Research & Technology (SMaRT) centre to efficiently manage resource recovery and deliver a circular economy
- further place-based and targeted educational programs will focus on high waste producers to elevate work already underway.

Water

Residential water consumption in the Collaboration Area is high. Detached dwelling consumption rate is higher than the average of all housing types in Greater Sydney and accounted for 42 per cent of total consumption in the Collaboration Area in 2015-16. Approximately 50 per cent of the water within detached housing is being used for toilets, laundry or outside watering. Multi-unit dwellings also consume a significant portion of water in the area, 34.1 per cent. In the non-residential sector, health is the largest consumer of water (49.8 per cent), followed by the population-serving sector (14.6 per cent) and knowledge-intensive sector (17.5 per cent).

Targeted water efficiency strategies are required for high consumers to reduce demand on potable water and compounding impacts on water infrastructure already under pressure. The large number of sites in the Collaboration Area with expansive roof areas can help to capture rainwater for re-use. Alternative sources of water supply from other additional re-use schemes, including sewer mining, could assist in water conservation within the Collaboration Area, and enable a resilient and efficient precinct.

Sustainable transport

Transport is a large contributor to carbon emissions in the Collaboration Area, accounting for 15 per cent of total emissions in 2015-16.⁴⁶ Despite the number of kilometres travelled per dwelling by private car is 47 per cent lower than the Greater Sydney average, an embedded driving culture is evident in the area. This makes it challenging to radically change driver behaviour and movement.

Travel demand management will support the transition to sustainable modes of transport and emissions reduction. This is also discussed in Chapter 6 - Connectivity. However, parking and driving initiatives need to be incremental, based on education and supported by alternative transport. New transport initiatives will provide alternative travel options. Multi modal strategies involving stakeholders and institutions will help to change the culture and promote public transport and support an efficient healthy and resilient urban environment.

⁴⁵ Kinesis CCAP City Platform carbon emissions by sector and destination zone - Accessed 3 September 2019
⁴⁶ Kinesis CCAP City Platform - Carbon emissions by source - Accessed 3 September 2019

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Climate change, urban heat and pollution

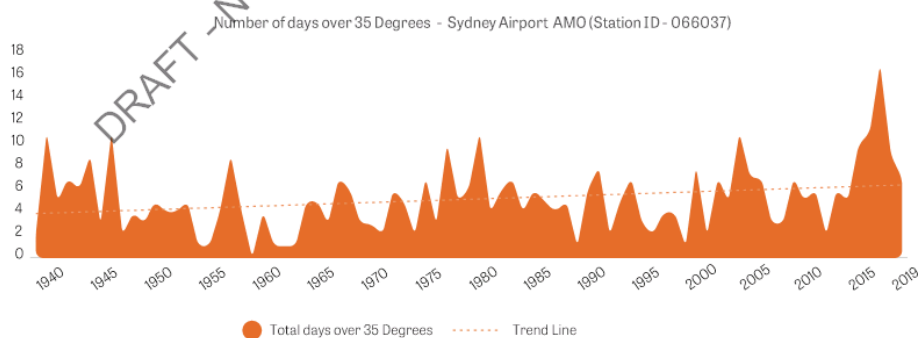
The impacts of climate change are already being realised in the Collaboration Area. Data from the Australian Bureau of Meteorology shows that at Sydney Airport – only 4.3 kilometres from Kogarah – there has been an upward trend in the number of days over 35 degrees between 1939 and 2019, with a spike to 17 days over 35 degrees in 2017.⁴⁷

Parts of the Collaboration Area are exposed to heatwaves and extreme heat as a result of the urban heat island effect, and climate change will exacerbate increasing temperatures and exposure. This exposure to heat creates health risks for the local community. Neighbourhoods in the area are vulnerable to urban heat, with a vulnerability index of 5, the most vulnerable. This index utilises indicators for exposure, sensitivity and adaptive capacity to monitor where populations are more vulnerable to heat.⁴⁸ The area also has instances of high heat impact, with some areas nine degrees warmer than baseline temperature (see Figure 20). These areas are clustered around the town centres, and large government-owned sites and buildings, including the St George Public Hospital.

Retaining water in the landscape and integrating waterways in the design of new communities, increasing tree canopy cover and improving building design and materials will assist in mitigating urban heat and will ensure that population health and community wellbeing are promoted.

Air and noise pollution impact the Collaboration Area, primarily from busy roads and the nearby Sydney Airport and Port Botany. In addition, future motorway entries and ventilations stacks nearby will impact the area. High air quality levels will need to be maintained to meet the vision for a health and wellness precinct and high amenity urban environment.

Figure 20: Number of days over 35 degrees at Sydney Airport between 1939 and 2019 (Australian Bureau of Meteorology, 2019)




⁴⁷ Australian Bureau of Meteorology Climate Data Online – Number of days over 35 Degrees Sydney Airport AMO <http://www.bom.gov.au/climate/data/index.shtml>


⁴⁸ Department of Planning, Industry and Environment SEED data portal

9.2 Sustainability priorities

The following priorities and actions underpin the vision for the Kogarah Collaboration Area, while also giving effect to *A Metropolis of Three Cities* and the District Plans (including planning priorities and actions).

Priority 9 Mitigate and adapt to the impacts of climate change		
Outcome The precinct is climate change resilient, with precinct-wide strategies and an action plan to address climate change risks and impacts		
 Actions	Lead	Partners
Action 23: Develop a climate resilience strategy that: <ul style="list-style-type: none"> identifies climate change risks develops and implements an adaptation plan 	BC, GRC	DPIE – EES, Resilient Sydney, SSROC, SESLHD
Action 24: Investigate a net-zero emissions plan that targets catalyst sites and projects and addresses: <ul style="list-style-type: none"> precinct-based battery power renewable energy waste efficiency/circular economy energy efficiency with large energy users the LED street lights program run by Ausgrid through SSROC Lighting the Way 	BC, GRC, DPIE-EES, HI, Anchor institutions	SSROC
Action 25: Investigate ways to mitigate the urban heat island effect for the Collaboration Area	BC, GRC	HI, DPIE-EES

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Priority 10 Prioritise sustainable transport, development and water and energy use and reduce waste		
Outcome People are more likely to use sustainable transport and live or work in high quality developments that incorporate sustainability, water and energy. The contribution of waste to carbon emissions is minimal		
 Actions	Lead	Partners
Action 26: Explore precinct wide and site-specific energy efficiency initiatives, with a focus on NSW Government-owned land, high energy users and catalyst projects.	BC, GRC, Relevant State agencies	DPIE – EES, Resilient Sydney, SSROC
Action 27: Address precinct wide and localised flooding and drainage issues through capital works projects and sustainability initiatives in the Rockdale Wetlands Corridor and Muddy Creek	DPIE – EES, BC, GRC, Sydney Water	SES
Action 28: Prioritise renewable energy by: <ul style="list-style-type: none"> auditing potential solar install sites increasing renewable energy percentage in the Power Purchase Agreement incentivising installation of renewable energy generators 	BC, GRC, DPIE – EES, State Government	HI, SINSW, UNSW, TAFE NSW, Energy suppliers, SSROC
Action 29: Plan for sustainable development through controls for new buildings and higher BASIX targets	BC, GRC	DPIE
Action 30: Prioritise sustainable transport options	BC, GRC, TfNSW	Anchor institutions, TAFE NSW
Action 31: Develop a precinct-wide water strategy	BC, GRC, Sydney Water	TfNSW, DPIE – EES, DPIE-PDPS, SES, TAFE NSW
Action 32: Create a smarter waste economy by focusing on: <ul style="list-style-type: none"> waste flow reduction organics recovery joint and localised waste recycling plants 	BC, GRC	DPIE – EES, SSROC, Resilient Sydney, Anchor institutions, NSW Circular Economy Innovation Network, UNSW Sm@rt Centre

Priority 11

Protect and enhance the natural environment, increase the quantity, access to and quality of open space and enhance the urban tree canopy

Outcome

New and protected natural assets, the increase in the quantity, quality and access to open space and a broader urban tree canopy cool the area, provide for biodiversity and provide more attractive places and spaces.

 Actions	Lead	Partners
Action 33: Develop a biodiversity strategy, maintain a species list and enhance biodiversity protection through LEPs	BC, GRC	DPIE – EES
Action 34: Map open space deficiencies, explore the expansion of open space, investigate acquisition of land for new open space and investigate initiatives for large roof surface areas and car parks for open space	BC, GRC	TAFE NSW, TfNSW, SINSW, HI, DPIE – PDPS, GANSW, Kogarah Cluster group, Office of Sport
Action 35: Increase the percentage of urban tree canopy in: <ul style="list-style-type: none"> town centres and main streets areas with high pedestrian activity and high vulnerability and high urban heat island effect NSW Government- owned land including hospitals areas with low urban tree canopy cover Green Grid routes 	DPIE – EES, DPIE – PDPS, BC, GRC, UNSW	HI, SINSW, TAFE NSW, UNSW
Action 36: Support the vision for a wellness precinct by investigating ways to maintain and improve air quality	BC, GRC, TfNSW	

10

Governance

Many government and non-government partners are collectively responsible for achieving the vision for Kogarah Collaboration Area. A transparent and efficient governance structure will drive the achievement of the Place Strategy's vision, priorities and actions.

10.1 Analysis of opportunities and challenges

With the Collaboration Area traversing two LGAs, both Georges River and Bayside Councils proactively support the ambitions for the health and education precinct and strategic centre. Master planning Rockdale Town Centre and Kogarah North Precinct and both local strategic planning statements reflect the ambitions for Kogarah Collaboration Area.

Both councils are proactively supporting the vision for a health, knowledge and wellness in the area through:


- master planning for Rockdale Town Centre and Kogarah North Precinct
- aligning local strategic planning statements with the work of the Kogarah Collaboration Area.
- Georges River Council's Investment Attraction Strategy, 2050 Vision, Economic Development Strategy, Reputation Strategy and the draft Jubilee Stadium Precinct Master Plan.
- Bayside Council's Centres and Employment Lands Strategy Background Paper (May 2019)
- Bayside Council's Housing Strategy Background Paper (March 2019) including complementary and supporting functions of the Rockdale Town Centre as a population-serving centre.
- Bayside Council's Waste Avoidance and Resource Recovery Strategy 2030

The presence of health, research and education providers and the potential for additional providers to participate in the development of the Collaboration Area requires a place-based governance arrangement. This arrangement must focus on economic development, use a coordination function that relies on influence rather than directives and create strong relationships across sectors.

The Collaboration Area process and Place Strategy will inform stakeholder decision-making and help to align investment as the area evolves into a health and knowledge precinct that continues to foster innovation.

10.2 Governance priorities

The following priorities and actions underpin the vision for the Kogarah Collaboration Area, while also giving effect to *A Metropolis of Three Cities* and the district plans (including planning priorities and actions).

Priority 12 Establish precinct wide and cross council governance to ensure the success of the Collaboration Area into the future and deliver the vision		
Outcome A precinct wide and cross council governance group unites multiple stakeholders and anchor institutions to realise the vision for the Collaboration Area		
 Actions	Lead	Partner
Action 37: Establish an enduring precinct governance structure and group to deliver the actions in the Place Strategy which includes a partnership between Georges River and Bayside Council and with key anchor institutions in the Collaboration Area	BC, GRC, GSC, Stakeholder group, Anchor institutions	
Action 38: Develop an infrastructure plan that includes funding requirements and innovative funding solutions.	BC, GRC	DPIE, TfNSW, HI, DoE, TAFE NSW, UNSW

11

Next steps

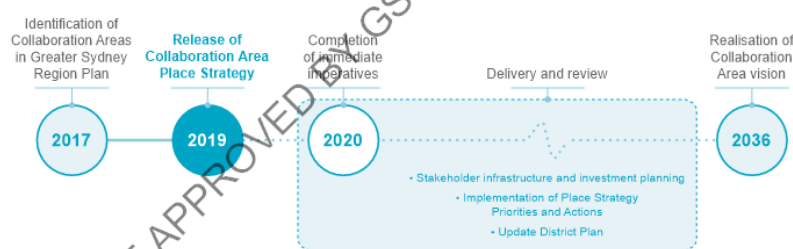
Implementing the Place Strategy's priorities and actions requires a collective approach from all stakeholders, various levels of government and the private sector.

Following the release of this Place Strategy, the focus will be on the immediate imperatives and accelerating the delivery of the actions identified for the Collaboration Area.

Review of the Place Strategy will be required to ensure that the strategy remains up-to-date, and is reflected in the District Plans.

Many stakeholders have a role to play in realising the vision of this Place Strategy. The roles of key organisations are documented below.

Figure 21: Next steps for the Collaboration Area



11.1 The role of the NSW Government

The Place Strategy identifies projects that can only be implemented with the support of the NSW Government. The Collaboration Area process requires State agencies to understand key issues, articulate the vision and identify projects that might address the impediments to growth.

The NSW Government will:

- consider the timing, costs and benefits of the projects and initiatives to achieve the Collaboration Area vision in the context of the State Infrastructure Strategy and respective programs
- where necessary, prepare business cases to support investment
- continue to collaborate with the Commission, Bayside and Georges River Councils and across government to improve infrastructure investment decisions to support the vision
- align with and contribute to the Premier's Priorities for 2019 to 2023.

11.2 The role of the Commission

The Greater Sydney Commission facilitates whole-of-government coordination and partnerships with councils. It establishes stakeholder governance arrangements to help implement Collaboration Area place strategies. The Commission will:

- help to establish the Collaboration Area Governance Group including the role for the District Commissioner during the initial start-up and operation
- statutorily support the Place Strategy's objectives and actions through by including them in updates to district plans
- assure the progress and continued collaboration towards the vision for the Collaboration Area and associated projects through local planning processes such as updated local environment plans
- elevate strategic issues and/or decision-making to the Commission's Infrastructure Delivery Committee where appropriate
- as an agency within the Department of Premier and Cabinet cluster, implement the Premier's Priorities through monitoring the delivery of relevant actions
- administer an implementation framework and annual report to Infrastructure Delivery Committee including reporting against place indicators (refer to Appendix 3 – Indicators for the Kogarah Collaboration Area)

11.3 The role of Bayside Council and Georges River Council

Both Councils must lead the implementation of the Place Strategy's priorities and actions. They will:

- be the key point of contact for coordination and implementation of the Place Strategy
- help establish the governance group for the Collaboration Area
- help identify and facilitate opportunities for partnerships, particularly with the business community
- lead the local strategic planning process in collaboration with State agencies and anchor institutions.
- provide opportunities for community engagement as the Place Strategy is implemented
- leverage community and local stakeholder input to decision-making
- help implement the Strategy's actions through place-making, funding mechanisms and advocacy with the Collaboration Area Governance Group
- align the Place Strategy with local strategic planning statements
- align Council studies and strategies that include the Collaboration Area.

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11.4 The role of NSW Health

St George Public Hospital Campus will drive growth and investment in the Collaboration Area. The Hospitals' Campus, represented by NSW Health, will:

- promote partnerships and research opportunities with the MRC, SSMRC, UNSW, other universities and the private sector
- help establish the Collaboration Area Governance Group
- help achieve the Place Strategy's objectives and actions, subject to available funding.

11.5 The role of TAFE NSW

TAFE NSW is a major contributor to tertiary education in the Collaboration Area. It will:

- support the growth of and access to tertiary education
- help establish the Collaboration Area Governance Group
- help achieve the Place Strategy's objectives and actions, subject to available funding.

11.6 The role of the Community

This Place Strategy reflects the community's input into the development of the *South and Eastern City District Plans*, Council's Community Strategic Plans and Local Strategic Planning Statements.

People can get involved in planning for the Kogarah Collaboration Area through:

- future updates of the *South and Eastern City District Plans*
- updates to both Councils' Community Strategic Plans, Local Strategic Planning Statements and Local Environmental Plans

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12

References

- id Profile, Georges River Council and Bayside Council Economic Profile 2016
- Australian Bureau of Meteorology Climate Data Online– Number of days over 35 Degrees Sydney Airport AMO
<http://www.bom.gov.au/climate/data/index.shtml> September 2019
- Australian Bureau of Statistics Census of Population and Housing 2016 destination zone- journey to work by mode
- Australian Bureau of Statistics Census of Population and Housing 2016 Census of Population of Housing, Dwellings by place of enumeration by dwelling structure.
- Australian Bureau of Statistics Census of Population and Housing 2016/2011 Census of Population of Housing, Dwellings by place of usual residence by dwelling structure
- Australian Bureau of Statistics Census of Population and Housing 2016 Jobs by Industry
- Australian Bureau of Statistics Census of Population and Housing 2016, 'Destination Zones - Jobs by Industry Sector'
- Australian Bureau of Statistics Census of Population and Housing 2016, 2011
- Bayside Council Bayside Centres and Employment Lands Strategy Background Paper, prepared by SGS Economics and Planning, May 2019
- Bayside Council Bayside Council Digital Strategy 2019
- Bayside Council draft Employment Strategy 2019
- Bayside Council Housing Strategy Background Paper 2019 prepared by SGS Economics and Planning p.18
- Calvary Care, About Calvary Health Care Kogarah, <https://www.calvarycare.org.au/public-hospital-Kogarah/about/>
- Calvary Care, Calvary launches the new Palliative and End of life Care Research Institute, 2017, <https://www.calvarycare.org.au/blog/2017/11/29/calvary-launches-the-new-palliative-and-end-of-life-care-research-institute/>
- Georges River Council Draft Commercial Centres Strategy - Part 1 Centres Analysis, 2019
- Georges River Council Draft Evidence Base for Local Housing Strategy prepared by ID January 2019
- Georges River Council Draft Open Space, Recreation and Community Facilities Strategy 2018
- Georges River Council Georges River Council Discovery Paper 2019
- Government Architect NSW Urban Tree Canopy Guide Draft for Discussion Issue No-1, 2018
- Greater Sydney Commission South District Plan March 2018
- id Profile, Kogarah Industry Sector of Employment 2016
- Kinesis CCAP City Platform
- Kolimar, E., (2019), South Eastern Sydney Local Health District's push to go green with sustainability plan

60 References

Mark Couré MP, NSW Government Open \$4.2 million Health Training Facility at TAFE NSW St George, 2019, <https://www.markcource.com.au/media/media-releases/nsw-government-open-42-million-health-training-facility-tafe-nsw-st-george>

NSW Ambulance, Ambulance Superstations, Kogarah, <http://www.ambulancesuperstations.health.nsw.gov.au/Projects/Kogarah>

NSW Department of Planning, Industry and Environment, Five Million Trees for Greater Sydney – Local Government Grant Program 2018-19 Guidelines, 2018

NSW Treasury NSW Government Infrastructure Statement 2019-20 Budget Paper No. 2 – p5-43

Profile .id Forecast household types maps 2016 to 2036 percent change and 2036 number

PwC GEM modelling tool 2019

Realestate.com.au, Kogarah median property price 4 September 2019

RMS F6 Stage 1 New M5 Motorway at Arncliffe to President Avenue at Kogarah Environmental Impact Statement October 2018 Chapter 8 p78

RMS F6 Stage 1 New Motorway at Arncliffe to President Avenue at Kogarah Project Overview June 2018 p3

SEED Data portal Percentage of urban vegetation

SESLHD, St George Hospital, History, <https://www.seslhd.health.nsw.gov.au/st-george-hospital/about-us/history>

St George & Sutherland Clinical School, About us, <https://stgcs.med.unsw.edu.au/about-us>

TAFE NSW St George Campus 2018 Enrolments by Postcode

TfNSW 2016 Opal Trip counts – Buses

TfNSW Bureau of Transport Statistics Train Statistics 2014 p.22 <https://www.transport.nsw.gov.au/sites/default/files/media/documents/2017/Train%20Statistics%202014.pdf>

The Leader (2019), St George and Calvary hospitals open new facilities for NAIDOC Week, <https://www.theleader.com.au/story/6256370/a-hospitable-offering-for-the-aboriginal-community/>

The Leader, Ground-breaking surgery targets oesophageal cancer at St George Private, 2018, <https://www.theleader.com.au/story/5200888/ground-breaking-surgery-targets-oesophageal-cancer-at-st-george-private/>

The Leader, Microbiome Research Centre opens at Kogarah, 2019, <https://www.theleader.com.au/story/6281277/photos-from-vision-to-reality-gut-study-centre-opening-marks-innovative-steps/>

The Leader, St George Hospital launches The Hospital in the Home (HITH) service for patients, 2019, <https://www.theleader.com.au/story/6344327/patient-comfort-plan-with-hospitals-new-in-home-service/>

UNSW, Microbiome Research Centre officially opens, 2019, <https://newsroom.unsw.edu.au/news/health/microbiome-research-centre-officially-opens>

13.1

Appendix 1 - Transition to implementation

This appendix provides guidance on what the core focus and potential next steps to deliver on the action might be. These were identified through the consultation process.

Considerations and next steps

The development of each action incorporated various considerations and next steps as noted below:

Action 1

Review how existing transport networks service Kogarah Collaboration Area, including service frequency in peaks, and the ability to provide local access to jobs to meet strategic targets.

- Undertake a bus network review (including a network of rapid bus lines and frequency of services)
- Continued investment in future stages of the More Trains More Services Program future stages
- Invest in track infrastructure to alleviate the bottleneck between Sutherland and Hurstville
- Invest in digital signalling systems to increase line capacity
- Address the needs of visitors and patients of major medical services
- Design the local road network to support local commutes to work
- Plan to support local trips and patterns
- Address emerging needs for connections between Sutherland to Kogarah
- Address future transport options including electric vehicles, autonomous vehicles, point to point, car share and micromobility
- Address emerging walking and cycling needs, including pedestrian facilities
- Manage parking supply
- Prioritise the Kogarah to Parramatta mass transit link

Action 2

Investigate a future network of Rapid Bus Lines, better service frequencies and mass transit links from Parramatta to Kogarah, Randwick to Kogarah and Kogarah to Miranda.

- Investigate rapid bus lines for the health and knowledge precinct
- Investigate walking and cycling infrastructure and connections within the rapid bus line network
- Investigate stop locations for mass transit
- Balance and prioritise metro and rapid bus lines to enable movement between centres in the short to medium term.

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Action 3

Develop a place-based integrated transport strategy that includes a funding and implementation plan

- Consider travel demand management strategies including:
 - refinement of the Principle Bicycle Network
 - a Collaboration Area-wide car parking strategy and review
 - working with the hospitals to increase the frequency of community shuttle services
- Prioritise sustainable transport options through:
 - laneways, through-site links and pedestrian-only streets to encourage people to walk and cycle while improving the quality of places
 - opportunities to engage with leaseback bicycles and e-bike businesses and private companies
 - increased bus services to Sydney Airport from Rockdale and Kogarah
 - connections between Kogarah and Rockdale, and Kogarah and Hurstville
 - reduced fares for short trips to promote public transport use
 - staff discounts
- Provide wayfinding systems so that people can better understand spaces
- Invest in digital signals and improve bus shelters
- Consider how transport projects and infrastructure, and different streets, can help create better public spaces
- Prepare a transport management and access plan for the Collaboration Area
- Align planning with the Georges River and Bayside Councils transport strategies

Action 4

Identify and investigate how NSW Government-owned land can be used to build connections.

- Investigate the T4 Eastern Suburbs & Illawarra line corridor for walking and cycling
- Investigate linking Annette Avenue to the Princes Highway and beyond to Rockdale Wetlands Corridor
- Make it easier to move around St George Hospital through the future master plan
- Consider connections across the T4 Eastern Suburbs & Illawarra line corridor and Princes Highway
- Consider parcels of residual land as part of the F6 Extension (Stage 1) project, including the corner of Princes Highway and President Avenue
- Consider how transport projects and infrastructure, and different streets, can help create better public spaces

Action 5

Initiate projects to encourage walking and cycling with schools and major employers.

- Investigate a digital platform to share data and knowledge on active transport
- Create awareness, and encourage more people to, walk or cycle
- Provide and encourage walking tours every year
- Provide cycle parking and end-of-trip facilities in educational institutions
- Work with Department of Education for lockers and bike racks in schools
- Develop internal staff programs at councils and schools like ride to work days, free bike training with a helmet when you do the training or council-led bike promotion events
- Use 'Beat the Streets' as an example project for schools.

Action 6

Use the Movement and Place framework to achieve the desired future character for streets and places in the Collaboration Area

- Upgrade the pedestrian network and public space and increase the urban tree canopy along corridors that more people use, pedestrian priority areas or areas more vulnerable to heat
- Secure funding through the 5 Million Trees grants program
- Secure funding for pedestrian and cycling connections in the Collaboration Area
- Implement and prioritise the initiatives of the Rockdale Town Centre Master Plan

Action 7

Revitalise the Muddy Creek corridor and other local creeks to:

- improve walking and cycling between Rockdale and Kogarah town centres
- improve the interface with the creek line
- create new open space and seamless connections between key places
- create an east-west Green Grid connection linking major open spaces
- Continue collaboration with Sydney Water and TfNSW on the first stage of active transport corridors in the Muddy Creek precinct
- Implement the Rockdale Town Centre master plan and LEP initiatives that accommodate setbacks along Muddy Creek to service growth and access to open space
- Work with Sydney Trains on dual use of rail corridor verge space, using the precedent set in Sutherland
- Investigate Keats Avenue as a right of way or pedestrian corridor to shape development between Seven Ways and Muddy Creek channel
- Deliver Georges River Councils Huggen Park Landscape Master Plan and its proposed connections over the channel
- Maximise open space along the channel

Action 8

Refine and plan for the Green Grid in the Collaboration Area

- Align planning for Green Grid priorities with those in the district plans
- Prioritise Green Grid routes in areas with less urban tree canopy and higher heat vulnerability

Action 9

Use partnerships and technology to build connections and develop a digital data connectivity strategy.

- Investigate partnership opportunities with network providers
- Provide public wi-fi in the health and education core
- Provide a high performance network with open source access to data
- Investigate shared digital connections with hospitals and schools
- Investigate knowledge transfer between health and tertiary education organisations and departments in Randwick, Bankstown, Wollongong, Westmead, Sutherland and Liverpool.

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Action 10

Investigate and identify locations for student and affordable housing, short-term accommodation and serviced apartments close to transport

- Determine the accommodation that suits the needs of the changing population
- Pilot a local housing strategy that integrates with transport infrastructure investment, open space planning and a social infrastructure strategy
- Investigate:
 - strategies that respond to gentrification, and the transition of people and housing
 - a joint facility with short-term residential living for students, patients or their families
 - the use of residual disposal land from Transport and TfNSW projects to deliver housing and accommodation for the area
 - required changes to the Affordable Rental Housing SEPP and Standard LEP

Action 11

Develop a Cultural Infrastructure Strategy and Cultural Program for the Collaboration Area focused on:

- Kogarah Town Centre
- Rockdale Town Centre
- Jubilee Stadium Precinct
- Areas around major transport nodes, interchanges, hospitals and anchor institutions
- Shopfront Youth Arts Precinct
- Align with Create NSW's Cultural Infrastructure Plan 2025
- Research arts and culture needs and interests for the area's demographics
- Engage with local artists around policy development, public art, laneway activation, installations and signage
- Consider temporary use of existing spaces for creation/production for local artists
- Investigate using industrial precincts at Production Avenue and West Botany Street for creative uses
- Leverage existing council cultural strategies and cultural programs.

Action 12

Develop a night-time economy strategy for the Collaboration Area

- Ensure that the strategy:
 - advocates for a night-time economy grant to stimulate arts and culture in the Collaboration Area
 - investigates the use of streets and car parks to create a night-time network
 - develops a night-time safety strategy
 - identifies potential spaces and programming for live music, cultural and community activation
 - partner businesses to leverage government and private investment
 - investigates the potential of Jubilee stadium for 24/7 facilities
 - investigate later library opening hours and night-time events and activities in libraries
- Consider live music, art and cultural pursuits as contributors to the night-time economy
- Investigate:
 - expanded opening hours on dedicated shopping and dining precincts
 - streets and car parks for night food markets and destinations
 - the potential of the Jubilee Stadium for 24/7 facilities
- Integrate with connectivity and transport actions in Priority 1

Action 13

Develop a Collaboration Area Urban Design Framework to provide a vision and coordinate actions for public spaces in the Collaboration Area that considers:

- the movement and place framework
- government owned land
- the Green Grid
- resilience initiatives
- precinct vision, brand and marketing
- car parking
- EV charging stations

- Ensure co-ordination of work relating to public spaces.

Action 14

Develop a master plan and public domain plan for the Collaboration Area that emphasises wellbeing, amenity, safety and safe crossings, cultural infrastructure and activity, with costing and funding plan.

- Focus the plans on:
 - Kogarah Town Centre
 - Rockdale Town Centre
 - Jubilee Stadium Precinct
 - around major transport nodes, interchanges, hospitals and anchor institutions
 - links between town centres
- Develop a public domain manual including a materials palette
- Investigate embellishment of Scarborough Park to address changes proposed as part of the M6 (Stage 1) project
- Implement the desired future character and actions from the Movement and Place framework through public domain plans and improvements
- Address better and higher quality public transport, walking and cycling
- Continue to investigate public space potential under St George Hospital Master Plan
- Improve Kogarah Station Precinct as a more attractive transport interchange
- Improve the safety of public areas and the road network
- Incorporate the Princess Highway Urban Design Study into the public domain plan and related strategies
- continue to develop a hierarchy of streets and design strategies through public domain plans.

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Action 15
Investigate opportunities for joint or shared use, multi-use spaces, sporting facilities and social infrastructure in existing and future spaces.
<ul style="list-style-type: none"> • Target the following opportunities: <ul style="list-style-type: none"> – school open spaces, internal spaces and facilities – health, knowledge and wellness assets – library spaces and child care centres – sports, aquatic and fitness facilities – future transport upgrades • Encourage private businesses to provide end-of-trip facilities • Review planning controls, particularly zoning controls, to allow the provision of sports, aquatic and fitness facilities • Consider shared use, multi-use spaces, sporting facilities and social infrastructure when planning for Green Grid corridors • Execute memorandums of understanding with schools for shared use of space
Action 16
Develop a vision, brand and marketing plan that creates an identity for the precinct and promotes the vision for the Collaboration Area
<ul style="list-style-type: none"> • Draw on the Kogarah Investment Attraction Strategy's vision for Kogarah as a precinct for recovery, restoration, rehabilitation and regenerative medicine.
Action 17
Identify and market areas of specialisation and key differentiators of the health, knowledge and wellness institutions and how they respond to emerging health issues
<ul style="list-style-type: none"> • Determine the hospitals' areas of specialisation and existing health services through market segmentation. • Promote the precinct as a wellness precinct that includes mental health awareness and alternative and preventative health and wellness • Better understand the relationship between the finance sector and health and education sectors in the area
Action 18
Investigate the potential for alternative modes of care to alleviate pressure on health services, including collaboration with public and private hospitals
<ul style="list-style-type: none"> • Collaborate with private hospitals • Identify other models of community care and services
Action 19
Leverage international health and research connections for knowledge sharing, innovation, investment and economic development.
<ul style="list-style-type: none"> • Generate a baseline understanding of the medical technology and research underway in the area • Leverage existing international connections formed through the MRC, SSMRF, UNSW and hospitals • Investigate how tourism can support international investment and economic development

Action 20

Investigate the potential for, and viability of, medical research institute associated with St George Public Hospital and investigate space for research activities to support the MRC

- Support existing research at the MRC
- Investigate a medical research institute presence in the Collaboration Area
- Determine skills required in the area and develop a talent pipeline through tertiary education
- Plan for new research space and understand required facilities

Action 21

Leverage partnerships between Kogarah's primary, secondary and tertiary education institutions and encourage education uplift programs

- Develop an understanding of the existing relationships between education institutions and current pathways to secondary and tertiary education
- Amplify connections between education institutions and other anchor institutions in the area
- Better understand the talent pipeline required for the area and tailor education to suit

Action 22

Explore opportunities for an enhanced tertiary education presence in the Collaboration Area.

- Identify the planning outcomes that can deliver this including identification of a potential site for university campus or enhanced tertiary facility
- Liaise with universities to gauge interest

Action 23

Develop a climate resilience strategy that:

- identifies climate change risks
- develops and implements an adaptation plan
- Generate an Action Plan
- Identify climate change risks to qualify for an Increasing Resilience to Climate Change grant (Bayside Council)
- Leverage research by the Climate Research Team on Climate risks for local government through the Cities Power Partnership including:
 - The cutting edge in climate-forced natural hazards research, as they apply to local governments
 - Councillors' and officers' personal liability for the management of climate risk

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Action 24

Investigate a net-zero emissions plan that targets catalyst sites and projects and addresses:

- precinct-based battery power
- renewable energy
- waste efficiency/circular economy
- energy efficiency with large energy users
- the LED street lights program run by Ausgrid through SSROC Lighting the Way
- Investigate opportunities to lower emissions at catalyst sites and projects and from larger emission producers in the area
- Aim to increase the BASIX targets for residential buildings as part of ongoing collaboration on emissions reduction
- Use an analytical and modelling framework to determine developments and properties with highest energy consumption to target reduced consumption via alternative management measures and renewable energy
- Assess the urban and built form to potentially retrofit energy efficient devices and assess existing and projected roof spaces to determine where renewable energy can be cost-effectively generated under existing and projected development conditions
- Analyse and model energy consumption and emission patterns, map opportunities and constraints in existing and projected scenarios, and develop and assess emission reduction interventions

Action 25

Investigate ways to mitigate the urban heat island effect for the Collaboration Area

- Investigate the following opportunities
 - a roof strategy (including green roofs, material and coats selection) for town centres and large sites
 - a paving strategy to include cool surfaces material for paving
 - green walls, misting fans or shading structures
 - new planning controls for buildings and public domain materials
 - urban heat reduction strategies in major developments
- Address urban heat island effect in the St George Hospital Master planning process
- Develop and enhance the urban tree canopy cover on streets in the Collaboration Area.
- Map existing and proposed roof spaces that can be used for green roofs or materials that reduce urban heat island impacts

Action 26

Explore precinct wide and site-specific energy efficiency initiatives, with a focus on NSW Government-owned land, high energy users and catalyst projects.

- Investigate opportunities for energy efficiencies through the St George Hospital Master Plan and Jubilee Stadium Precinct Master Plan

Action 27

Address precinct wide and localised flooding and drainage issues through capital works projects and sustainability initiatives in the Rockdale Wetlands Corridor and Muddy Creek

- Update the flood risk management plans for Muddy Creek and Scarborough Park
- Leverage Bayside Council's Muddy Creek Flood Study and strategies to address flooding while also considering funding solutions such as levies

Action 28

Prioritise renewable energy by:

- auditing potential solar install sites
- increasing renewable energy percentage in the Power Purchase Agreement
- incentivising installation of renewable energy generators
- Investigate potential for council rate incentives or subsidisation for renewable energy
- Update energy agreements
- Investigate mandated renewable energy targets and policy changes.
- Refer to the work being done as a part of 2020 TAFE NSW Sustainability Framework

Action 29

Plan for sustainable development through controls for new buildings and higher BASIX targets

- Aim to increase BASIX targets, targeting high density developments including internal stormwater harvesting to irrigate all internal landscaping areas.
- Review planning controls for new buildings

Action 30

Prioritise sustainable transport options

- Investigate the following opportunities
 - promoting car share and electric vehicles and charging stations
 - incentivising public transport use
 - implementing the Green Grid
 - providing for e-bikes
 - setting a precinct-wide parking strategy
 - providing adequate pick up and drop off zones
- Investigate electric vehicle charging stations in locations that align with council car parking strategies
- Promote technology that leverages existing car parking and car sharing opportunities
- Encourage staff to walk or cycle by creating centralised end-of-trip hubs
- Maximise and include walking and cycling infrastructure in major roadway projects
- Consider movement as a service in planning for local movement
- Investigate staff discounts to promote public transport use
- Review parking rates and electric charging
- Develop a precinct-wide car parking strategy
- Implement the Green Grid to create a regional walking and cycling network
- Increase bicycle parking throughout the area

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Action 31

Develop a precinct-wide water strategy

- Ensure that the strategy targets:
 - walking and cycling connections
 - place and amenity
 - the Blue Grid
 - water efficiency
 - rainwater and stormwater harvesting
 - runoff and flood risk management
 - water quality
 - wastewater management
 - revitalisation of the Muddy Creek channel
- Investigate recycling water from blackwater (sewer mining or water recycling)
- Investigate splitting larger wastewater systems into smaller systems (long-term management wastewater systems)
- Undertake a feasibility assessment of local sewer mining
- Investigate using new and existing infrastructure as transmission and distribution networks for harvested rainwater and stormwater for non-potable usages
- Explore opportunities for non-potable water sources for irrigation
- Explore setting and implementing water targets
- Review water consumption data to identify high water users and target reduced water consumption
- Explore using roofs to reduce urban runoff and rainwater harvesting
- Ensure land use changes link to asset maintenance, renewal and improvement strategies
- Investigate:
 - water sensitive urban design opportunities
 - a demonstration project for rainwater harvesting from buildings for street tree irrigation
 - rainwater harvesting incentives for residents (avoided costs for water supply upgrading, management of flood risk and stormwater management) etc.
- Identify existing buildings to retrofit for water efficiency

Action 32

Create a smarter waste economy by focusing on:

- waste flow reduction
- organics recovery
- joint and localised waste recycling plants
- Analyse and model waste flows and explore opportunities to reduce waste flows or internalisation using localised and decentralised treatment and management facilities
- Develop a plan for organics recovery and waste management, with funding for transition
- Investigate:
 - joint and localised waste recycling plants
 - alternative treatment of local food waste
 - locations for an organics transfer station in the region
 - methodologies used for waste in other areas
 - location for a sustainability 'hub' within the Kogarah Town Centre

Action 33

Develop a biodiversity strategy, maintain a species list and enhance biodiversity protection through LEPs

- Map areas of biodiversity in land reservation mapping and environmentally sensitive land mapping
- Enhance planning controls to protect and enhance biodiversity
- Educate the community about the importance of biodiversity
- Maintain a species list in biodiverse areas
- Monitor loss/shift to maintain communities or assist transitional communities
- Develop a biodiversity strategy and encourage community participation.

Action 34

Map open space deficiencies, explore the expansion of open space, investigate acquisition of land for new open space and investigate initiatives for large roof surface areas and car parks for open space

- Develop and implement recommendations of Rockdale Wetlands Corridor masterplan (which includes Scarborough park)
- Plan for the long-term use of Rockdale Wetlands Corridor
- Ensure design briefs for new schools consider longer term shared use
- Target locations for potential new open space and include in land reservation mapping
- Seek Agreement from school principals to utilise open space

Action 35

Increase the percentage of urban tree canopy in:

- town centres and main streets
- areas with high pedestrian activity and high vulnerability and high urban heat island effect
- NSW Government- owned land including hospitals
- areas with low urban tree canopy cover
- Green Grid routes
- Implement new controls for development that allow space for trees to grow
- Apply for funding under the 5 million trees for Greater Sydney program
- Prioritise planting in government land holdings and car parks
- Develop an urban tree canopy study that prioritises areas for planting and maps the urban forest
- Investigate opportunities to address regulations for tree removal and clearing in the LEP and DCP
- Investigate rates incentives to maintain urban tree canopy
- Explore using commuter car parks to increase the urban tree canopy
- Explore ways to increase the urban tree canopy in new developments
- Increase the urban tree canopy as identified in Kogarah North and Rockdale Town Centre master plans, and prioritise planting according to urban heat mapping, heat vulnerability and Green Grid planning

Action 36

Support the vision for a wellness precinct by investigating ways to maintain and improve air quality

- Support the implementation of M6 Stage 2
- Investigate ways to mitigate impacts of exhaust tunnels

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Action 37

Establish an enduring precinct governance structure and group to deliver the actions in the Place Strategy which includes a partnership between Georges River and Bayside Council and with key anchor institutions in the Collaboration Area

- Establish the purpose of the governance group
- Select actions the group can work on together
- Develop a memorandum of understanding and terms of reference
- Co-write a thought leadership piece on dual council governance
- Develop a Place Strategy Implementation Plan
- Establish alignment and joint advocacy for projects that affect the Kogarah Collaboration Area
- Consider aligning the Place Strategy actions with Local Strategic Planning Statements.

Action 38

Develop an infrastructure plan that includes funding requirements and innovative funding solutions.

- Identify grant funding opportunities
- Investigate joint section 711 and section 712 development contributions to fund the infrastructure plan
- Use the infrastructure plan to influence how required infrastructure can be provided within development proposals.

13.2 Appendix 2 - Movement and Place Framework

Framework for implementation

This appendix captures discussions and work undertaken as part of the Movement and Place Framework pilot and seeks to identify:

- a desired 2036 future character statement for streets and places in the Collaboration Area
- issues and opportunities for that street or place
- actions to deliver the desired character
- responsible agencies in a lead and partner capacity to address actions identified.

Princes Highway

Desired Future Character

The Princes Highway will be local connector and seam that joins east and west, including Rockdale and Kogarah town centres and the health, knowledge and wellness core. It will have regular, high quality and safe crossing points, supported by reduced vehicle movements in particular segments of the corridor and increased pedestrian priority, achieved by the introduction of stages of the M6 over time.

Issues and Opportunities

- Potential for a well performing rapid bus corridor – bus lane dedication required.
- The introduction of M6 stage 1 is expected to create an opportunity to enhance the place functions on the Princes Highway between Rockdale town centre and President Ave.
- The Princes Highway near Kogarah is expected have increased traffic volumes following the introduction of M6 stage 1 which will inhibit its transformation into a local connector.
- Tidal flow of traffic on the Princes Highway
- Strategic modelling outputs suggest that traffic volumes will be of a similar level as today along Princes Highway at Kogarah following implementation of the M6.
- Spatial mapping of 5-year crash record shows hotspot throughout Rockdale town centre including pedestrian crash clusters. Rockdale currently has lower vehicle flows and higher pedestrian volumes than Kogarah. If we increase place activity at Kogarah, its interface with the higher trafficked Princes Highway will need to be managed to create a safe environment.
- Crash data identifies a cluster of speed related casualty crashes at President Avenue, and high-risk curve casualty crashes at Rocky Point Road intersection.
- Pedestrian access to the hospital via South Street. The arrangement of dropped kerbs is non-compliant. No tactile paving. Crossing provided on one leg of Princes Highway. Does not present an 'accessible' entry to the Health Precinct.
- Speed limit review policy and warrants
- Design requirements to implement a push button in the median for crossing of >22m encourages pedestrians to dwell in 'skinny' medians that offer little protection
- Consideration of how we balance the movement function along Princes Highway and connectivity across it. Vibrant Streets in Sydney have the highest pedestrian crash records – this is an outcome we want to avoid. This will be the biggest challenge. There is probably need for a 'movement strategy' to compliment the Place Strategy.

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Princes Highway		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
Increase urban greenery with well-planned street tree planting;	BC and GRC, TFNSW	
Investigate the opportunity for a through site link linking Annette Street to the Rockdale Wetlands Open Space Corridor and Princes Highway as part of the M6 Project	BC and GRC	TFNSW TAFE NSW SINSW
Establish the existing and future entry points into the Kogarah Town Centre for different users and modes – potentially railway parade?	BC and GRC	
Undertake focused area studies of the Princes Highway in the Rockdale Town Centre and the Kogarah Health, knowledge and wellness core	BC and GRC	TFNSW
Undertake master planning of the Princes Highway corridor	BC and GRC	TFNSW
Refine Rockdale Town Centre Public Domain plan to reflect the findings of the movement and place framework for the Collaboration Area and the corridor vision for the Princes Highway	BC	
Investigate the role of Hogben Street as a main pedestrian connector between the Kogarah town centre. Ensure that the design of the space puts pedestrians as the primary customer in the street.	GRC	
Investigate a change in public space to encourage a shift in behaviour as people travel through the Rockdale Town Centre and Kogarah Health, knowledge and wellness core.	TFNSW (via RNP 35 and RAP)	BC and GRC
Formalise shared path from Marshall Street to President Avenue and footbridge overpass	TFNSW	BC and GRC
Between now and 2036 Investigate a change from a fixed 3x3 lane configuration, that reduces the overall width of the street, removing the need for median pedestrian buttons. and investigate which sections of the road could be reconfigured into a four-lane carriageway using tidal flow lanes including exploring options for: <ul style="list-style-type: none"> • Spare space reassigned to rapid bus lanes • Reassigned to cycle lanes + tree planting/greening • Reassigned to place (footway + tree planting) 	TFNSW	BC and GRC
After M6 stage 1 – further reassignment based on changes to demand to reallocate additional space to AT/PT/place	TFNSW	
M6 stage 2 onward – further reassignment based on changes to demand to reallocate additional space to AT/PT/place	TFNSW	
Determine tree species and planting opportunities that can work with overhead and underground services;	BC and GRC	

Princes Highway

Contribute to a wider strategy to improve the character of Princes Highway shared with adjoining Councils; BC and GRC

Create uniformity with paving types and paving width, including removal of the defunct grass verges; BC and GRC, TfNSW

Create an avenue of trees within the boundary of Kogarah Public School for visual screening for the school and contribute to greening of the streetscape; GRC BoE

Refocus opportunities for public domain activation for retail within the side streets of the Princes Highway. GRC

President Avenue

Desired Future Character

President Avenue will be one of the main gateways into the Kogarah Town Centre from the east, directly linking the town centre to the Bay.

The design of the street will respond to the different areas of character that it passes through, including park edge, Residential and Commercial edge and Health, knowledge and wellness core and the design tapers as it enters an urban environment.

The intersection of President avenue should respond to and facilitate safe crossings in response to pedestrian desire lines into Kensington Street

Issues and Opportunities

- Changing character along its length including
 - park edge
 - TAFE NSW St George Princes Highway campus edge
 - residential Edge
- M6 project (widening and intersection upgrades)
- Future stages of the M6 and potential to reduce widths as additional stages come online
- President Ave traffic will increase following M6 Stage 1.
- M6 future character detailed in the EIS however new clearways re-emphasises the need to focus on street tree planting to provide noise and amenity benefits to schools, residents and business in this soon-to-be very busy road.
- The junction with the Princes Hwy is brutal and impersonal. How can pedestrian and bikes be managed in this precinct, better options crossing these two roads in the face of motorway feeder road should be considered.
- Safe access from Moorefield estate (i.e. Lachal Ave was key consideration in M6 – notable concerns)
- Observed on site, flows of school children and TAFE NSW students travelling along Princes Highway and crossing President Avenue to access the 7/11 shop at lunch time. Some were observed to cross halfway on the "red-man" and wait on the median island.
- Access into the Kogarah Town Centre from President Avenue should be considered and reconfigured. The car wash site at the corner of Kensington St and Princes Highway is zoned as "SP2 Classified Road" to enable President Avenue to extent straight into the Kogarah Town Centre. This project is included in the Kogarah Section 94 Development Contributions Plan No. 8 - Kogarah Town Centre (p55)

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President Avenue		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
President Ave/ Bay Street connections to be improved through an active transport link as part of the M6 project which links wetland areas between West Botany and Crawford Street	TfNSW	BC
Investigate the location of off-street pedestrian and bike facilities (i.e. wide footpaths/shared paths both sides) to connect Town Centres.	TfNSW	BC and GRC
Identify opportunities to influence the M6 Stage 1 Project and realise the desired future character	BC, GRC	TfNSW
Develop alternative high quality and high amenity East West connection options that link the town centre to the bay and Rockdale Wetlands Corridor	BC, GRC, TfNSW	
Investigate the different arrangements of space within the corridor over time as a result of traffic volume reductions with the introduction of future stages of the M6 using sections through the street, including visionary long term aspirations for the street and the potential for lane reductions and consideration for changing character along the length of President avenue in the design of the corridor – including park edge, residential edge and tapering into an urban edge at Kogarah Town Centre	BC, GRC, TfNSW	
Respond to existing commercial shops that currently front President avenue, and reduced access to the TAFE NSW St George Princes Highway site	TfNSW	BC
Challenge the School Zone policy to include 40km/h during lunch time period as well as the AM and PM peak	TfNSW	BC, GRC
Investigate improved intersection with Princes Highway to support east west pedestrian desire line connecting president avenue to Kensington Street.	TfNSW	BC, GRC
Investigate focus areas for street tree planting to provide noise and amenity benefits for schools, residents and businesses to offset new clearways and increasing traffic volumes	TfNSW	BC, GRC

T4 Eastern Suburbs & Illawarra train line corridor

Desired Future Character

The T4 Eastern Suburbs & Illawarra train line corridor will be a Green Grid and active transport link that provides larger regional connections – linking to other regional Green Grid Connections.

The corridor will be easy to connect into from the east and west, enable easy and safe access routes to schools and will be designed to support these connections and users. The link will also respond to growth that is occurring nearby.

Issues and Opportunities

- Currently identified as a project that is important for the district in the South District Plan
- Support prospective key green grid AT link as a key regional connector – collaboration with Sydney Trains is key (Sutherland present to observe)
- Currently parking in corridor restricts and unsafe for pedestrian movement
- Lack of clear and delineated footpath through/alongside parking

Actions to deliver the desired character	Responsibility	
	Lead	Partners
Consider higher quality street planting with preference for an alternative to casuarina.	BC	GRC
Undertake detailed corridor analysis and property study which includes consideration of Sydney Trains and TfNSW and Councils) and determines the feasibility of the corridor. The study will seek to identify and evaluate connection difficulty and option hierarchy, as well as consideration for any green grid network 'holes' as a result.	BC, GRC, TfNSW, Sydney Trains	Property team

Kogarah Station Precinct

Desired Future Character

The Kogarah heavy rail, bus and metro interchange will open the two sides of Kogarah and improve movement and access between the east and west sides of the train line. There will be an improved interface of square facing the Kogarah Town Centre with the station square set at the same level as the surrounding streets.

Issues and Opportunities

- Three potential new connections via metro
- The need for a bus interchange at the station
- Staging of different transport modes
- Over Station Development (unsolicited proposal)
- Relative priority and cost. Any city shaping projects would seek to enhance the place through the design process.

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Kogarah Station Precinct		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
<p>Develop design options for the Kogarah Station precinct and analyse the place impacts to inform advocacy for a preferred station location for the east-west connection through Kogarah with the following considerations in mind:</p> <ul style="list-style-type: none"> Improving access to the health and education precinct will be facilitated by a metro station location south of the existing Kogarah Station A twin centre precinct comprised of Rockdale and Kogarah will be facilitated by a metro station location north of the existing Kogarah Station. Either of the above options will have an impact on the active transport network and this will need to be adjusted to respond. 	BC and GRC	Sydney Metro, TfNSW
Muddy Creek Channel		
Desired Future Character		
<p>The Muddy Creek Channel will be the precinct's playground and green spine, connecting Kogarah Station to Fry's Reserve, Hogben Park, school open spaces, Rockdale Plaza, Bay Street into Rockdale and the Rockdale Wetlands Corridor with active transport and a focus on safe connections and crossings.</p>		
Issues and Opportunities		
<ul style="list-style-type: none"> Masterplan for Hogben park includes a crossing of the Channel that has not been built yet. Muddy Creek Canal could be a community passageway connecting town centres to open and recreation space, while re-imagining the built form and quality access in a revitalised Rockdale. 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
Deliver the Hogben Park masterplan proposed improved connectivity across the muddy creek channel (new bridge)	GRC	Sydney Water
Investigate feasibility of purchasing site with low value use that is currently obstructing connections to the channel	BC, GRC	
Beautify an otherwise detracting feature of the Rockdale/Kogarah precinct through revitalisation of the channel, vegetation, new active transport connections and new and improved open spaces.	BC, GRC, Sydney Water	

Harrow Road

Desired Future Character

Harrow Road will have two distinct movement functions east and west of the train line but will have a consistent vegetated character which will unite its two sides.

To the east of the train line, Harrow Road will support high pedestrian and active transport volumes associated with a connection to the Muddy Creek Channel active transport link and an active transport link along the T4 Eastern Suburbs & Illawarra train line and the large number of schools and low-scale residential areas that line the street.

West of the trainline, street tree planting will develop a consistent landscape character and support bus movements into the Rockdale and Kogarah town centres.

Issues and Opportunities

- Dual council street – agreement on vision for this street needs to be agreed to get a holistic outcome
- Key north-south link to Muddy Creek corridor, Hogben park and across the T4 rail corridor
- Edges St George Girls high school
- The street is designed with the intention that the streetscape is mirrored by Bay Council;
- Greatly increase street tree planting to contribute to the urban tree canopy enhancement of Kogarah;
- Street geometry realignment and kerb extensions to enable street greening and stormwater management and facilitate a safer pedestrian environment;
- Provide more safe pedestrian crossing points
- Provide an east- west separated cycle lane connection.
- Harrow Road splits at the rail line, which has two characters
 - Eastern side of the rail line houses St George Girls HS where the relatively high prevalence of on-street parking could well be integrated with on-street tree planting, allowing wider footpaths and Local Area Traffic Management (LATM) and Active Transport (AT) (pedestrian and bike infra) measures. (theme for high parking/high pedestrian sites throughout precinct)
 - Harrow Road underpass at bridge to support dedicate bicycle path (Wolli Creek to Rockdale) crossing under the bridge where it will run on the Western side of the train line harrow road not suitable for on street AT facilities as it is steep and is a bus access route.

Actions to deliver the desired character	Responsibility	
	Lead	Partners
<ul style="list-style-type: none"> • Identify species and spacing to create a continuous tree canopy along Harrow Road. Georges River Council to deliver a segregated 2-way cycleway on the south side of the road as per the Kogarah North Precinct Master Plan and Public Domain Plan. • Investigate integration of on street tree planting interspersed with on street parking to enable wider footpaths and Local Area Traffic Management and Active Transport measures on Eastern side of Harrow Road • Investigate dedicated bicycle path at Hegarty Street underpass to enable link between Wolli creek to Rockdale Active transport connections and active transport connection to towards Hurstville in the verge space of the rail corridor. 	BC, GRC	TfNSW
Investigate street side planting to develop character harrow road to the west of the Train line	BC	

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Kensington Street

Desired Future Character

Kensington Street will provide a main frontage to the St George Public Hospital and is the interface that stitches the hospital campus into the Town Centre, providing services for a variety of street users and activities, including buses and vehicles moving east-west across the Collaboration Area.

The street will be a major connector to the hospital from the south and across the Town Centre feeding the streets that lead into Kogarah train station. It will support pedestrian desire lines east west and have safe crossings and connections to President Avenue and East towards Botany Bay.

The street will also be an important suburban connector from the southern suburbs accessing the Kogarah Town Centre and a key street providing access to the Jubilee Stadium Precinct

Issues and Opportunities

- Lack of clear wayfinding leading to the proposed hospital entry.
- New front door to the hospital
- Key street that connects to all major streets and laneways leading to the station - Montgomery, Belgrave and laneways
- Key connection between Hospital and TAFE NSW St George Princes Highway campus
- Investigate traffic signals/pedestrian crossing at the corner of Gray and Kensington streets
- Changing role of the street with changes to access to the Hospital
- Additional role for patients and staff
- Main thoroughfare for vehicle movement
- Number of cafes that currently exist on the street

Actions to deliver the desired character	Responsibility	
	Lead	Partners
Investigate reorienting the main entry of the St George Public Hospital to Kensington Street as part of the redevelopment of the Site to better integrate the hospital with the town centre	NSW Health, HI	
Prioritise street tree planting in Railway Parade, Kensington and Belgrave Streets.	GRC	
Investigate traffic signals/pedestrian crossing at the corner of Gray and Kensington streets – interface with the relocation of the emergency entry of the hospital	TfNSW	GRC
Investigate on-street dining and café activation as 'destination'.	GRC	
Investigate ways to deliver a slow speed highly pedestrianised area outside the new main entry of the hospital	NSW Health, HI	TfNSW, GRC
Public transport multi-modal interchange point (clear wayfinding strategy sought)	BC and GRC	TfNSW
Investigate opportunities for 40km/hr speed limit for = all streets in Kogarah CBD		

Kensington Street		
(also need to confirm previous council resolution to do this)	GRC	TfNSW
Find opportunities for street tree planting to increase shade on the street	GRC	
Develop an Emergency services strategy that frees Kensington Street up for other uses – e.g. directing emergency access to Gray Street and making Gray street the fire station emergency access route	SES LHD, HI, GRC	TfNSW
Improve intersection with Princes Highway to facilitate pedestrian desire line connection to President avenue so that it is safe	TfNSW, BC, GRC	
Investigate funding to deliver a crossing at the intersection of Gladstone street, Princes Highway and Kensington street		
Investigate funding opportunities to deliver the current proposal for a raised pedestrian crossing to be installed on Kensington Street linking to Bank Lane.	GRC	TfNSW
Montgomery Street		
Desired Future Character		
Montgomery Street will be the flagship street for the area and will be a major mixed use and active street, with retail, commercial and medical/civic uses with active frontages along its length. The street will have pedestrian priority and will change in character and design to accommodate the emergency access needs of the Hospital.		
Issues and Opportunities		
<ul style="list-style-type: none"> • Recognise The importance of Montgomery street as an economic/employment spine • Streets closer to the station e.g. Belgrave and Montgomery as pedestrian priority and then further from the station this changes to accommodate the emergency access and needs. • Montgomery street as a commercial street – possibility of improving public domain and delivering additional open space. • Flagship street for the area. • Consider what kind of treatments will be required at Montgomery Street to provide better amenity and priority for pedestrians/cyclists, e.g. wider footpaths, less waiting time at traffic signals, more crossing opportunities, etc. • Highly pedestrianised street – wider footpaths, kerb extensions for crossings, 30kph zone and street tree planting within the road corridor to create boulevard character 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
Reinforce Montgomery Street as a major mixed use, active street, encompassing retail, commercial and medical/ civic uses with retail shop fronts along much of its length.		
Develop opportunities for quality food and beverage uses and night time activity	GRC	

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Montgomery Street		
Investigate street as pedestrian priority subject to the needs of emergency access	GRC	TfNSW
Green the Kogarah Town Centre starting with Montgomery/Belgrave/ railway streets then Kensington then infill remaining streets and lanes	GRC	
Investigate the needs of the emergency access along Montgomery street	NSW Health, HI, TfNSW	GRC
Develop key objectives/principles for the street – e.g., minimum footpath width	GRC	
Investigate the use of Montgomery Street as a bus corridor	TfNSW (Buses)	GRC
Trial a temporary change in the street environment that gives pedestrians priority	GRC	TfNSW
Highly pedestrianised street – wider footpaths, kerb extensions for crossings, 30kph zone and street tree planting within the road corridor to create boulevard character		
Consider what kind of treatments will be required at Montgomery Street to provide better amenity and priority for pedestrians/cyclists, e.g. wider footpaths, less waiting time at traffic signals and more crossing opportunities		
Belgrave Street		
Desired Future Character		
Belgrave Street will be a green vibrant pedestrian priority main street for the Kogarah Town Centre, providing a direct link to the hospitals as the southern anchor, leveraging its civic uses and supporting pedestrian desire lines from the hospitals to the station.		
Issues and Opportunities		
<ul style="list-style-type: none"> previous upgrades to Belgrave Street can be leveraged 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
Enhance the pedestrian amenity of the area with a new Town Square in Belgrave Street and upgraded laneways, widened and addressed by buildings.	GRC	
Investigate street as pedestrian priority subject to the needs of emergency access	GRC	TfNSW, HI
Green the Kogarah Town Centre starting with Montgomery/Belgrave/ railway streets then Kensington then infill remaining streets and lanes	GRC	

Belgrave Street		
Enhance wide footpaths, plantings and 'place' principles of street	GRC	TfNSW
Investigate a 40km/h zone if there is not one in place already	GRC	TfNSW
Investigate providing a link between Belgrave St and Montgomery Street. There are opportunities for this to occur to the west of car park or east of the Greek church.	GRC	
Railway Parade		
Desired Future Character		
<p>Railway Parade will continue to be one of the main streets for the Kogarah Town Centre with a pedestrian scale environment with a high degree of visual interest, activity, amenity and connections to the laneway network. It will have reduced speeds to promote safety at key interfaces with the station, schools and park edge at Hogben Park and along the T4 Eastern Suburbs & Illawarra train line.</p>		
Issues and Opportunities		
<ul style="list-style-type: none"> • Green Edge/interface with the T4 Corridor • Interface with the Kogarah Station Precinct • Interface with Hogben Park • Cycling conditions along the corridor are poor • Railway street to west of railway is key cycle commuter route NS to Rockdale off Princes Hwy and city 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
<ul style="list-style-type: none"> • Green the Kogarah Town Centre starting with Montgomery/Belgrave/railway streets then Kensington then infill remaining streets and lanes • Encourage pedestrian connections through to Post Office Lane enabling easy access to current and future development sites to the rear. This will assist in strengthening the pedestrian network. • Improve accessibility to the western side of the railway station. • Upgrade existing lanes to create a better address for buildings and improve the public domain. • Create a cohesive streetscape and encourage outdoor dining. • Maintain traffic flows, but reduce speeds, through increased use of trees and different parking lane treatment; • Increase pedestrian safety, especially during periods of peak movements by school children; • Increase street trees and improve the overall character of the street, through undergrounding of powerlines; • Incorporate WSUD and stormwater management as part of the streetscape greening; • Provide an east-west separated cycle lane connection; • Work with the existing trees and Hogben Park frontage. 	GRC	

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Railway Parade		
Main street with a distinct regional town centre character – this could be enhanced with on-street/recessed parking bays and street tree planting scheme promoting shade and pedestrian amenity	BC, GRC	
Discussion with Sydney Trains as the co-functionality use of rail corridor space – whether there are opportunities for public use, greens space or AT corridor in/ around the town centre	TfNSW , Sydney Trains, BC, GRC	
Investigate widening footpaths free from clutter to encourage walking to Kogarah and Rockdale Town Centres	BC, GRC	TfNSW
Investigate a low speed vehicle environment (30kph)	BC, GRC	TfNSW
Create a more formalised linear park from the green space at Fry's reserve	BC	GRC
Improving the cycling environment along this corridor.	BC, GRC	TfNSW
Gray Street and Gray Avenue		
Desired Future Character		
Gray Street and Gray Avenue will be the primary bus corridor, providing St George Hospital emergency vehicle access and will facilitate high pedestrian and vehicle activity due to school entries and pick up/drop off areas.		
Issues and Opportunities		
<ul style="list-style-type: none"> • Key major bus route • High pedestrian activity due to school entry (St Patricks Primary) • Pick up and drop offs for school children • Gray Street and Princes highway intersection a safety issue for children crossing the road.. This feedback from the community formed the basis of a report presented to the Georges River Council Traffic Advisory Committee in June 2017 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
Consolidate vehicle movements for the hospital by reorienting vehicle entries to the 'back' of the hospital.	NSW Health, HI	TfNSW
Prioritise wide footpaths and kerb extensions for crossings in the High Pedestrian Activity Area -	BC, GRC	TfNSW
Investigate shoulder bike lane uphill from the Princes Highway to Kogarah as steep road is not amenable to bikes – however as there are very few crossing points of Princes Hwy - this Gray St access point should remain a prospective active transport network corridor.	GRC	TfNSW

Gray Street and Gray Avenue

Pram ramps to be reconstructed to be made compliant

GRC and
TfNSW**Post Office, Wicks, O'Keefe's and Moorefield Lanes****Desired Future Character**

Post Office, Wicks, O'Keefe's and Moorefield lanes will provide a finer grain pedestrian network for the Kogarah Town Centre and will facilitate activation, street art and night time activity.

Issues and Opportunities

- Potential for Arts, activation, night time economy
- Current lanes don't support pedestrian movement well

Actions to deliver the desired character**Responsibility****Lead****Partners**

investigate a shared zone which promotes slow (i.e. 10kph vehicle speed) to give pedestrians preferred access through laneways

GRC

TfNSW

Upgrade lanes to have a high standard of pedestrian amenity.

GRC

Keats Avenue**Desired Future Character**

Keats Avenue will be a Green Grid and active transport connection directly linking Rockdale and Kogarah and the Muddy Creek Channel.

Issues and Opportunities

- Urban designed pedestrian and active transport movement corridor from Kogarah to Rockdale
- Links to revitalised Rockdale/ Muddy Creek precinct
- Inclusion of a green grid connection with cycling path

Actions to deliver the desired character**Responsibility****Lead****Partners**

Undertake master planning process of corridors to strengthen Rockdale to Kogarah and Brighton Le Sands to Kogarah

BC, GRC

Leverage rezoning and corridor enhancement to deliver an improved connection

BC

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Jubilee Avenue		
Desired Future Character		
Jubilee Avenue will be a Green Grid connection between Carlton Station and the Scarborough Park Corridor that links the station, the stadium, the golf course and Scarborough Park.		
Issues and Opportunities		
<ul style="list-style-type: none"> Joins up Carlton Station, the Jubilee Stadium, Beverley Park Golf Club, open spaces, production avenue and Scarborough Park Stadium Masterplan - opening up the stadium to the surrounding streets and spaces- particularly the frontages to Jubilee Avenue, Park Street, and to Kogarah Park Current Shared path being constructed on Production Avenue to enable to Jubilee Ave - Scarborough Parklands EW Link - Scarborough Park Masterplan to guide the connections leading from Jubilee (currently being revised by Bayside) Proving a safe cycling route to the Stadium from Carlton station, is likely to reduce congestion in the area, particularly during main events. 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
As part of the jubilee stadium project investigate the delivery of increased urban tree canopy and cycling route.	GRC	
Gladstone Street		
Desired Future Character		
Gladstone Street will be a slow speed and high-quality pedestrian environment street to accommodate a range of uses including schools, residential areas, the Kogarah Town Centre and the higher traffic and pedestrian volumes as a result of these varied uses. It will include regular and safe crossing points for pedestrians.		
Issues and Opportunities		
<ul style="list-style-type: none"> Accommodate a range of principles incorporating school zones, residential zones, town centre and road with higher traffic volumes 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
Create two school environment slow zones outside Kogarah High and Kogarah Public Schools;	GRC	TfNSW
Investigate Street geometry realignment and kerb extensions to enable street greening and stormwater management and facilitate a safer pedestrian environment;	GRC	TfNSW
Provide more safe pedestrian crossing points;	GRC	

Gladstone Street

Powerlines removed to make street improvements realisable.

GRC

Queen Victoria Street**Desired Future Character**

Queen Victoria Street will be a key active transport corridor leveraging its existing consistent heritage landscape character and urban tree canopy, creating a direct connection between Forest Road (Bexley) and the Kogarah Town Centre.

Issues and Opportunities

- The street plantings in Queen Victoria Street are historically significant as evidence of the development of the Ocean View Estate in the 1920's and the operations of Bexley Council currently to beautify its suburbs. The street trees are aesthetically significant as evidence of the influence of the Garden City approach to public landscaping which had evolved in England the century before. The plantings enhance Queen Victoria Street, one of the main streets of the Ocean View Estate. The palms directly out the front of the former Bexley Council Chambers are particularly significant for their landmark quality and as they pre-date the other trees.
- Sydney buses travel along this corridor. The selection of treatments to calm the traffic will need to consider the impact on buses.
- Heritage street tree and boulevard character to be retained and enhanced
- Wide paths > 2.5m on both sides (connecting town centres)
- Opportunities for kerb extensions at/near roundabouts for pedestrian crossing and LATM

Actions to deliver the desired character**Responsibility****Lead****Partners**

Investigate ways to calm traffic on Queen Victoria Street

BC

TfNSW

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Bay Street		
Desired Future Character		
Bay Street will be the primary public transport and active transport link connecting Rockdale to the bay, leveraging its existing successful bus services, flat topography and direct line of sight to the water from Rockdale Town Centre.		
Issues and Opportunities		
<ul style="list-style-type: none"> Identified in the ongoing Draft Brighton Le Sands Masterplan as the main street for day and night activity and pedestrian use. The public areas on Bay Street should allow for a range of activities and outdoor uses such as cafes. Key access point to open space, sport and recreation fields Will be access point for future mass transport stop (i.e. increased density around the transport corridor – needs to be serviced by pedestrian and bike amenity) Green grid and AT link Rockdale to Brighton Le Sands as noted in Draft Brighton Le Sands Master Plan Draft (street tree planting strategy). Bay Street at the Intersection of Princes Highway is a crash hotspot containing pedestrian crash cluster. Noted on site that pedestrian refuge islands do not cater for demand in pedestrian movement i.e., at The Seven Ways Provide direct route to and from sports precinct from Rockdale station 		
Actions to deliver the desired character	Responsibility	
	Lead	Partners
<ul style="list-style-type: none"> Widen pedestrian footpaths Deliver premium quality paving and street furniture Provide weather protection in segments of the street Investigate off-road cycling infrastructure Investigate on street parking Implement planning controls that enable access to new development off Bay Street to be avoided Increase greenery and investigate opportunities for large street trees 	BC	

13.3

Appendix 3 - Indicators for the Kogarah Collaboration Area

This appendix provides a baseline set of indicators for the Kogarah Collaboration Area that can be measured against over time. This will assist in understand benefit realised from the actions in this Place Strategy.

DRAFT - NOT APPROVED BY GSC FULL COMMISSION

90 Appendix 3 - Indicators for the Kogarah Collaboration Area

Figure 22: Indicators for the Kogarah Collaboration Area - Comparison to the Eastern City District (GSC, 2019)

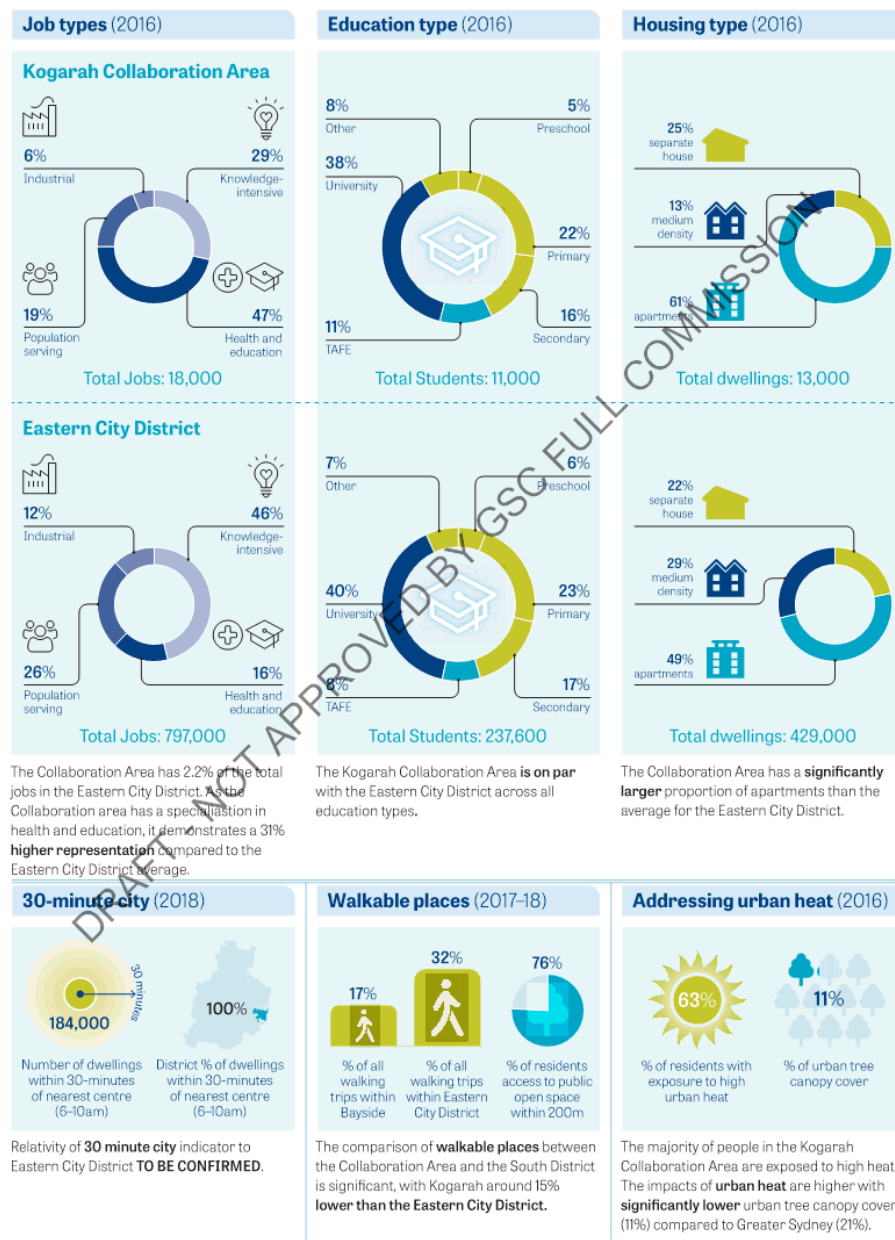
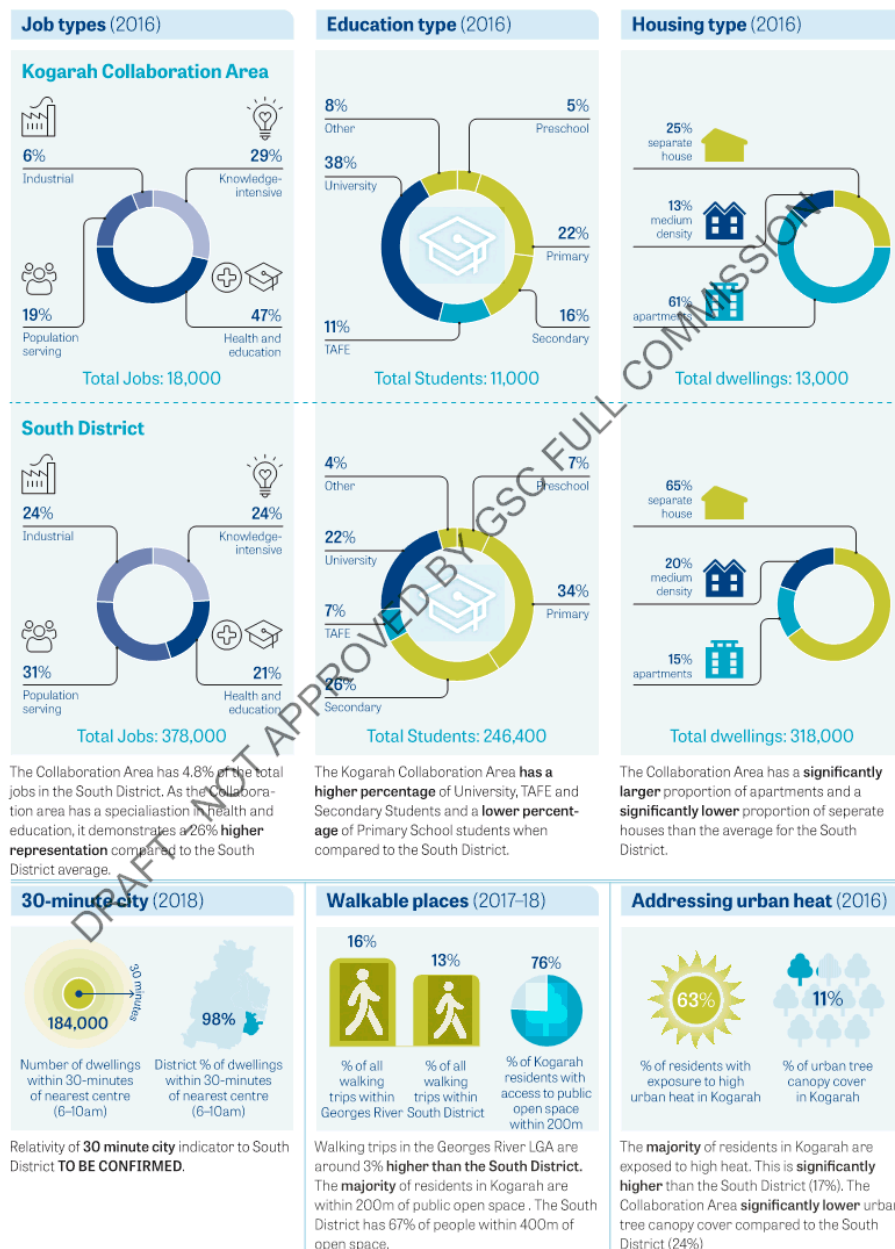


Figure 23: Indicators for the Kogarah Collaboration Area - Comparison to the South District (GSC, 2019)



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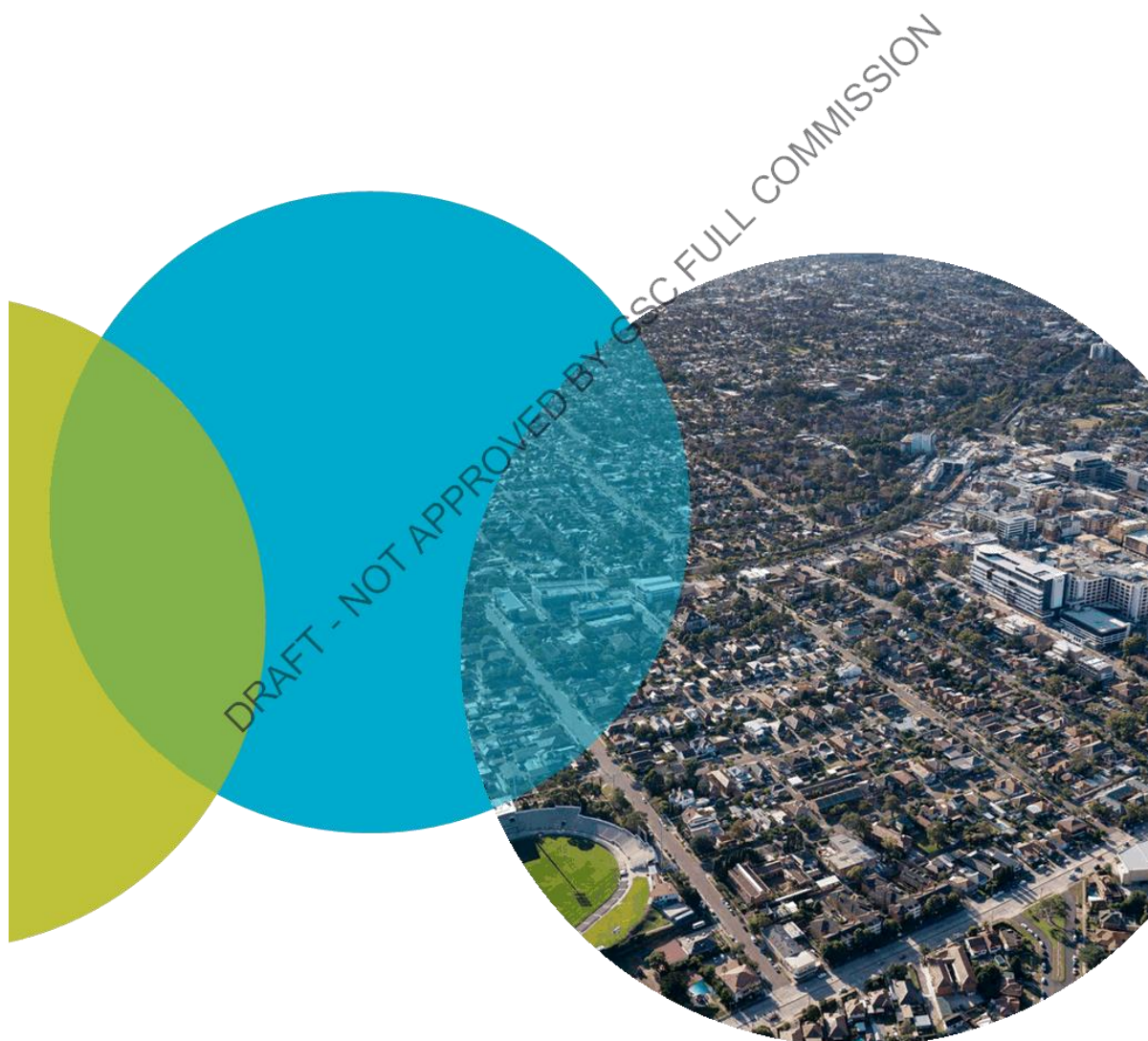
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Arncliffe and Banksia Public Domain Plan & Technical Manual

Exhibition Draft
December 2019





Contents

The manual comprises two parts:

- i. the Place Vision
- ii. the Public Domain Guidelines

Refer also to separate detailed concept plans for the main street corridors of Princes Highway, Woollongong Road and Firth Street available from Council.

Part i THE PLACE VISION

- 1.0 Introduction
- 1.1 Background
- 1.2 Purpose
- 1.3 How to Use this Document
- 1.4 The Plan at a glance
- 2.0 A place vision for Arncliffe Banksia
- 2.1 Key background documents
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Part ii THE PUBLIC DOMAIN GUIDELINES

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- 5.4 Street trees and street gardens
- 6.0 Public Domain Approvals



part i

the place vision

DRAFT

THE PLACE VISION

1.0 Introduction

The plan and manual provide guidance for the design and implementation of public domain improvements to the Arncliffe and Banksia Town Centres.

1. Background

In 2013 the Arncliffe and Banksia precincts were nominated by the former Rockdale City Council as Planned Precincts. The Planned Precincts were identified by virtue of access to transport infrastructure and potential to provide for significant housing and jobs growth.

Through a NSW Government led program in consultation with council, stakeholders and the community, the gazettal of the LEP and DCP amendments proceeded in late 2018.

2. Purpose

Consequently Council determined that a Public Domain Plan and Technical Manual (PDP&TM) was required to:

- ensure future public domain works and upgrades are commensurate with Councils vision for the Town Centres;
- provide a holistic approach for the Arncliffe and Banksia Town Centres; and,
- guide the detailed design and construction in Firth Street (Arncliffe Town Centre), Wollongong Road (Arncliffe Neighbourhood Centre) and along the Princes Highway Corridor.

Environmental Partnership landscape architects were commissioned to develop the PDP&TM in collaboration with Council staff.

3. How to use this document

This document provides a guide to the ongoing design and implementation of works to the Public Domain with respect to:

- the general design arrangement of the street;
- materials finishes and key design requirements for public the elements of the domain;
- materials finishes and key design requirements for street furniture and lighting; and
- street tree and street garden planting arrangement, species and planting requirements

The PDP&TM should be referred to in development of design for such works as:

Council Public Domain Projects

Council will reference this document in the ongoing design of Council public domain projects.

Public Domain to private development

Proponents can locate their site and reference the design and materials guidelines applicable to the street frontage as the basis for design and implementation of public domain works for which they are responsible.

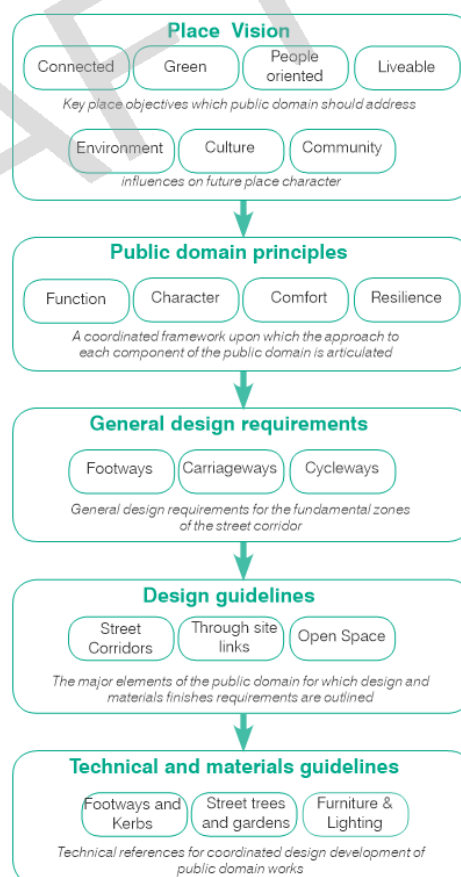
4. The manual at a glance

The PDP&TM distils a place vision from existing Council and NSW Government strategies for Arncliffe and Banksia identifying general objectives for public domain in addition to themes that can inform and influence future place character.

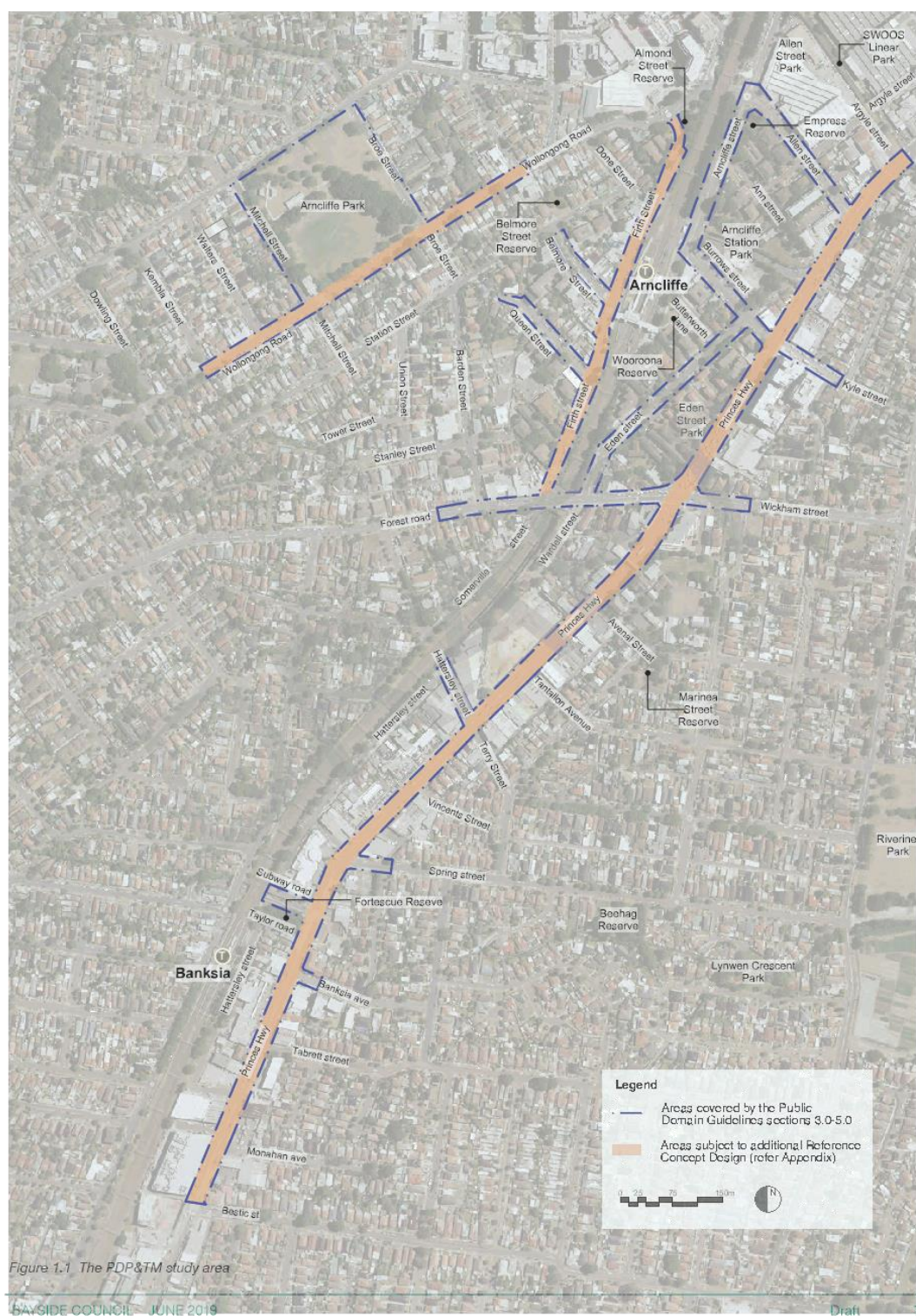
Four public domain principles provide a framework under which specific requirements for each component of the public domain are illustrated through design guidelines.

For each street corridor and for through site links and new open spaces a design guideline outlining key design and materials finishes requirements is provided.

Finally technical and materials guidelines provide guidance to design and materials finishes requirements as part of a coordinated design and materials framework.



THE PLACE VISION



THE PLACE VISION

2.0 A place vision for Arncliffe and Banksia

2.1 Key background documents

Rockdale DCP 2011

The Rockdale Local Environmental Plan (LEP) and Rockdale Development Control Plan 2011 as amended 2018 (RDCP), identify that to encourage growth and revitalisation of the Arncliffe and Banksia Town Centre, it is proposed to allow a mix of uses including suitable residential accommodation to provide vibrancy and life to these areas.

The approach focuses the majority of the supply of new homes and retail activity closest to the Arncliffe and Banksia railway stations, so that more residents will benefit from the convenience of proximity to railway transport as well as local shops, cafes and other services.

Key principles include:

- Improve accessibility

The precincts are planned so that getting around on foot, bike and public transport will be easier. The improved paths and connections will not just benefit those living closest to the stations, but also residents and workers in the precincts.

- Revitalise the Princes Highway Corridor

Revitalisation of the Princes Highway is proposed to change the streetscape into a tree lined road corridor with large setbacks and wide footpaths to enhance pedestrian safety and amenity.

- Achieve Design Excellence

Redevelopment presents an opportunity to renew and revitalise the area. Development should positively contribute to the area and be undertaken to achieve high architectural and design standards taking into consideration retention of local character and heritage.

Zone

- [B1] Neighbourhood Centre
- [B2] Local Centre
- [B4] Mixed Use
- [B6] Enterprise Corridor
- [IN2] Light Industrial
- [R2] Low Density Residential
- [R3] Medium Density Residential
- [R4] High Density Residential
- [RE1] Public Recreation
- [RE2] Private Recreation
- [EP4] Primary Production Small Lots
- [SP2] Infrastructure
- [SP3] Tourist
- [UL] Unzoned Land
- [SNC-P] Sydney Regional Environmental Plan No 33 - Cooks Cove

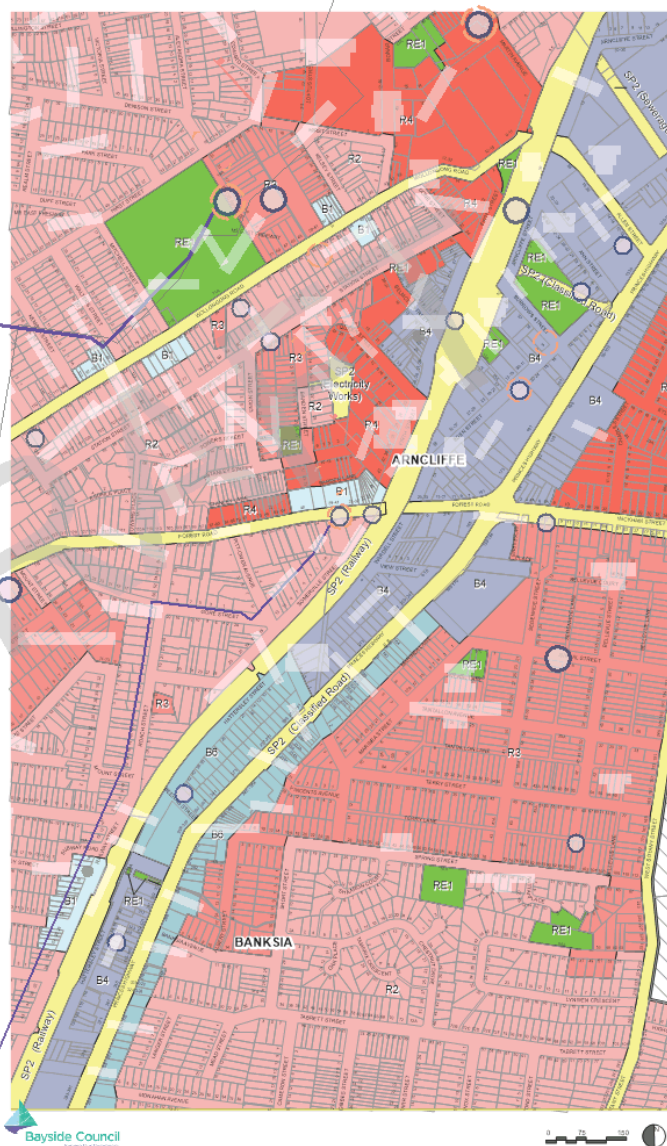
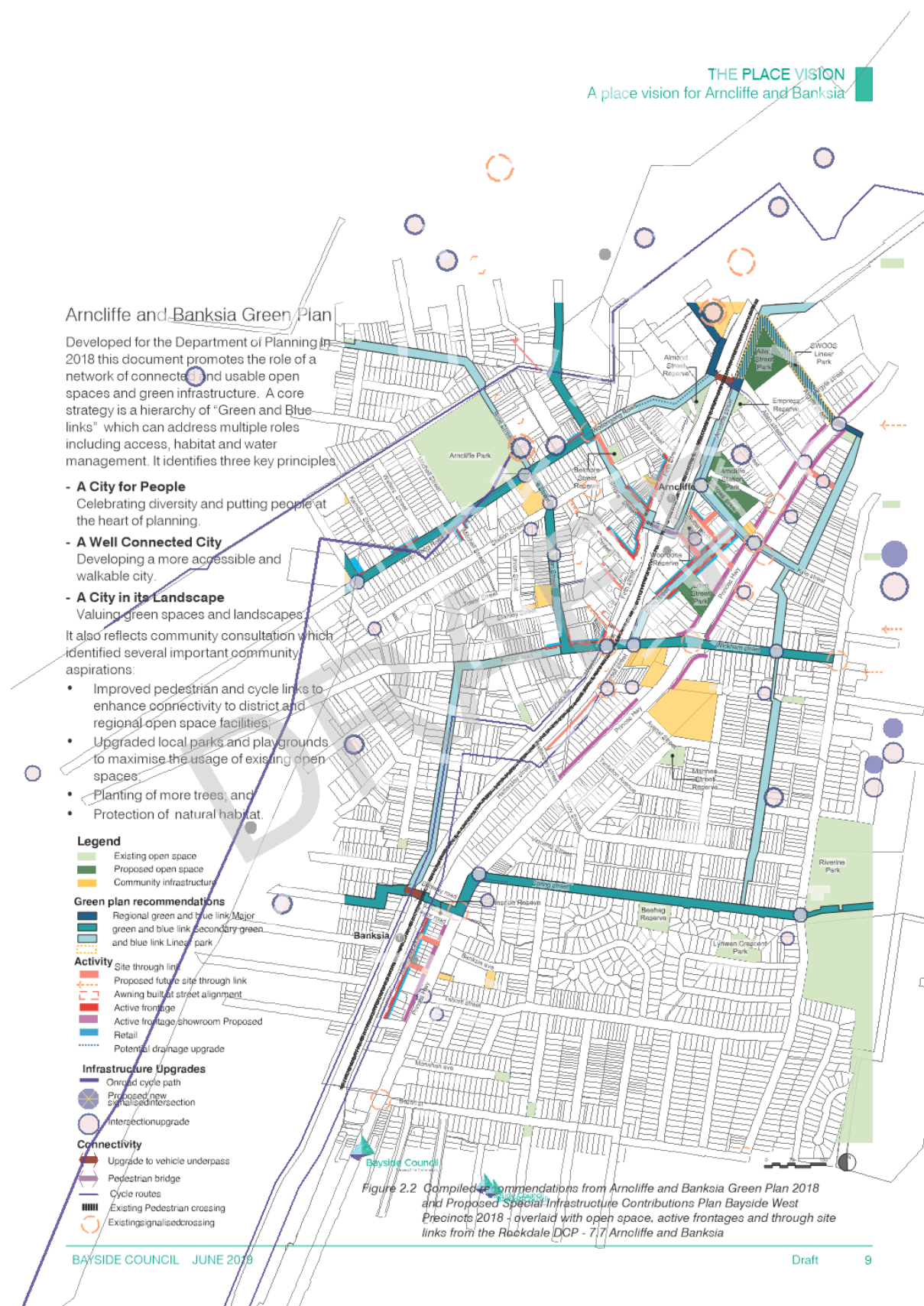


Figure 2.1 Rockdale LEP 2011 - Land Zonings (Source: Bayside Council)



THE PLACE VISION

A place vision for Arncliffe and Banksia

2.2 Distilling a place vision

Referencing planning frameworks to establish place objectives

Visioning for the performance and function of the public domain is provided in each of the existing NSW Government and Council strategies for Arncliffe and Banksia.



	Department of Planning & Environment Arncliffe and Banksia precinct plan	Wolli Creek and Bonar Street Precinct Public Domain Plan (2011, Rockdale City Council)	Rockdale DCP 2011 7.6 Arncliffe and Banksia	Bayside West precincts 2036 plan & Arncliffe and Banksia Green Plan 2018
Vision	The vision for the Arncliffe and Banksia Precincts is to create vibrant, attractive and connected communities , where people can live and work with good access to public transport, community facilities, open space, shops and cafes.	a place of transition drawing from natural and cultural influences that optimise landform and views	The vision for the Arncliffe and Banksia precincts is to create vibrant communities that are great places to meet, work and live	The Bayside West Precincts are vibrant, attractive and connected communities , where people live and work.built on great access to public transport, community facilities, new open spaces, shops and local services. A city for people A well connected city A city in its landscape Open Space for recreation Open space for biodiversity Tree canopy

The analysis of this existing visioning can generate functional and qualitative objectives for the public domain which are distilled in the table opposite:

THE PLACE VISION

A place vision for Arncliffe and Banksia



connected

- neighbourhoods that are walkable
- open space that provides a network of diverse recreational opportunities (passive and active)
- varied and frequent opportunities for social interaction and exchange
- tree canopy and habitat linkages
- high amenity provided along routes leading to transport nodes (street hierarchy)



green

- landscape is a tangible and highly visible influence through the public domain
- landscape responds to the character of the Wollie Creek floodplain and Sandstone Slopes
- enhanced habitat is provided through increased tree biomass and understorey
- enhanced biodiversity and sustainability is encouraged through use of indigenous species
- design of development and landscape are integrated and coordinated for better outcomes



people oriented

- vibrancy and activity to ground level frontage encourages street life and character
- comfortable and safe spaces for pedestrians are available within the street environment
- street environments encourage a human scale
- public domain caters for a diverse cross section of ages and cultures



liveable

- increased tree canopy and wider footpaths enhance pedestrian experience
- improved sense of safety for pedestrians and cyclists
- area around transport nodes are attractive places to be
- public spaces provide for flexible and adaptable uses
- attractive and safe night time places
- close proximity of community services (eg childcare)
- safe and equitable access between transport, community facilities, open spaces, shops services, and housing / workplace

THE PLACE VISION

A place vision for Arncliffe and Banksia

Understanding place character

While the objectives on page 11 set in place public domain performance requirements for the redeveloping neighbourhoods they lack a tangible response to the existing and potential place qualities of Arncliffe and Banksia.

An understanding of the current and potential place qualities should be integrated with the performance objectives to guide future public domain design.

A sense of place can be either the intrinsic character of a place, or the meaning people give to it. More often it is a mixture of both. Arncliffe and Banksia are places in transition and planning for public domain needs to recognise this.

What influences will shape the character and identity of the evolving community and can we simplify these ?

- the locality and its geography, environment
 - density and uses
 - architectural styles and built form / heights
 - community services and infrastructure
 - ethnic and age mixes
 - household structure
 - open space and landscape
 - recreational opportunities
- environment
culture
community

places in transition

understanding the existing places

Environment

- Low lying floodplain rising up to sandstone slopes
- Proximity to watercourses (including Alexandra Canal and Wolli Creek wetlands)
- Prominent native tree canopy
- Low rise residential streets
- Fine grain single dwelling Federation character
- Light industrial streets to northern zone transitioning to mixed use
- Princes Highway typified by a mix of businesses, from single terraced shopfronts through to large car yards and a hotels which are built on a amalgamated lot.

Culture

- Tempe House and Magdalene Chapel reflect colonial past
- State Heritage listings including:
 - Arncliffe Station
 - The Southern and Western Suburbs Ocean Outfall Sewer (SWOOS)
- Local Heritage listings including:
 - Arncliffe Park
 - Firth Street
 - St Francis Xavier Church (Wollongong Rd)
- Past strong Lebanese and Macedonian influences on retail character to Arncliffe and Banksia respectively
- Strong recent growth in Asian population
- The cultural profile of the neighbourhoods is likely to further evolve and change

Community

Arncliffe (source profile ID 2011-2016)

- Median age 33
- Compared to Bayside generally:
- A larger proportion of 'Young workforce' residents
 - A larger proportion of 'Tertiary education & independence'
 - A smaller percentage of 'Parents and homebuilders'
 - A smaller percentage of Seniors'
 - Lebanese ancestry is largest cultural group (15.5%) triple the LGA average
 - Chinese ancestry is largest growth since 2011

Banksia (source profile ID 2011-2016)

- Median age 37
- Compared to Bayside generally:
- Larger proportion of seniors
 - Larger proportion of empty nesters and retiree residents
 - Larger proportion of parents and homebuilders
 - Smaller proportion of young workforce'
 - Chinese ancestry largest growth since 2011



THE PLACE VISION

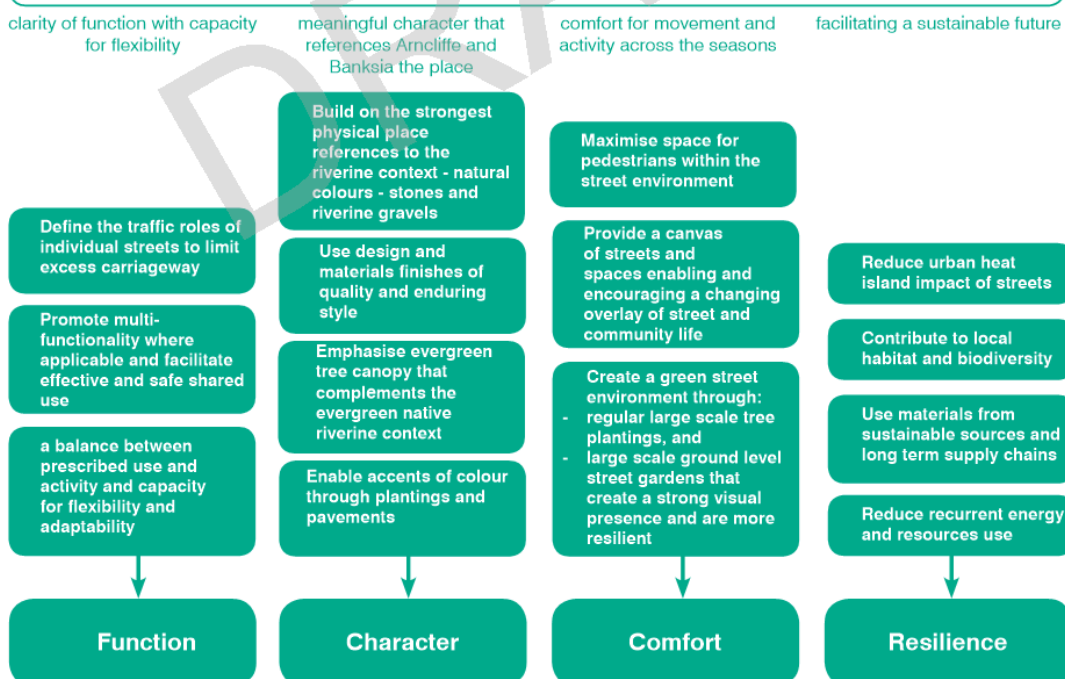
A place vision for Arncliffe and Banksia

visioning the future places



how to guide and inform a place responsive approach to public domain in Arncliffe and Banksia

...places connected to the natural riverine environment that provide an enduring, quality and simple canvas for street and community life to evolve...



using organising principles for public domain design

THE PLACE VISION

A place vision for Arncliffe and Banksia

Organising principles for public domain design

The General Design Requirements (section 3.0), the Design Guidelines (section 4.0), and the Technical and Materials Guidelines (section 5.0) integrate and reflect the Place Vision from the previous pages and the Organising Principles as outlined below.

The four organising principles provide a framework for guiding place responsive public domain to Arncliffe and Banksia and for outlining specific requirements for each component of the public domain as documented in this PDP&TM. Overall strategies embodied across all design and technical guidelines are outlined below.

function



clarity of function with capacity for flexibility

- Provide a hierarchy of street and corridor functions integrating the Green Plan with place based planning
- Mitigate impacts of heavy vehicle and bus traffic on street amenity - define heavy vehicle routes
- Provide fixed infrastructure that provides for day to day use but maintains capacity for flexible and adaptable use (eg cafes / events) as community and retail character evolves
- Reinforce frontage functions through hierarchy of pavement finishes
- Mitigate the impact of property access (driveways)
- Mitigate the impact of services and infrastructure on street amenity and tree canopy

character



meaningful character that references Arncliffe and Banksia the place

- Pavement finishes to reflect the natural riverine tones or dark to light greys and browns
- Use a simple range of pavements providing a stronger sense of unity
- Use high quality stone finishes to high activity retail and mixed use frontages that engenders a sense of quality is hard wearing and maintainable
- Use a proportion of tree and garden species derived from the Floodplain Forest and Sandstone Slopes communities to represent and celebrate those habitats
- Integrate visual contact with water through open spaces as reference to riverine context

THE PLACE VISION
A place vision for Arncliffe and Banksia

comfort



comfort for movement and activity across the seasons

- Define desirable pedestrian through movement zones based on frontage uses and movement role of street
- Provide awning shelter in accordance with DCP
- Arrange tree canopy to create a human visual scale at street level
- Use deciduous trees to optimise winter light to overshadowed frontages
- Provide lighting reflecting the pedestrian movement and activity level of frontages
- Provide continuity of pedestrian lighting to key pedestrian routes
- Provide a variety of seating for diverse users in locations where they will be used
- Ensure availability of spaces to provide respite and retreat

resilience



facilitating a sustainable future

- Select materials for longevity, effectiveness, and sustainability
- Provide target minimum 35m³ new soil medium volume to new street tree plantings
- Provide minimum 5m² area street gardens for resilience to damage and maintenance effectiveness
- Integrate water sensitive urban design elements such as bio-remediation beds to open spaces where they can be of an effective scale and contribute to park character



THE PLACE VISION
A place vision for Arncliffe and Banksia



Figure 2.3 The Arncliffe Banksia Public Domain masterplan



part ii

public domain guidelines

DRAFT

THE PUBLIC DOMAIN GUIDELINES

3.0 General design requirements

3.1 Public domain definitions

The Arncliffe and Banksia PDP&TM defines design and materials finishes requirements for planning and implementation of public domain improvements.

The components of the public domain that are referred to in this document are summarised on Figure 3.1 and cross referenced to the relevant sections of the document.

Street Structure

Road reserve

Is the dedicated space for road infrastructure between property boundaries managed as either State Road (RMS managed) or Local Road (Council owned and managed).

Property line

Is the boundary to the road reserve which subject to zoning controls may also be the building interface or may be subject to a **public domain setback** (which will extend the public footway), or **landscape setback** (which provides a private zone of frontage landscape adjoining the footway).

Footway

Is the publicly usable zone between kerb and property line that provides for pedestrian access and incorporates street trees gardens and other public domain elements.

Carriageway

Is section of the road reserve that caters for vehicular movement and parking.

Footway widening

Extension of footway into carriageway to enhance pedestrian movement and streetscape.

Public Domain Elements

1. Driveways

Provide for private access to properties and are to be located in integration with other elements and must be designed for pedestrian priority (**refer 3.2b Driveways**).

2. Kerb ramps

Provide for pedestrian access to carriageway level and are to be aligned with path of travel and ramps to opposite side. Shall meet applicable standards as defined for State Roads and for accessibility (AS 1428) (**refer 5.1 Footway pavements & kerbs**).

3. Raised thresholds

Provide for at grade access between footways in lieu of kerb ramps and assist in reducing traffic speeds. Must be designed with 1.8m concrete ramps plus minimum width requirements for bus traffic where applicable (**refer 5.1 - Pavement P2 and provide site specific design**).



Figure 3.1 Arrangement of street structure and public domain elements

4. Footway pavement

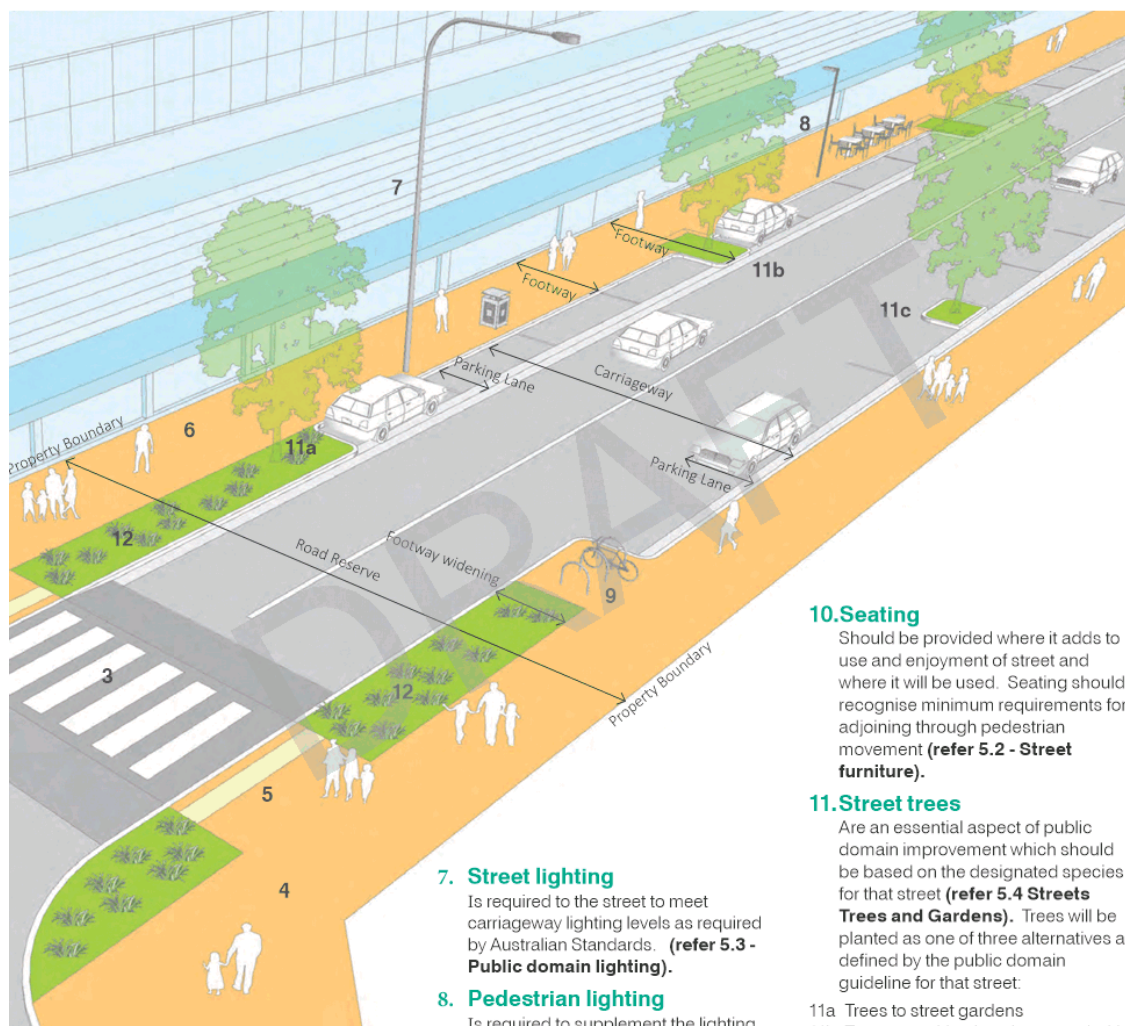
Is the quality pavement material to the pedestrian areas which will be either stone to designated mixed use / retail frontages or honed insitu concrete pavement to all other areas (**refer 5.1 Footway pavements & kerbs**).

5. Tactile indicators

Are the directional or warning markers installed to local road crossing points in accordance with AS 1428. Provision to State Roads will be subject to RMS policy (**refer 5.1 Footway pavements & kerbs**).

THE PUBLIC DOMAIN GUIDELINES

General design requirements



6. Service pit lids

Are to be rationalised where possible through liaison with service authorities. Pits and lids are to be aligned with pavement layout and are generally to have pavement infill lids to match adjoining. This excludes large steel covers and Telstra and Optus covers. (refer 5.1 - Footway pavements & kerbs)

7. Street lighting

Is required to the street to meet carriageway lighting levels as required by Australian Standards. (refer 5.3 - Public domain lighting).

8. Pedestrian lighting

Is required to supplement the lighting levels of the footway to areas of high levels of street activity and to enhance pedestrian security (refer 5.3 - Public domain lighting).

9. Cycle racks

Should be provided to designated cycle routes and to mixed use areas to serve retail activities and open space (refer 5.2 - Street furniture).

10. Seating

Should be provided where it adds to use and enjoyment of street and where it will be used. Seating should recognise minimum requirements for adjoining through pedestrian movement (refer 5.2 - Street furniture).

11. Street trees

Are an essential aspect of public domain improvement which should be based on the designated species for that street (refer 5.4 Streets Trees and Gardens). Trees will be planted as one of three alternatives as defined by the public domain guideline for that street:

- 11a Trees to street gardens
- 11b Trees to parking lane integrated with kerb
- 11c Trees to parking lane in kerb island

12. Street gardens

Are to be provided where possible to provide high visual impact and green relief to the street. Species will be based on designated species for street gardens (refer 5.4 Streets Trees and Gardens).

THE PUBLIC DOMAIN GUIDELINES

3.2 Footways

a. On street parking and trees

The PDP&TM seeks to maximise street trees within the street environments of Arncliffe and Banksia integrated in a coordinated design with other key elements of the public domain including on street parking, street lighting and driveways.

Principles

- Generally new tree plantings will be provided within the kerbside parking lane of the street (with the exception of the Princes Highway) due to the limited width of existing footway verges, and the desirability of having tree canopy closer to the centre line of the road (acknowledged to reduce traffic speeds).
- End parking spaces to be 6.4m length with intermediate spaces 5.4m length in accordance with AS 2890.5-1993 Parking facilities - On-street parking

Several scenarios are available for the arrangement of street trees, parallel parking spaces and street lighting poles:

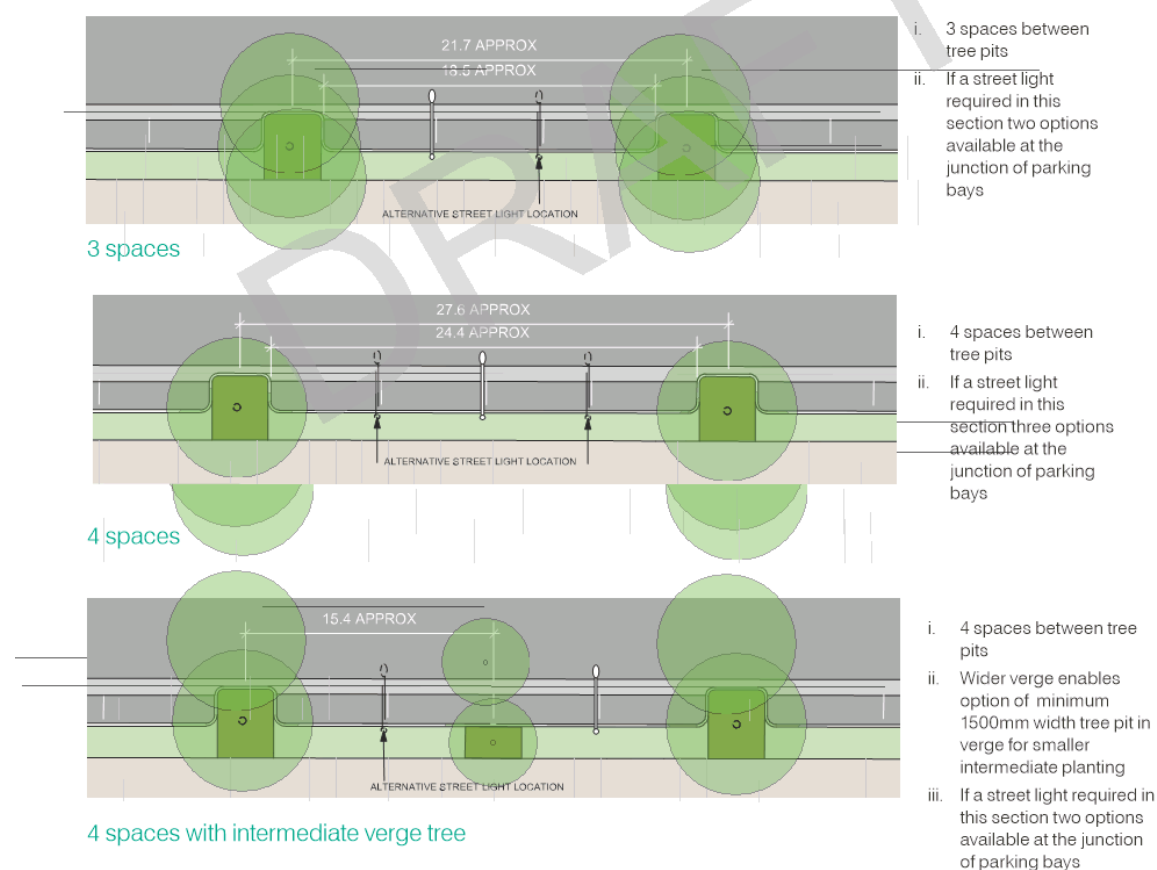


Figure 3.2 On street parking and tree arrangement

THE PUBLIC DOMAIN GUIDELINES

General design requirements

In road tree pit types

Two approaches are available for the provision of tree pits within the kerbside parking lane

The integrated tree pit is the preferred approach to maximise tree soil volume and the size and impact on street garden plantings within the pit.

However this needs to be reconciled with road carriageway design levels and drainage. The integrated pit requires the parking lane to fall away from the kerb to a dish drain.

Where this is not achievable the island tree pit can be considered. This solution truncates the tree pit to maintain the kerbside gutter drainage and the cross fall from the crown of the road. It is desirable to maximise the width of the island pit for soil volume and street garden viability.



Integrated tree pit

Principles

- tree pit integrated with kerb and verge providing larger tree pit and street garden area
- tree planting alignment adjusted to avoid planting directly over stormwater services minimum width of 3.2m to outside top of kerb (2.8m internal)
- internal width must be multiple of 0.4m for integration with stone pavement to retail frontages
- nominal tree pit volume integrated with verge is $8-9\text{m}^3$ - supplement with structural soil cells as per guideline S2 (refer section 5.4) to achieve target 35m^3

Integrated tree pit is the preferred tree pit solution

Island tree pit

Principles

- existing kerbside gutter drainage maintained along with existing kerb
- maximise the width of the island pit for soil volume and street garden impact
- allows for future retrofitting of integrated tree pit by extending kerbs and regrading parking lane
- minimum width of 3.6m to outside top of kerb (3.2m internal)
- nominal tree pit volume integrated with verge is $5-6\text{m}^3$ - supplement with structural soil cells as per guideline S2 (refer section 5.4) to achieve target 35m^3
- Bull nose rounded end to end of kerb abutting gutter

Figure 3.3 In road tree pit types

THE PUBLIC DOMAIN GUIDELINES

General design requirements

b. Footway width

The footway is the zone in which pedestrian movement and street activity is undertaken. Minimum required setbacks and dimensions for functional and safe use of the footway are identified in *Figure 3.4 Footway Width Requirements*.

The overall footway width is based on the recommended widths to each street for through pedestrian movement, the kerbside clear zone for door opening and vehicle overhang, street furniture and lighting poles (plus kerb width) measured from the face of kerb to property boundary. All public domain works should meet the recommended footway widths.

Figure 3.5 Typical footway sections illustrates the required pedestrian through movement zones in relation to the other footway functions and identifies potential scenarios for integrating footway dining with moveable cafe furniture to different footway widths. While wider footways offer greater flexibility for footway dining, it is not recommended to provide footway dining the footways of overall width less than 3.6 metres.

Principles

STREETS	FOOTWAY ZONES								OVERALL FOOTWAY WIDTH		AWNING
	FOOT TRAFFIC		PLANTING		CLEAR PATH OF TRAVEL (min)	FURNITURE (min)	PARKING / DOORS	KERB WIDTH			
	Preferred	Min	Preferred	Min					Preferred	Min	
Princes Highway	2.5m	1.8m	3.5m	3.5m	1.8m	1.0m	0.6m	200mm	10m overall	10m overall	As per RDCP 2011
Eden Street	2.5m	1.8m	2.5m	2.5m	1.8m	1.0m	0.6m	200mm	3.6m overall	2.7m overall	As per RDCP 2011
-Retail	1.8m	1.8m	2.5m	1.5m	1.8m						
-Residential											
Burrows Street	2.5m	2.5m	2.5m	2.5m	2.5m	1.0m	0.6m	200mm	3.6m overall	2.7m overall	As per RDCP 2011
Arncliffe Street	1.8m	1.8m	3.8m	2.5m	1.8m	1.0m	0.6m	200mm	3.5m overall	3.5m overall	As per RDCP 2011
Allen Street	1.8m	1.8m	3.1m	2.5m	1.8m	1.0m	0.6m	200mm	3.6m overall	2.85m overall	As per RDCP 2011
Forest Road	1.8m	1.5m			1.5m	1.0m	0.6m	200mm	3.6m overall	3.6m overall	As per RDCP 2011
Firth Street	2.5m	1.8m	2.5m	1.5m	1.8m	1.0m	0.6m	200mm	varies	3.0m min	As per RDCP 2011
-Retail	1.8m	1.5m	3.1m	2.5m	1.5m						
-Residential											
Queen Street	1.8m	1.8m	3.1m	2.5m	1.8m	1.0m	0.6m	200mm	3.6m overall	3.6m overall	As per RDCP 2011
Belmore Street	2.5m	2.5m	2.5m	1.5m	2.5m	1.0m	0.6m	200mm	8.0m o/a	3.6m o/a	As per RDCP 2011
-Retail	1.8m	1.5m	3.1m	2.5m	1.5m						
-Residential											
Wollongong Road	2.0m	1.8m	2.5m	1.5m	1.8m	1.0m	0.6m	200mm	3.6m overall	3.0m overall	As per RDCP 2011
-Retail	1.8m	1.5m	3.1m	1.5m	1.5m						
-Residential											

Figure 3.4 Footway width requirements

THE PUBLIC DOMAIN GUIDELINES
General design requirements

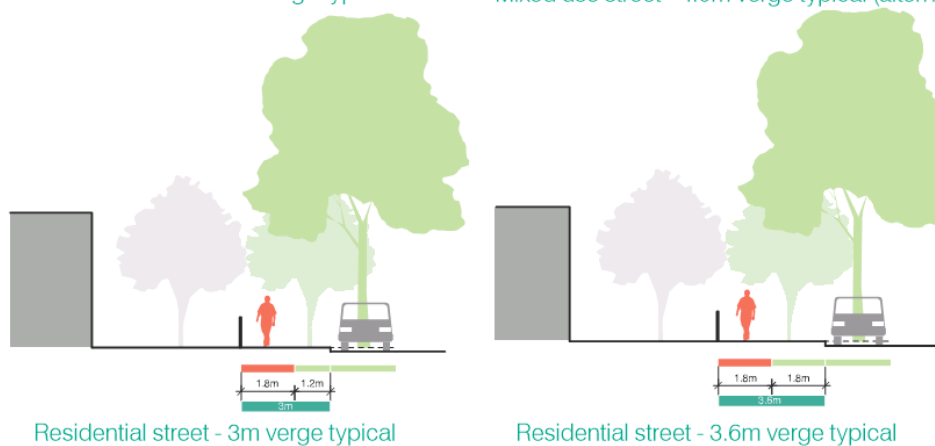
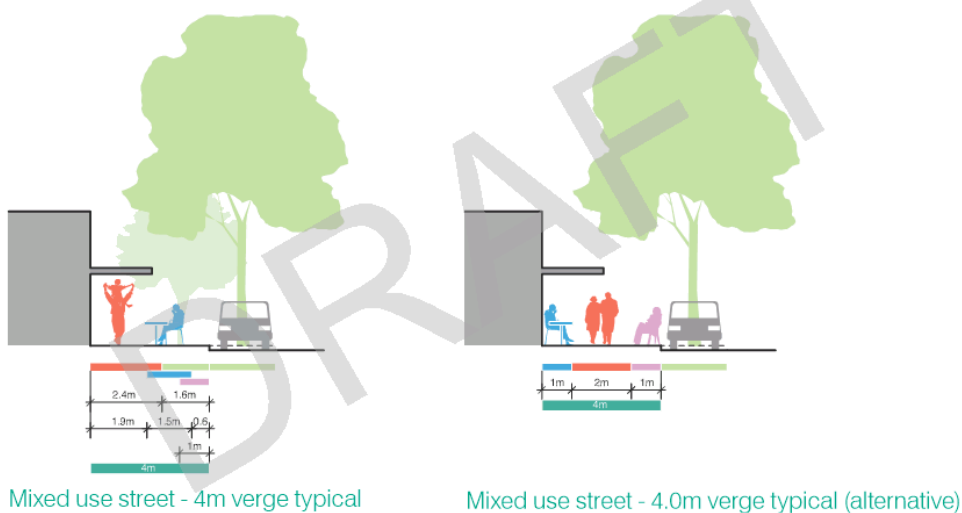


Figure 3.5 Typical footway sections

THE PUBLIC DOMAIN GUIDELINES

General design requirements

c. Driveways

Driveways provide access to residential and commercial properties for service and carparking purposes.

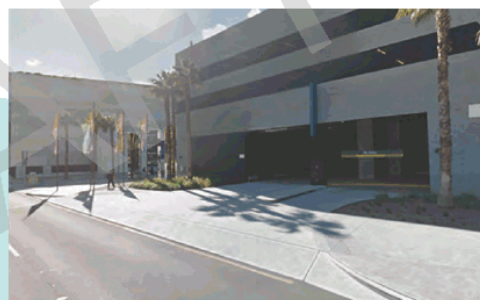
Driveways can have a major impact on the amenity and safety of pedestrian movement along the street and also adversely influence the provision of street tree planting, on street parking and other street elements. Basement carparking entries can also be a major intrusion on the street facade of buildings.

Principles

- driveways are to be avoided to retail frontages as places of highest pedestrian activity and amenity
- driveways to be focussed to secondary streets where impacts to pedestrian and cycle access are less significant
- driveways to be integrated to the arrangement of street elements as defined by the public domain guidelines for the specific street
- position street trees and driveway to provide minimum 3m clearance from edge of driveway to centre of tree on approach and exit side
- ensure tree plantings adjoining driveways have minimum clear trunk to 1.5m height for sight line clearance
- ensure garden plantings adjoining driveways do not exceed 0.5m height for sight line clearance



Example: Stone paved driveway



Example: Concrete paved driveway

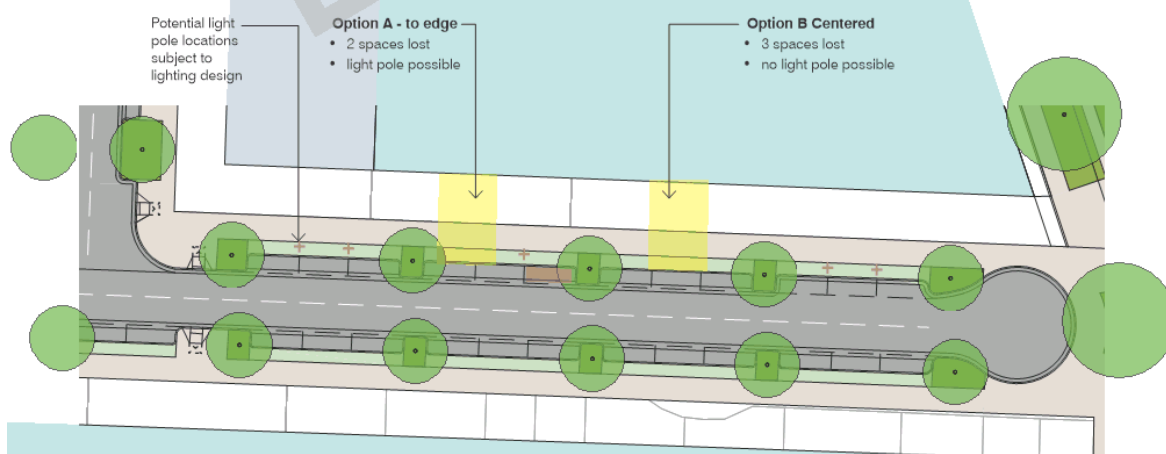


Figure 3.6 Typical driveway integration options

THE PUBLIC DOMAIN GUIDELINES

General design requirements

d. Bus stops

The provision of bus stops is the responsibility of Council but must be undertaken in accordance with NSW State Transit requirements.

Street corridors catering for bus movement in the Arncliffe and Banksia PDP&TM area are:

- Wollongong Road
- Firth Street between Wollongong Road and Belmore Road
- Belmore Road (one way west)
- Princes Highway

Bus stops shall be provided in accordance with *NSW State Transit Bus Infrastructure Guide Issue 2*.

Principles

- provide 30m clear kerb side zone to designated bus stop locations for Standard State Transit bus requirements (refer Figure 3.7)
- provide signage and linemarking in accordance with *NSW State Transit Bus Infrastructure Guide Issue 2*
- provide tactile markers to bus stops in accordance with AS 1428.1—2001 Design for Access and Mobility.
- provide bus shelters where footway is minimum 4200mm wide face of kerb
- bus shelters and bench seats should be located so that they do not interfere with passenger movements on and off buses.
- the positioning and dimensions of bus shelters are to comply with AS 1428.1—2001 Design for Access and Mobility.

Bus Stop Dimension (m)	Standard	Long Rigid	Articulated
Length of Bus	12.5	14.5	18.0
Minimum draw-out length	6.0	6.5	8.0
Minimum draw-in length	11.5	14.0	14.0
Bus Zone length for one bus	30.0	35.0	40.0

Note: (1) Dimensions are based on stopping at the bus stop sign with a suitable length of straight, flat standard height kerb to stop alongside.

Figure 3.7 Bus stops Section draw-in and draw out lengths - *NSW State Transit Bus Infrastructure Guide Issue 2*

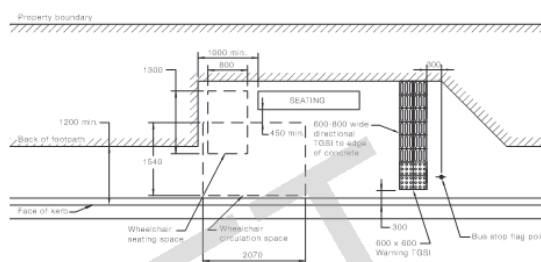


Figure D1 Bus Stop - Tactile requirements AS 1428.1—2001 Design for Access and Mobility

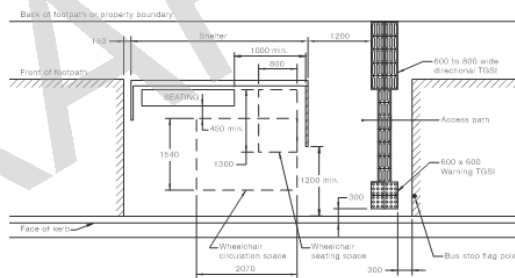
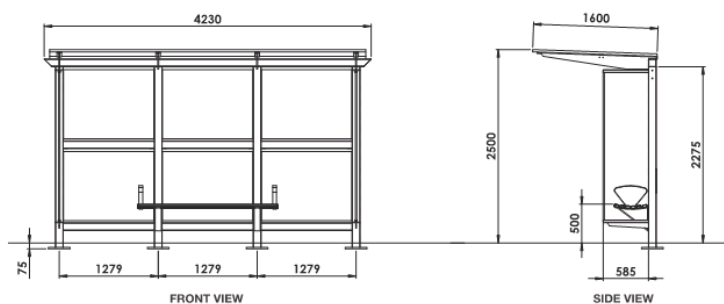


Figure D2 Bus Stop with shelter - Tactile requirements AS 1428.1—2001 Design for Access and Mobility



Dimensions (mm):
Overall: 4230W x 1600D x 2500H
Internal: 3840W x 585D x 2275H
Seat length: 1800

Finishes:
Powder Coated Aluminium Frame
Refer to Dulux Powder Coat colours

Features:
Toughened safety glass
Aluminium roof
Cantilever seat
Seat arm-rests
Windbreaks
Concealed footings

Optional extras:
Mesh wall panels
LED lighting (mains or solar)
Walk through
Bolt to surface

Figure 3.7 Bayside Council Standard Bus Shelter

THE PUBLIC DOMAIN GUIDELINES

General design requirements

e. Services infrastructure

Power and telecommunications services are a necessary part of the public infrastructure within the road reserve. Overhead cabling for power and telecommunications is however outdated and all major new power and telecommunications infrastructure is implemented as undergrounded trenches within the road reserve.

The Rockdale DCP 2011 - 7.7 Arncliffe and Banksia identifies that all power, telecommunications and street lighting servicing to the areas east of the railway line are to be undergrounded in the redevelopment of development sites and their adjacent streetscape. This will facilitate optimum street tree potential the public domain.

The PDP&TM emphasises the fundamental importance of new street tree planting, reinforcing the recommendations of the Arncliffe and Banksia Green Plan. As such works to the west of the railway line will look to maximise meaningful street tree canopy within the constraints of existing overhead services.



Existing overhead cabling which is a constraint to future development of adequate tree canopy to Firth Street and other streets east of the railway line



Example: Potential to adapt existing multiple conductors and services lines (left) to insulated aerial bundle cables (ABC)

Principles

- i. to areas east of the railway line, undergrounding of overhead services including power and telecommunications is to be implemented through public domain works in accordance with Rockdale RDCP 2011 - Part 7.7 Special Precincts - Arncliffe and Banksia
- ii. to areas west of the railway line, if redevelopment occurs, undergrounding of overhead services including power and telecommunications is required to enhance long term viability of street tree planting
- iii. to areas west of the railway line integrate new street tree planting to planting pits within the parking lane and around existing road crossings of overhead cabling
- iv. provide future overhead cable bundling to Firth Street to minimise potential for proposed street tree planting to impact cabling in future.
- v. liaise with all services authorities to integrate any forecast renewal and amplification requirements as part of the coordinated public domain works
- vi. liaise with all services authorities to identify and coordinate any potential rationalisation of pits and pit lids as part of the coordinated public domain works
- vii. maintain or replace as necessary Telstra and Optus pit lids in accordance with Authority requirements to those services within repaved footways.

THE PUBLIC DOMAIN GUIDELINES

General design requirements

f. Footway dining

Footway Dining is an important aspect of activation and character to Town Centre Main Street precincts. Bayside Council has a Footpath Trading Policy 2018, which defines zones across the footway in which trading activities can take place. This may include signage and display of goods along with Footway dining.

Figure 3.8 Footway Dining furniture arrangement options opposite illustrates that 1.0m is the minimum width configuration of cafe seating desirable. Allowing for preferred safe and comfortable pedestrian through zones adjoining the building frontage, a minimum footway width of 3.6m is recommended for Footway trading (refer Figure 3.5 Typical footway sections)

This section details options for seating arrangements and related licensing areas.

Principles

- a minimum footway width of 3.6m is recommended for Footway trading area to maintain pedestrian through zone of 2.0m and kerb step-out clearance of 0.6m.
- footway dining licence area to be defined based on an effective seating module for the available footway space
- Provision of cafe furniture and other on street trading elements along with management of Footway Trading zone to be in accordance with Bayside Council Footpath Trading Policy 2018



Example: On street footway dining

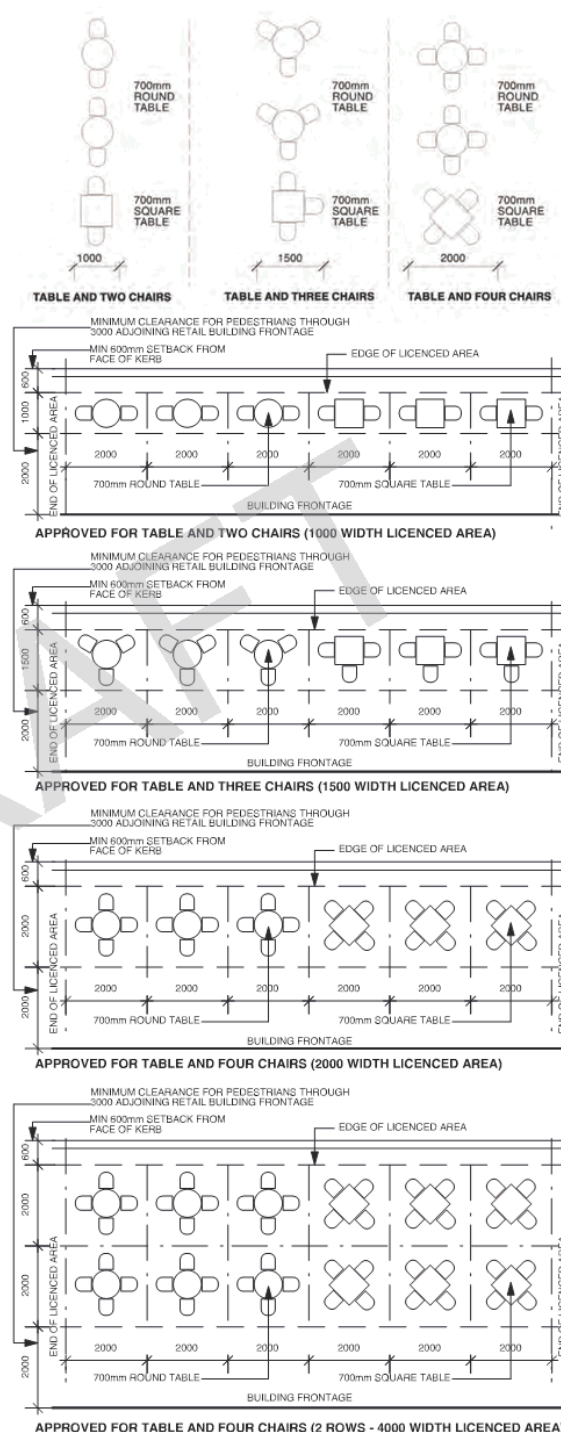


Figure 3.8 Footway Dining furniture arrangement options

THE PUBLIC DOMAIN GUIDELINES

General design requirements

3.3 Carriageways

Roads fall into two management categories, local roads and state roads. Local roads are Council owned land and are managed by Council having regard to RMS guidelines, regulations and policies, along with Australian Standards. State roads are state owned lands and are controlled by the RMS.

Figure 3.9 illustrates the road hierarchy in the Arncliffe and Banksia PDP&TM area identifying state roads along with several traffic categories of local roads including collector / regional and residential. Within the PDP&TM area, Princes Highway and Forest Road are state roads.

This section outlines the general design requirements that apply to the provision and design of carriageways to local roads within the study area. The carriageway is the section of the road reserve that caters for vehicular through movement and on road parking.

Refer to the following pages for Figures 3.10 - 3.12 which define parking requirements for local roads. Also identified on Figures 3.13-3.16 are minimum spatial requirements for lanes catering for different types of traffic needs. Lane widths as indicated on the Streets Design Guidelines (section 4.1) are the approved widths for ongoing design development.

It is noted that the requirements for cycle facilities are separately outlined in **section 3.4 Cycle Facilities**. The requirements as identified in this section are implemented in the individual streets design guidelines provided in **section 4.0 Design Guidelines (4.1 Streets)**.



State Road - Princes Highway



Regional Road - Wollongong Road



Residential Road: Anne Street

THE PUBLIC DOMAIN GUIDELINES
General design requirements

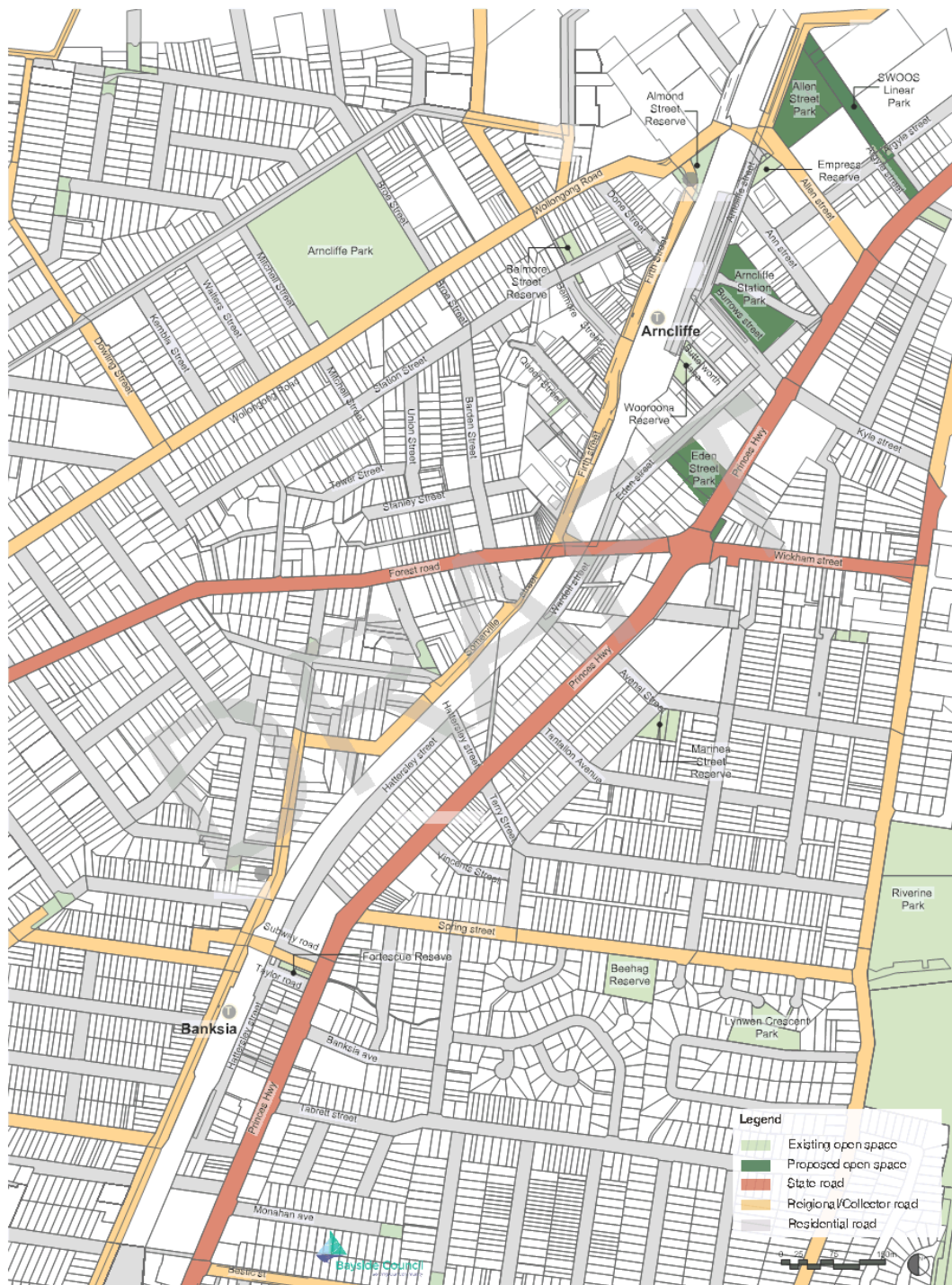


Figure 3.9 Road hierarchy in PDP&TM area

THE PUBLIC DOMAIN GUIDELINES

General design requirements

3.3 Carriageways

Principles

State Roads

- generally Councils influence on traffic related issues to State Roads such as kerb alignment and lane widths is limited
- any Council proposals for improvements to the footway on a State Road are subject to RMS approval.

Parallel Parking to Local Roads

(refer Figures 3.10-3.11)

- tree pit approach and configuration will be as defined on Design Guidelines - **Section 4.1 Streets**
- to be provided as a 2100mm minimum width kerbside zone from face of kerb to face of tree pit kerb
- parking with Integrated tree pits will fall to a dish drain adjoining the traffic lane as per *Figure 3.10*
- parking with Island tree pits will fall to a dish drain adjoining the traffic lane as per *Figure 3.10*
- parking bays will be linemarked in accordance with RMS Guidelines

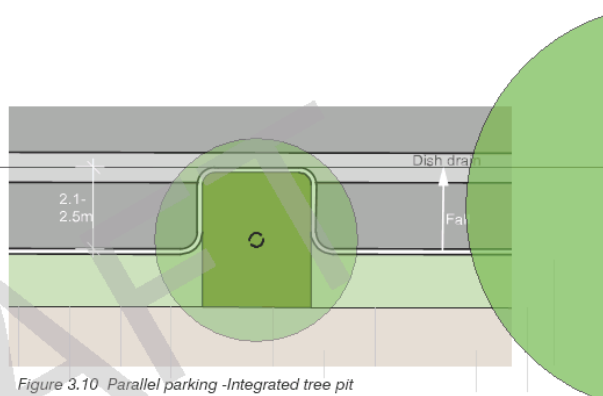


Figure 3.10 Parallel parking -Integrated tree pit

Ninety degree Parking to Local Roads

(refer Figure 3.12)

- location of ninety degree parking will be as defined in Design Guidelines - **Section 4.1 Streets**
- to be provided as a 6500mm minimum depth kerbside zone from face of kerb to face of tree pit kerb
- parking bays will fall to a dish drain adjoining the traffic lane as per *Figure 3.12*
- parking bays will be linemarked in accordance with RMS Guidelines



Figure 3.11 Parallel parking -Island tree pit

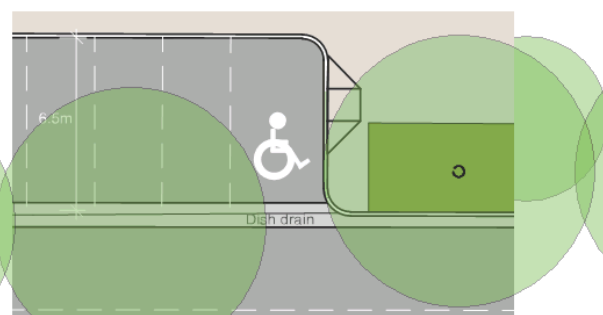


Figure 3.12- Ninety degree parking

Traffic lanes to designated bus routes

(refer Figure 3.13)

- location of bus route lane requirements will be as defined in Design Guidelines - **Section 4.1 Streets**
- minimum lane width shall be 3.5m as per State Transit bus infrastructure Guidelines Issue 2
- lane width shall be measured to face of tree pit kerb and will include gutter

Traffic lanes to designated bus routes catering for mixed cycle traffic

(refer Figure 3.14)

- location of bus route lane requirements will be as defined in Design Guidelines - **Section 4.1 Streets**
- location of mixed cycle facility shall be as per **section 3.4 Cycle Facilities**
- minimum lane width shall be 3.7m for 60km zone as per Cycling Aspects to Austroads 2017 s4.3.5
- lane width shall be measured to face of tree pit kerb and will include gutter
- provide marking and signage in accordance with NSW Bicycle Guidelines - RMS

Traffic lanes to streets with linemarked shoulder cycle lanes

(refer Figure 3.15)

- location of linemarked cycle facility shall be as per **section 3.4 Cycle Facilities**
- minimum lane width adjoining cycle lane shall be 3.0m
- lane width shall be measured to edge of cycle lane
- provide marking and signage in accordance with NSW Bicycle Guidelines - RMS

Traffic lanes to residential streets

(refer Figure 3.16)

- minimum lane width shall be 2.8m
- lane width shall be measured to face of tree pit kerb and will include gutter
- required lane width shall be determined in consultation with Council based on:
 - Vehicular traffic service requirements of road - minimum requirement will include garbage truck and fire truck access, delivery and service vehicle access and related loading zone requirements
 - Swept path requirements for access from driveway and safe egress out onto Local Road
 - Minimisation of lane width in consideration of the above to enable footway widths to be maximised

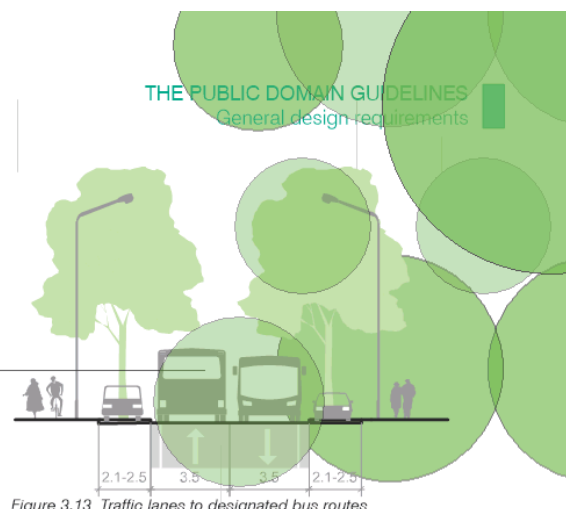


Figure 3.13 Traffic lanes to designated bus routes

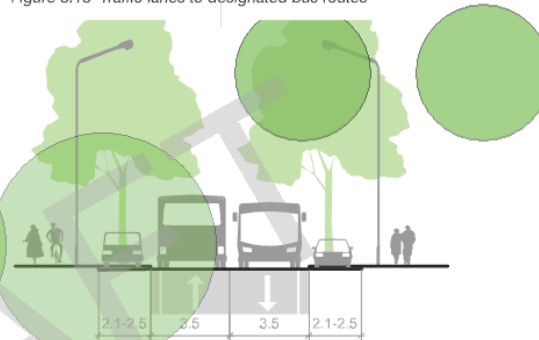


Figure 3.14 Traffic lanes to bus routes catering for mixed cycle use

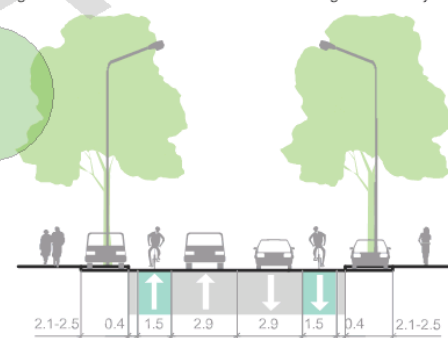


Figure 3.15 Traffic lanes to streets with linemarked shoulder cycle lanes

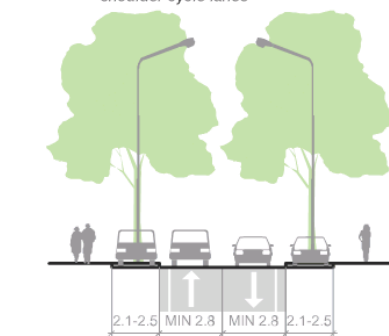


Figure 3.16 Traffic lanes to residential streets

THE PUBLIC DOMAIN GUIDELINES

General design requirements

3.4 . Bicycle facilities

The Public Domain Plan looks to prioritise provisions for cycling through Arncliffe and Banksia in order to encourage cycle use as an alternative mode of transport and for family recreation and fitness.

Research shows that with provision of safe cycle facilities an increased participation in cycling by a broader demographic can result. This includes families and children along with young professionals and students - all of which are expected to be part of the evolving new community of Arncliffe and Banksia.

Principles

Key principles for promoting cycle use include the following:

- i. provide cycleways with continuity, rhythm, and flow;
- ii. link cycleways to key destinations related to workplace, school, transport, retail, recreation and entertainment;
- iii. provide attractive cycleways integrated where possible with parkland settings;
- iv. integrate sight lines to ensure safe visibility and clearances between cyclists and pedestrians and vehicles
- v. integrate cycleways with green corridors;
- vi. integrate potential for social cycleways where possible - providing sections of adequate width where conversation can occur with two cycles astride;
- vii. consider cycleway lighting for safe and ambient night atmosphere to key routes;
- viii. promote cycleways through community groups;
- ix. support cycleway education through initiatives such as: buddy programs, community groups, and route awareness

In consideration of the above the preference is (in order from 1-4)

1. Separated Cycleways
2. Shared Use Paths
3. Marked On Road Cycleways
4. Mixed vehicular and cycle traffic

Figure 3.17 *Cycle Routes and Infrastructure* outlines the cycle facilities strategy across the PDTM area applying these principles and facilities options within the constraints of available road reserve and future development.

On the following pages design requirements for each of the facilities options are described.



Example: Bi-directional separated cycle path



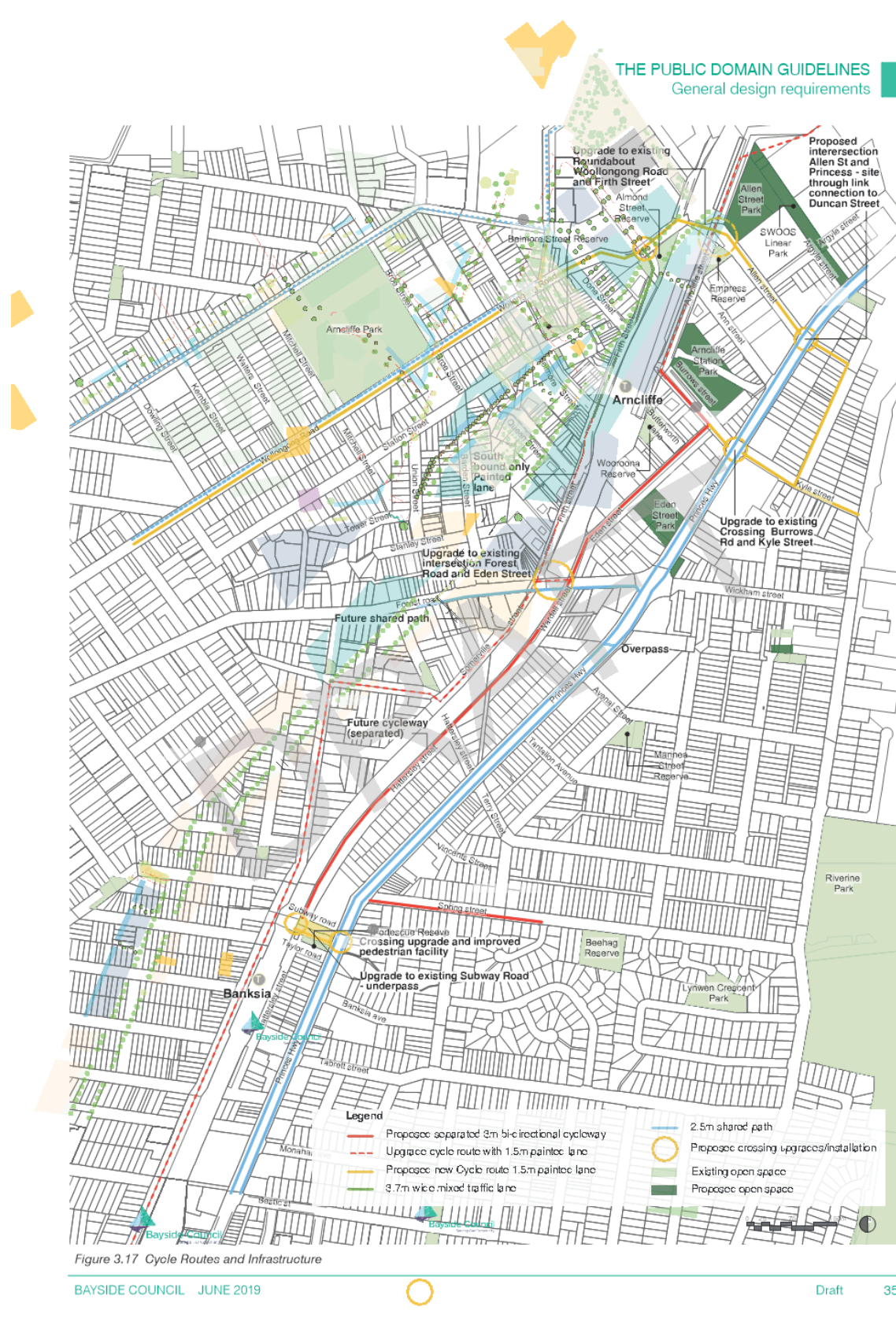
Example: Linemarked cycle lanes



Example: Shared path



Example: Mixed traffic lanes



THE PUBLIC DOMAIN GUIDELINES

General design requirements

3.4 . Bicycle facilities

a. Separated paths

Separated cycle paths are dedicated corridors for cycle use as either bi-directional or one way facilities. They are suitable for regional and local cycle network routes. (Source: RMS NSW Bicycle Guidelines).

Requirements

- i. design in accordance with RMS NSW Bicycle Guidelines and Austroads -Part 6a Pedestrian and Cyclist Paths subject to Council's discretion
- ii. Minimum width 2.0m, desirable width 3-3.5m



Example: Bi-directional separated cycle path

b. Shared paths

Shared operating space (with pedestrians) for riders in the road reserve. Suitable for regional and local cycle network routes. (Source: RMS NSW Bicycle Guidelines).

Requirements

- i. design in accordance with RMS NSW Bicycle Guidelines and Austroads -Part 6a Pedestrian and Cyclist Paths subject to Council's discretion
- ii. minimum widths are defined in Austroads Part 6A - Pedestrian and Cyclist Paths (Table 7.4):
 - Local access path 2.5m
 - Commuter path 3.0m
 - Recreational path 3.5m
- iii. pavement markings in accordance with Fig 5.4 NSW Bicycle Guidelines & CoS Shared Pathways Markings 2012
- iv. provide advisory signage in accordance with section 6.6 NSW Bicycle Guidelines) - level 3 signage



Example: Shared path

THE PUBLIC DOMAIN GUIDELINES

General design requirements

c. Linemarked cycle lane to road shoulder

Shared and marked operating space for riders on roads. Suitable for regional and local cycle network routes in moderate to low speed environments. (Source: RMS NSW Bicycle Guidelines).

Requirements

- i. design in accordance with RMS NSW Bicycle Guidelines and Austroads -Part 6a Pedestrian and Cyclist Paths subject to Council's discretion
- ii. visual separation by lines at lane width of 1.4-1.5m as per Fig 5.3 NSW Bicycle Guidelines



Example: Mixed traffic lanes

d. Mixed Traffic markings

Shared (with moving vehicles) unmarked operating space for riders on minor roads and residential streets. To provide cycle linkages across the network. Suitable in low speed (less than 50km) / low volume environments. (Source: RMS NSW Bicycle Guidelines).

Requirements

- i. design in accordance with RMS NSW Bicycle Guidelines subject to Council's discretion
- ii. riders share space which is tight enough so that it is not possible to pass
- iii. pavement markings in accordance with Fig 4.7 NSW Bicycle Guidelines



Example: Mixed traffic lanes

THE PUBLIC DOMAIN GUIDELINES

General design requirements

3.5 Environment & sustainability

Environment and sustainability reflects the PDP&TM vision objective for "green" Arncliffe and Banksia town centres. For the public domain this will involve the following strategies which supplement those being implemented within private lands on new development sites:

Principles

Habitat

- i. Planting including street trees and street garden plantings to employ a majority (70% or more) of species that:
 - enhance the biodiversity of the area - reflecting where possible locally indigenous species and species that will enhance native fauna bird and insect habitat
 - limit recurrent water demand for ongoing plant viability - use low water demand plants where possible
- ii. Provide new habitats within the area (new parks and park upgrading) that echo and complement the creek and wetland habitats of Wolli Creek and Cooks River - refer to each of the specific flood and water quality habitat opportunities following for implementation as an integrated project.



Example: Multi function water bodies / water quality facilities within open spaces strengthen character linkages to Wolli Creek riparian environment



Example: Water contact and visual character can be provided



Example: Park edges can contribute to water quality management

Flood and water quality management and potable water use

- i. The implementation of Water Sensitive Urban Design (WSUD) is to be focussed on the open space areas adjoining streetscapes. This recognises that in-street WSUD is lower priority where opportunities to provide WSUD within open space exist and space within the road reserve is constrained. In-street WSUD can limit the scale of tree plantings (within smaller WSUD pits) and are of high recurrent maintenance demand for Council.
- ii. In addition to water quality improvements from open space WSUD elements, there is also potential for a volume of water to be harvested for re-use in open space irrigation.

Specific opportunities to be explored are listed:

1. Allen street development site

- i. Flood detention / mitigation as per DCP
- ii. Integrate biofiltration beds and wetland water bodies as multi function water management / landscape features
- iii. Integrate potential water storage from adjoining sites for irrigation re-use

2. Arncliffe Station Park

- i. Flood detention / mitigation as per DCP
- ii. Integrate biofiltration beds and wetland water bodies as multi function water management / landscape features
- iii. Integrate potential water storage from adjoining sites for irrigation re-use

3. Existing Wooroona Reserve

- i. Integrate linear biofiltration beds to capture runoff from Station access
- ii. Integrate potential water storage from adjoining sites for irrigation re-use

4. Eden street development site

- i. Integrate biofiltration beds and wetland water bodies as multi function water management / landscape features - potential to serve part of Forest Road / Princes Highway catchment

5. Existing Almond Street Reserve

- i. Integrate linear biofiltration beds to capture street runoff at road edges

THE PUBLIC DOMAIN GUIDELINES
General design requirements

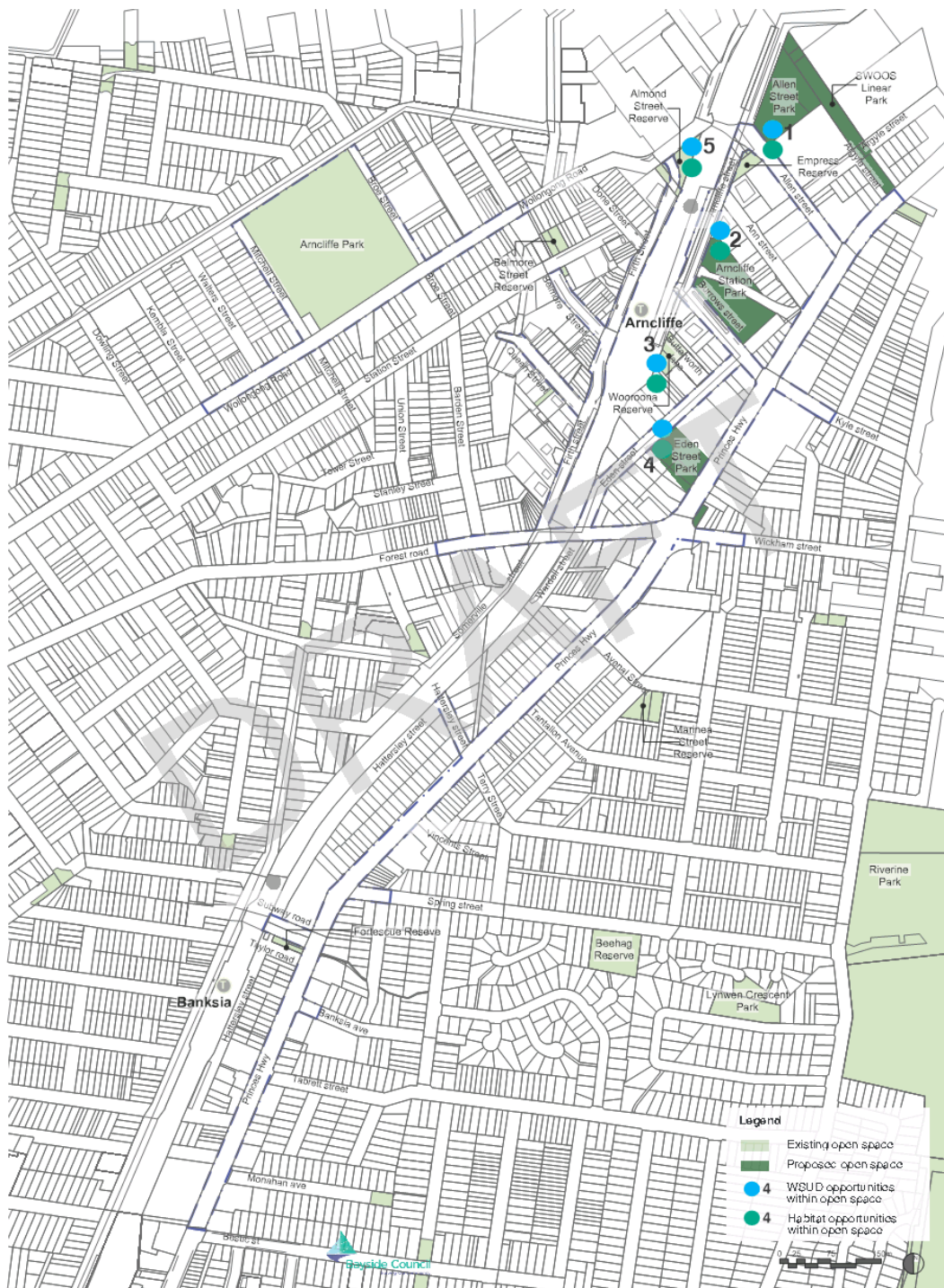


Figure 3.18 Water management opportunities within open space

THE PUBLIC DOMAIN GUIDELINES

4.0 Design guidelines

4.1 Streets

Design guidelines are provided for the street precincts within the study area where redevelopment and / or public domain improvements are envisaged. These should inform design development of public domain works within those streets, supported by the *General Design Requirements* (Section 3.0) and *Technical and Materials Guidelines* (Section 5.0).

Figure 4.1 references the main street corridors. For each of these corridors (Princes Highway, Wollongong Road and Firth Street) the street guidelines following are also supplemented by separate detailed concepts which are available from Council. Figure 4.2 references the secondary streets covered in the streets public domain design guidelines.

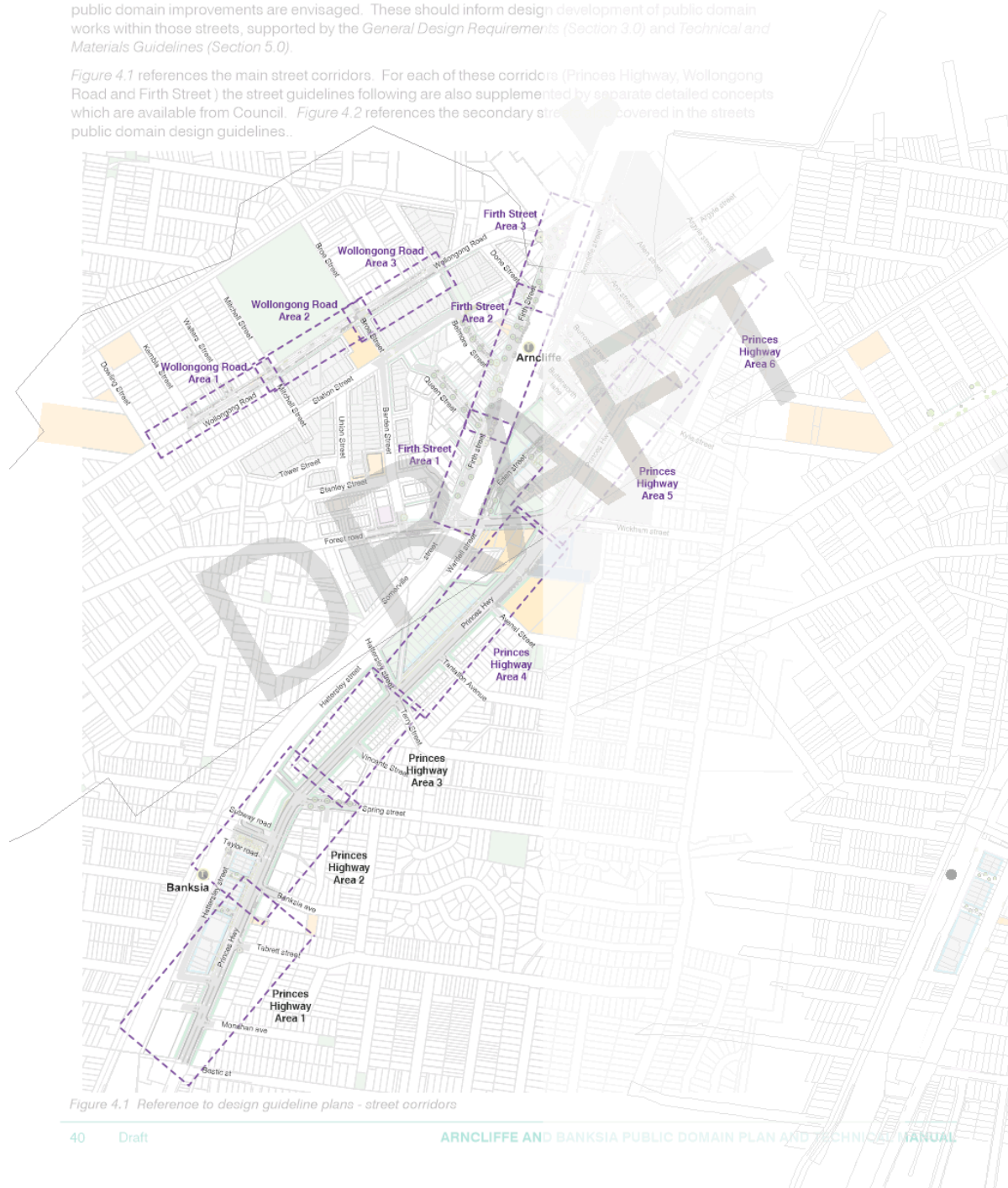


Figure 4.1 Reference to design guideline plans - street corridors

THE PUBLIC DOMAIN GUIDELINES
Design guidelines

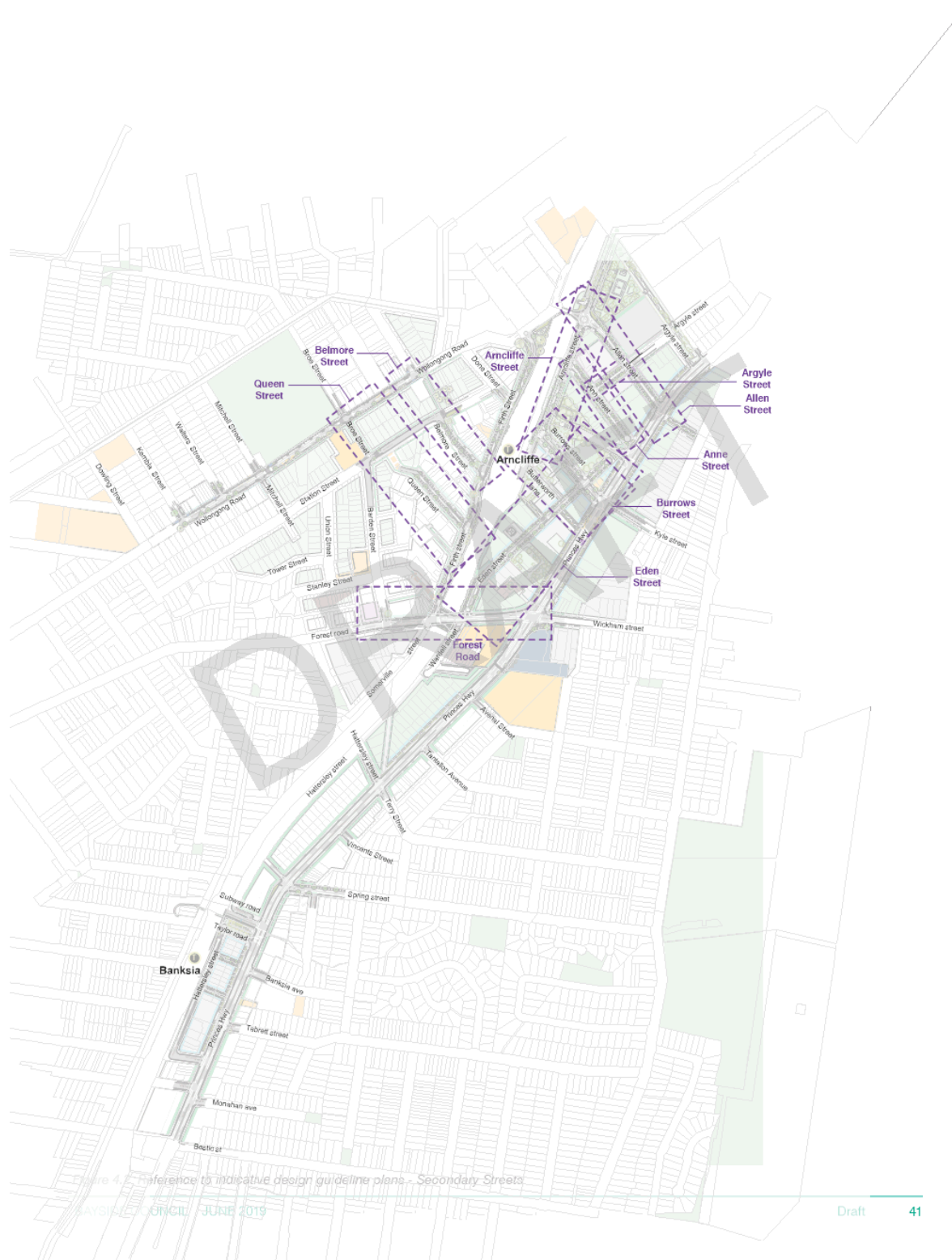


Figure 4.2 Reference to indicative design guideline plans - Secondary Streets

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THE PUBLIC DOMAIN GUIDELINES

Design guidelines

Princes Highway



Applying the public domain principles - frontages to Mixed Use zoning

function	character	comfort	resilience
i. provide public domain setback to enhance street character and pedestrian amenity	i. maximise tree canopy as per "Green Plan"	i. awnings through mixed use frontages as per RDCP 2011	i. provide large tree canopy with adequate soil volumes (>35m ³)
ii. maximise pedestrian through mixed use frontage	ii. large evergreen species	ii. compliant pedestrian level lighting along frontage walkway by pedestrian pole-top lighting	ii. provide consolidated street garden areas for more impact, resilience and easier maintenance
iii. minimise interruptions (driveways)	iii. reflect building frontage uses through pavement materials	iii. compliant cycle path level lighting along cycle path by street lighting	iii. use water effective species
iv. integrate ground level mixed use frontages and Enterprise zone frontages with consistent pavement materials	iv. coordinated bin and seat street furniture to mixed use and Enterprise zone frontages		
v. cater for district cycle connection with bi-directional shared paths to each side			
vi. undergrounding of overhead services to maximise tree canopy opportunities			

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General design requirements

Footway arrangement (refer section 3.2)

- maintain existing kerb alignments generally
- provide 6.0m public domain setback as per DCP
- minimum 2400mm target pedestrian clear through zone to mixed use frontage

Driveways (refer section 3.2c)

- no driveways from RMS Road and mixed use frontages

Power & telecommunications (refer section 3.2e)

- overhead services to be undergrounded

Carriageway / Cycle provision (refer section 3.3-3.4)

- maintain existing traffic provisions and lanes
- 2.5m shared path adjoining building frontage

Parking (refer section 3.4)

- time restricted kerbside parking to clearway zones
- proposed spaces overall 175 (nil loss of spaces)

Lighting (refer section 5.3)

- multi function pole street Lighting (refer technical guideline LT1) to required level for cycle paths, traffic and pedestrian spaces - integrated between tree plantings and at pedestrian crossings
- pedestrian pole-top Lighting (LT3) to mixed use frontages
- all lighting to Comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Materials and finishes

Footway pavements (refer section 5.1)

- stone pavement to active frontages (refer technical guideline PA1)
- general pedestrian pavement to other paths and shared paths (refer technical guideline PA2)
- stone accent pavement (refer technical guideline PA3)
- paving infill lids generally with exception of Telstra and Optus services (refer technical guideline PA1-4/5 for stone pavement)
- Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer section 5.2)

Tree planting (refer section 5.4)

- Brushbox (*Lophostemon confertus*) generally to public domain setback within street garden beds at average 12m centres
- refer technical guideline ST3 for trees to street gardens
- refer technical guideline ST4 for street gardens



Applying the public domain principles - frontages to Enterprise Corridor zoning

function	character	comfort	resilience
<ul style="list-style-type: none"> i. Provide deep soil landscape setback in which regular large tree canopy is planted to provide continuation of street tree corridor ii. maximise pedestrian pathway to Enterprise zone frontage iii. minimise interruptions (driveways) iv. integrate ground level mixed use frontages and Enterprise zone frontages with consistent pavement materials v. Undergrounding of overhead services to maximise tree canopy opportunities 	<ul style="list-style-type: none"> i. maximise tree canopy as per "Green Plan" ii. large evergreen species iii. reflect building frontage uses through pavement materials iv. coordinated bin and seat street furniture to mixed use and Enterprise zone frontages 	<ul style="list-style-type: none"> i. continuous evergreen tree canopy provides summer shade but enables regular pockets of winter solar access ii. compliant pedestrian level lighting along enterprise frontage walkway by street lighting iii. awnings as per DCP 2011 	<ul style="list-style-type: none"> i. provide large tree canopy with adequate soil volumes ($>35m^3$) ii. provide consolidated street garden areas for more impact, resilience and easier maintenance iii. use water effective species

General design requirements

Footway arrangement (refer section 3.2)

- i. maintain existing kerb alignments generally
- ii. provide 6.0m landscape setback as per DCP
- iii. provide minimum 1800mm (pedestrian) / maximum 2400 (shared path) to Enterprise Zone frontage maintaining minimum 1200mm street garden verge adjoining kerb

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. maintain existing traffic provisions and lanes
- ii. 2.5m shared path adjoining property boundary

Power & telecommunications (refer section 3.2e)

- i. overhead services to be undergrounded

Lighting (refer section 5.3)

- i. multi function pole street Lighting (refer technical guideline LT1) to required level for cycle paths, traffic and pedestrian verge integrated between tree plantings and at pedestrian crossings
- ii. pedestrian pole-top Lighting (LT3) or shared path lighting by multi function pole street Lighting (LT1) to Enterprise zone frontages
- iii. all lighting to comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Driveways (refer section 3.2c)

- i. no driveways to mixed use frontages

Parking (refer section 3.4)

- i. time restricted kerbside parking to clearway zones
- ii. proposed spaces overall 175 (nil loss of spaces)

Materials and finishes

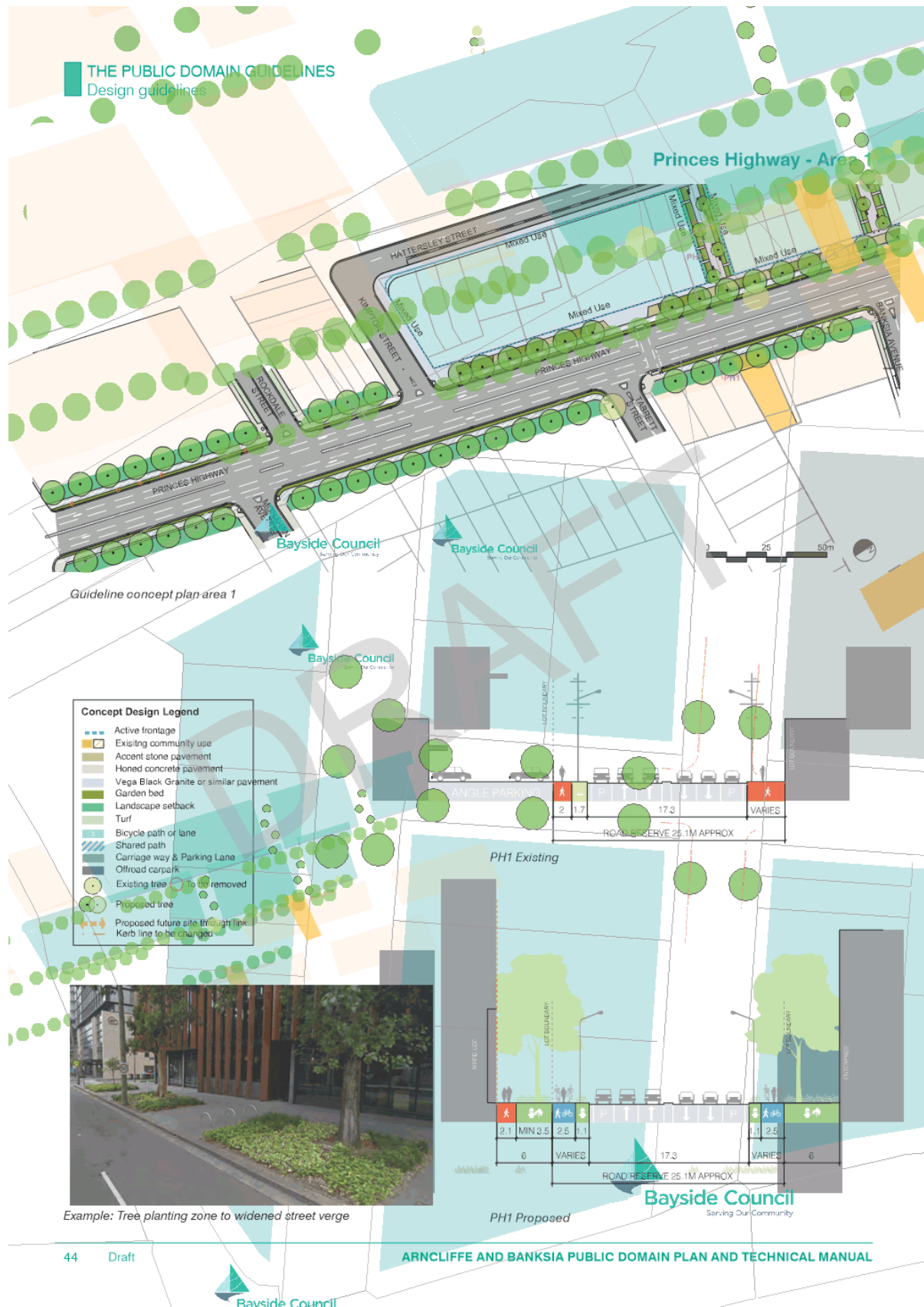
Footway pavements (refer section 5.1)

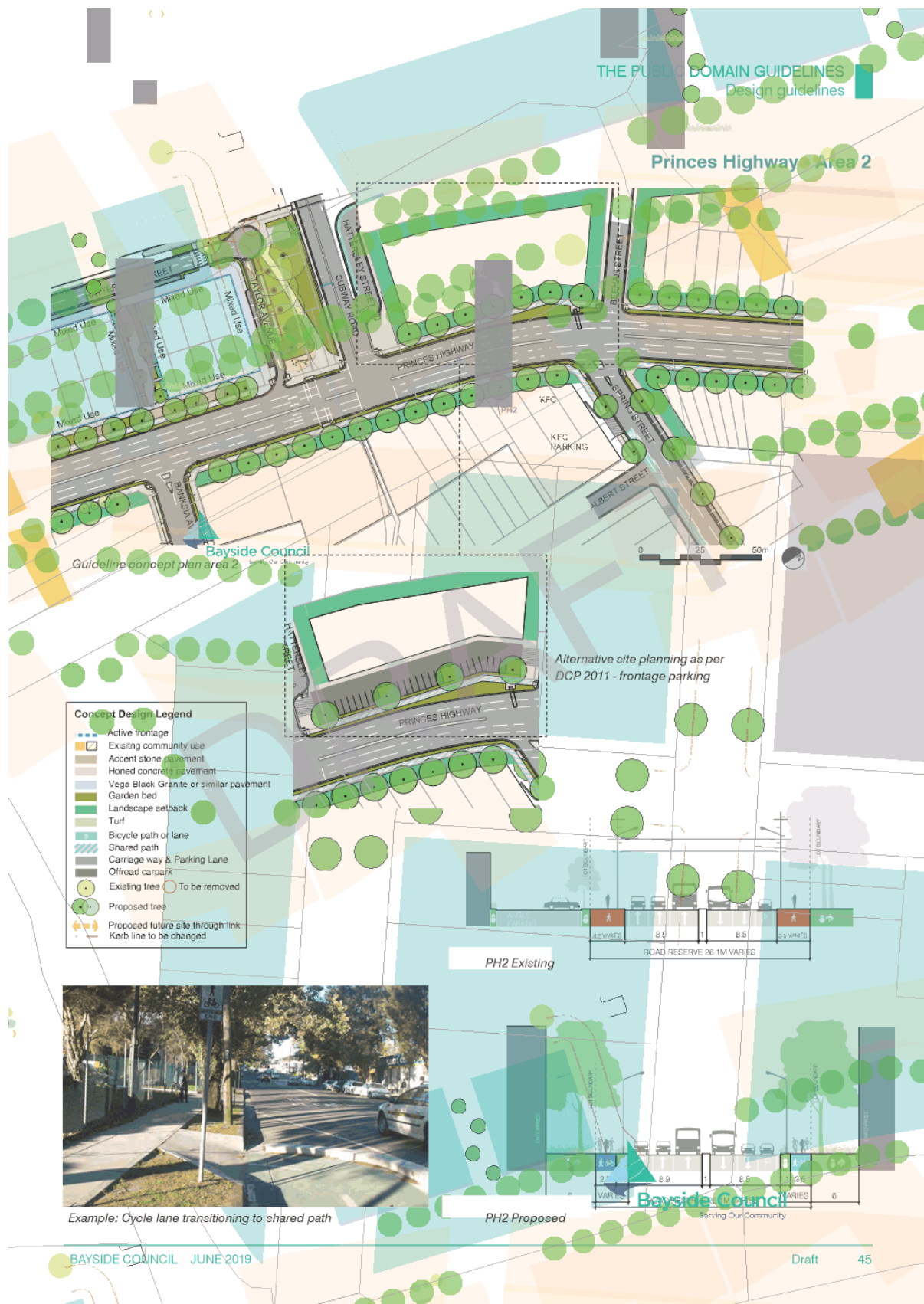
- i. general pedestrian pavement (refer technical guideline PA2)
- ii. paving infill lids generally with exception of Telstra and Optus services
- iii. Telstra and Optus pits to be steel lids where possible in preference to concrete

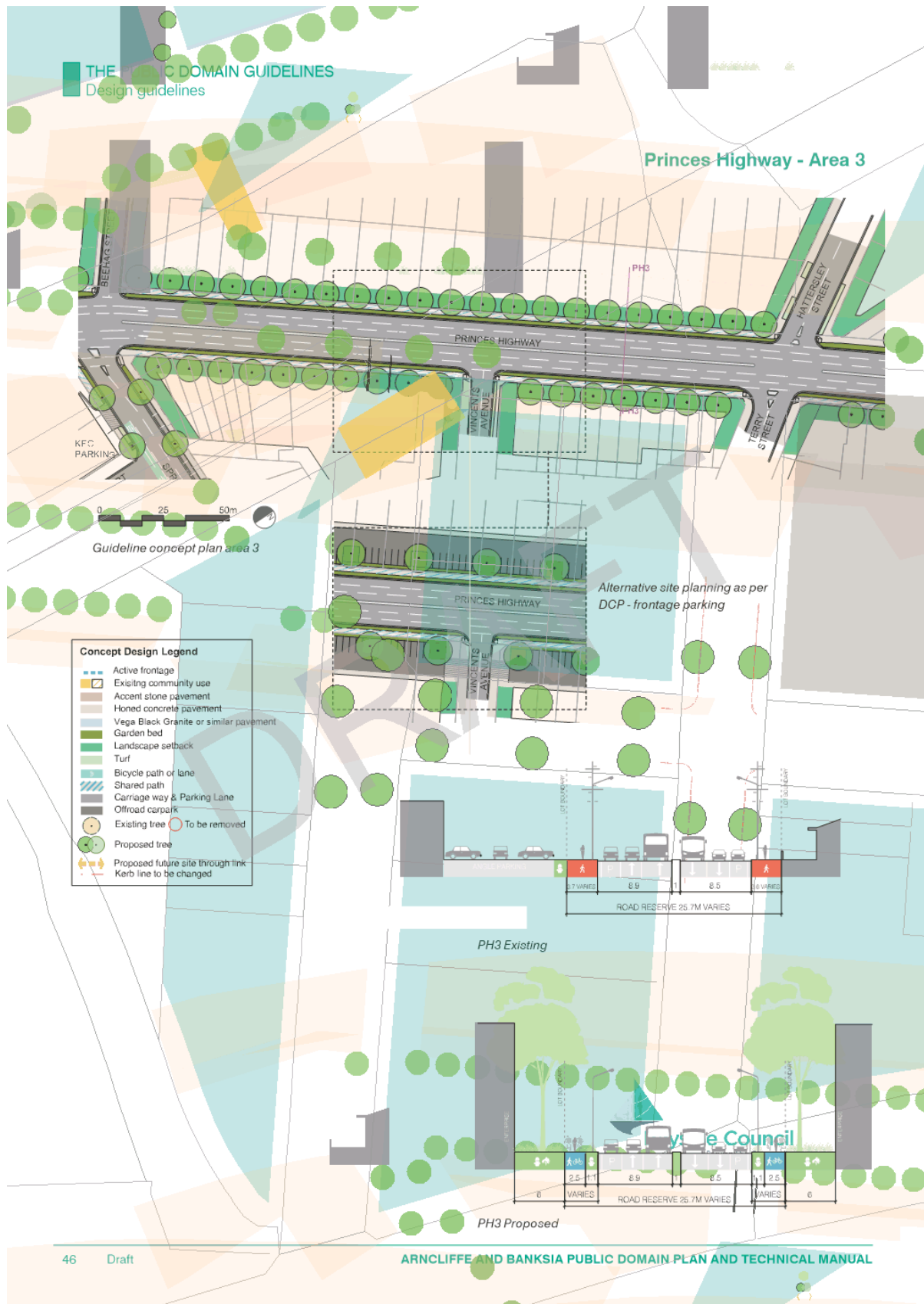
Street furniture (refer section 5.2)

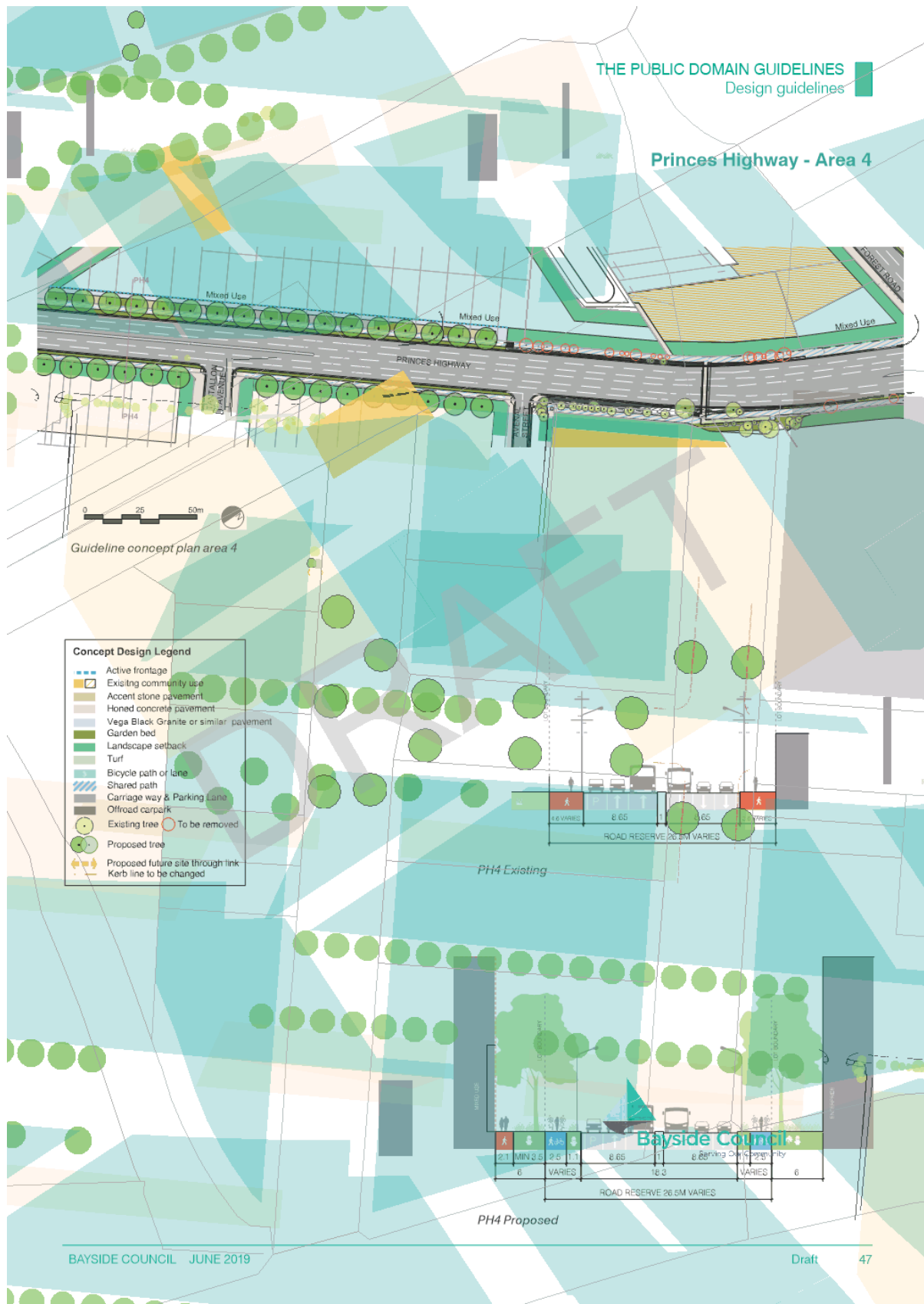
Tree planting (refer section 5.4)

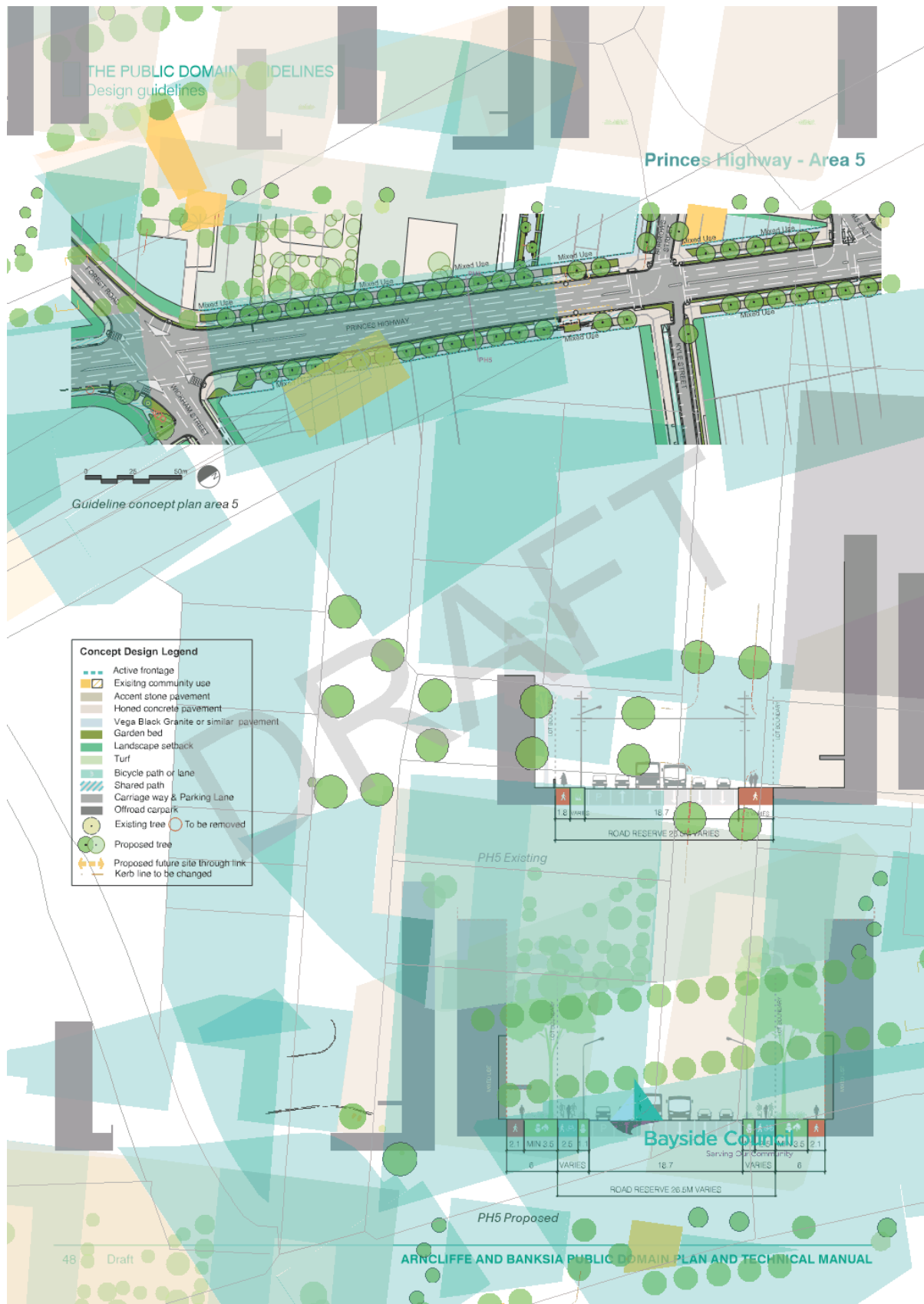
- i. Brushbox (*Lophostemon confertus*) generally to private landscape setback within frontage deep soil zone at average 12m centres
- ii. refer technical guideline ST3 for trees to street gardens
- iii. refer technical guideline ST4 for street gardens

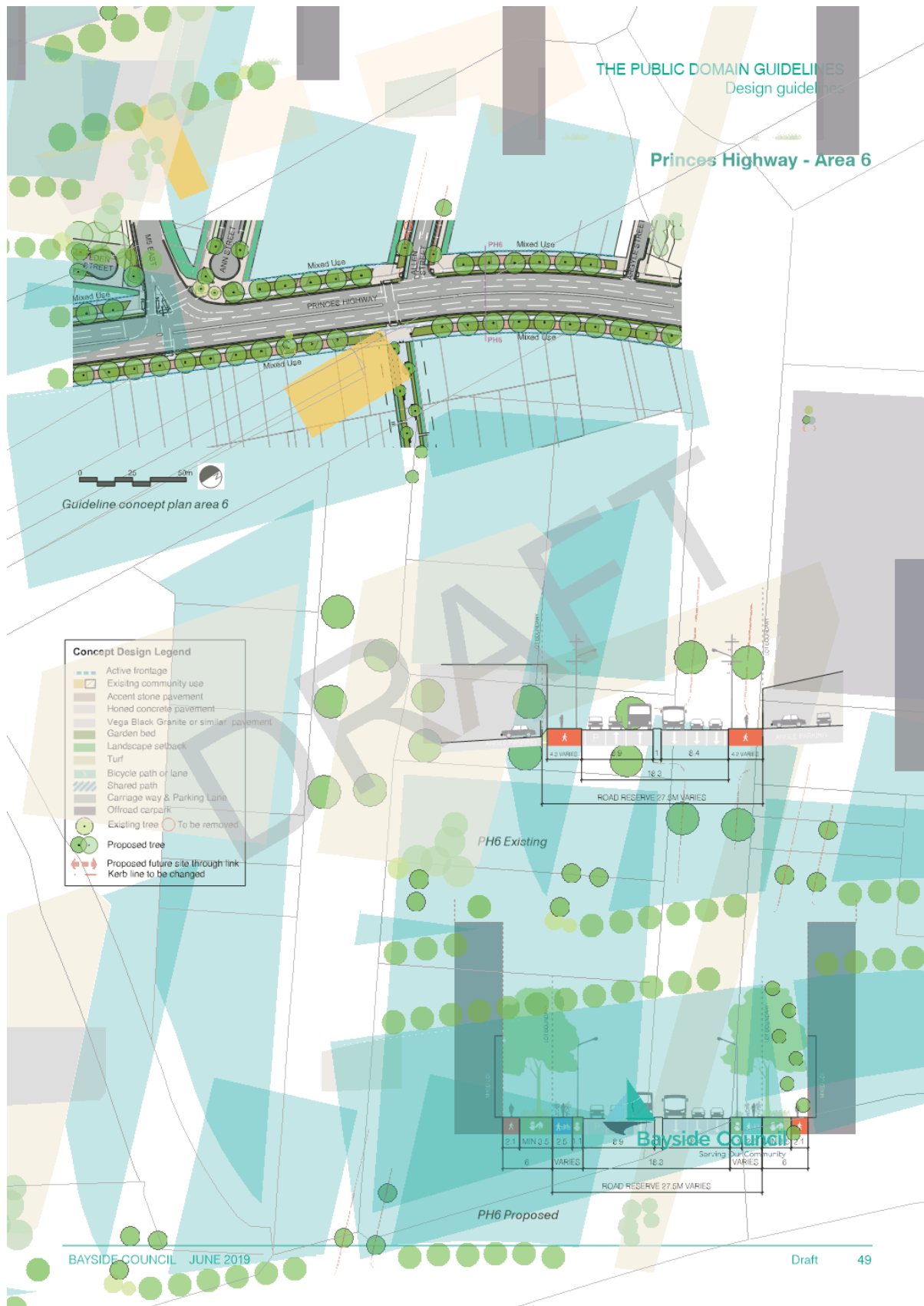












THE PUBLIC DOMAIN GUIDELINES
Design guidelines



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ARNCLIFFE AND BANKSIA PUBLIC DOMAIN PLAN AND TECHNICAL MANUAL

THE PUBLIC DOMAIN GUIDELINES
Design guidelines

Princes Highway



Existing view:
Princes Highway viewing south at
Burrows Street

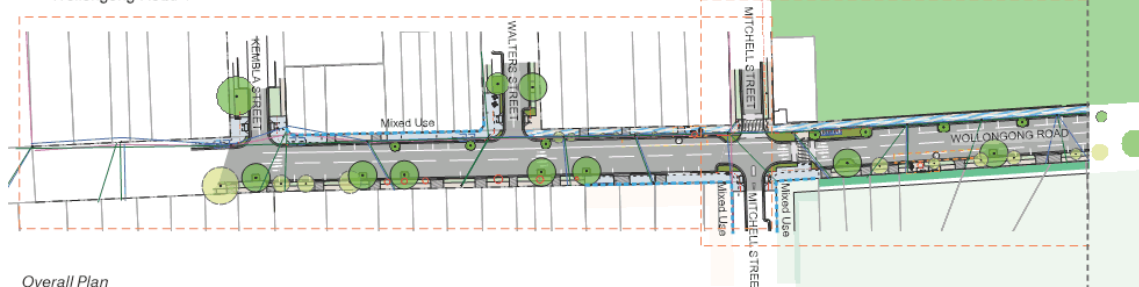
Illustrative view:
Princes Highway viewing south at Burrows
Street

THE PUBLIC DOMAIN GUIDELINES

Design guidelines

Wollongong Road

Wollongong Road 1



Overall Plan

Applying the public domain principles

function	character	comfort	resilience
<ul style="list-style-type: none"> i. maximise pedestrian through zone space reflecting district pedestrian role ii. minimise interruptions (driveways) iii. due to limited verge width - on street alfresco seating to footpath widenings only iv. standard size bus provisions in both directions v. cater for district cycle connection with on road mixed cycle traffic vi. pursue future undergrounding of overhead services to maximise tree canopy opportunities with redevelopment 	<ul style="list-style-type: none"> i. maximise tree canopy as per "Green Plan" ii. medium evergreen species for visual impact integrated within constraint of overhead services to east side iii. small evergreen tree to west side adjacent continuous overhead cables iv. integrate "street gardens" of sufficient scale to have visual impact v. reflect building frontage uses through pavement materials vi. coordinated seat and bin street furniture to mixed use frontages 	<ul style="list-style-type: none"> i. maximise tree canopy for shade amenity ii. provide awnings along retail frontages as per RDCP 2011 pedestrian level lighting along corridor by pedestrian pole-tops or under awning lighting iv. Integrate street design with adjoining publicly accessible spaces (parks and through site links) to promote use v. provide intermittent seating in usable and comfortable locations 	<ul style="list-style-type: none"> i. provide medium to small tree canopy with adequate soil volumes (>35m³) ii. provide large street garden areas for impact, resilience and more efficient maintenance iii. use water effective species iv. integrate WSUD to adjoining Arncliffe Park

General design requirements

Footway arrangement (refer section 3.2)

- i. maintain existing kerb alignment - no general footpath widening possible within existing road reserve
- ii. provide footpath widening to no parking zones at intersections
- iii. minimum 2500mm target pedestrian clear through zone
- iv. on street alfresco seating to kerb build outs only

Driveways (refer section 3.2c)

- i. no driveways to retail frontages

Power & telecommunications (refer section 3.2e)

- i. overhead services to be retained in medium term

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 3.7m traffic lanes including dish drain to cater for shared bus and on road cycle movement

Parking (refer section 3.4)

- i. kerbside parking between tree pits generally
- ii. proposed spaces 68 (loss of 20 spaces)

Lighting (refer section 5.3)

- i. street lighting (refer technical guideline LT2) to required lighting level for cycle lanes, traffic and pedestrian verge integrated between tree plantings and at pedestrian crossings
- ii. Pedestrian Pole-top Lighting (refer technical guideline LT3) or Under Awning Lighting to retail frontages
- iii. footways illuminated by street lighting to residential frontages
- iv. all lighting to Comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Materials and finishes

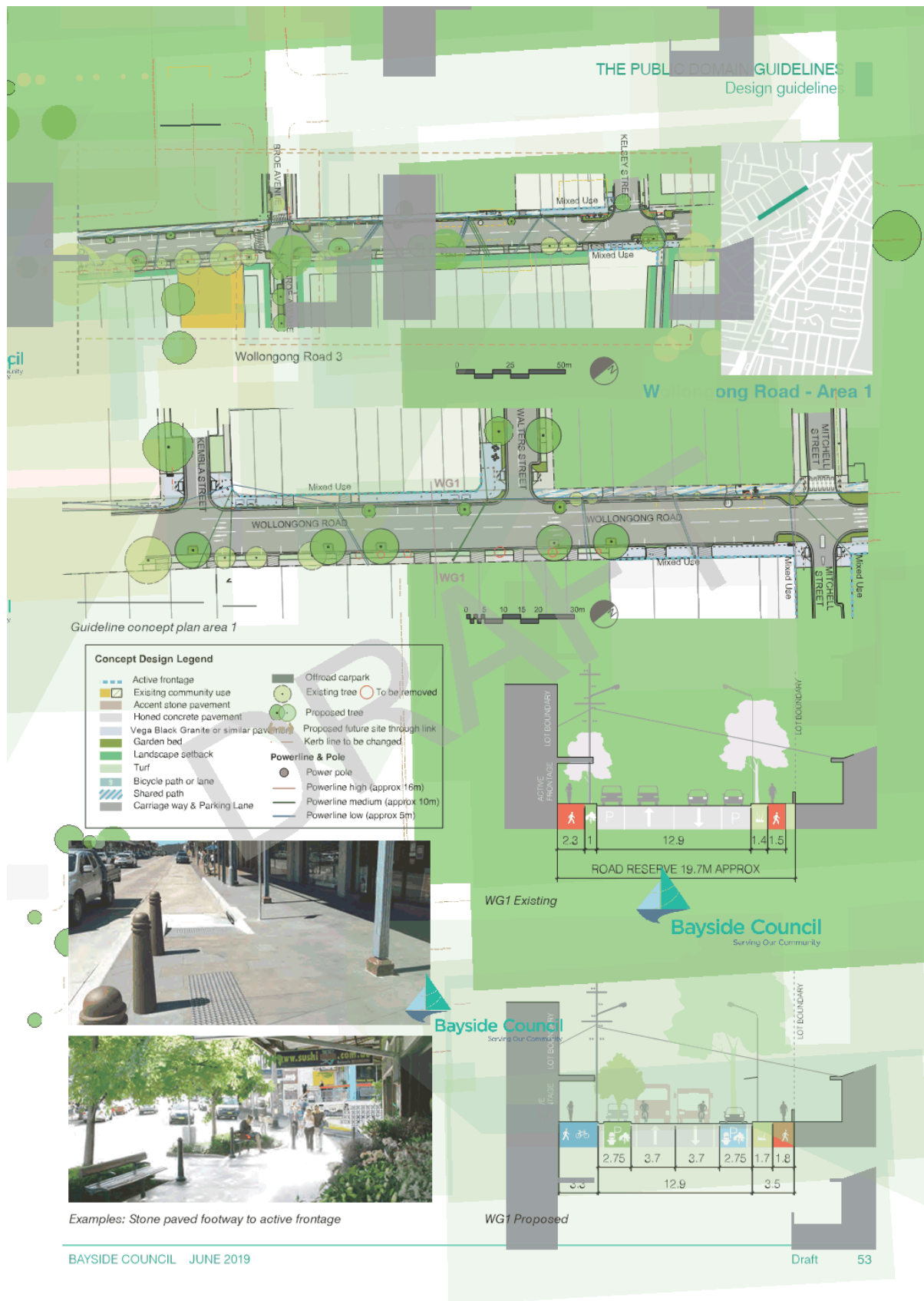
Footway pavements (refer section 5.1)

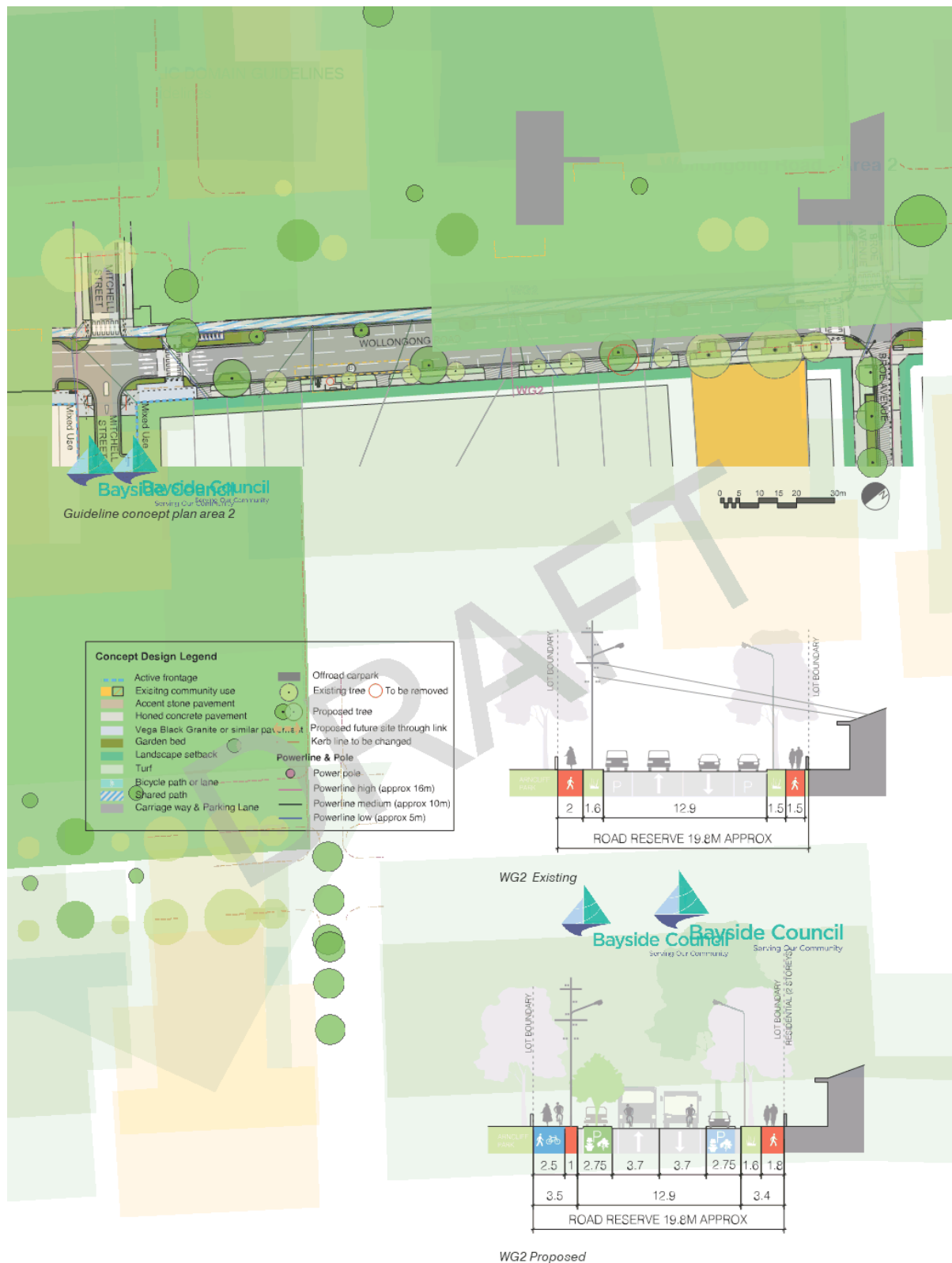
- i. stone pavement to active frontages (refer technical guideline PA1)
- ii. general pedestrian pavement (refer technical guideline PA2)
- iii. driveways to match adjoining pavement finish
- iv. paving infill lids generally with exception of Telstra and Optus services (refer technical guideline PA1-4/5 for stone pavement)
- v. Telstra and Optus pits to be steel lids where possible in preference to concrete

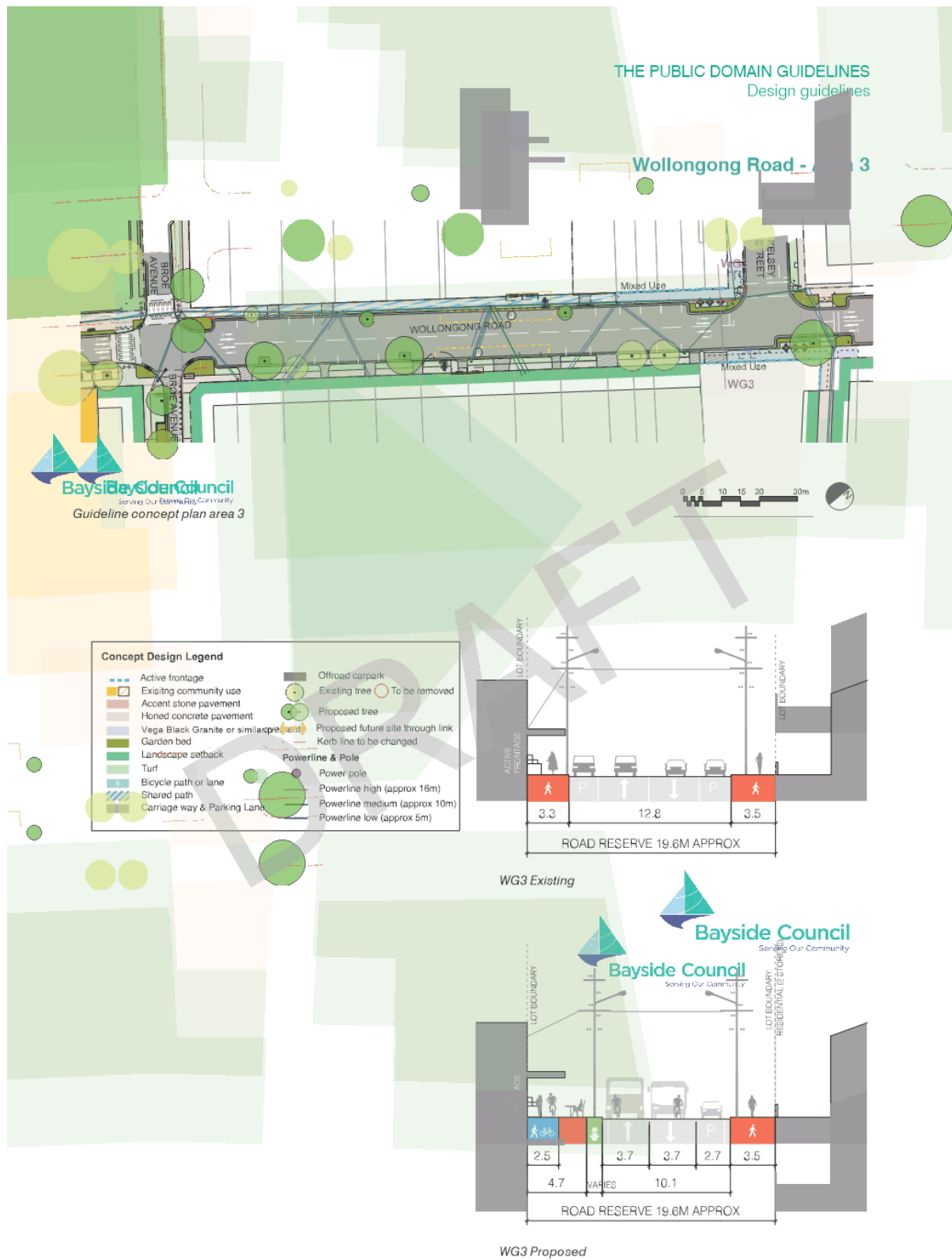
Street furniture (refer section 5.2)

Tree planting (refer section 5.4)

- i. Brushbox (*Lophostemon confertus*) east side (refer technical guideline ST1)
- ii. Blueberry Ash (*Eleocharpus reticulatus*) west side (refer technical guideline ST2)
- iii. refer technical guideline ST3 for trees to street gardens
- iv. refer technical guideline ST4 for street gardens







THE PUBLIC DOMAIN GUIDELINES
Design guidelines

*Existing view:
Wollongong Road viewing north east at
Arncliffe Park*



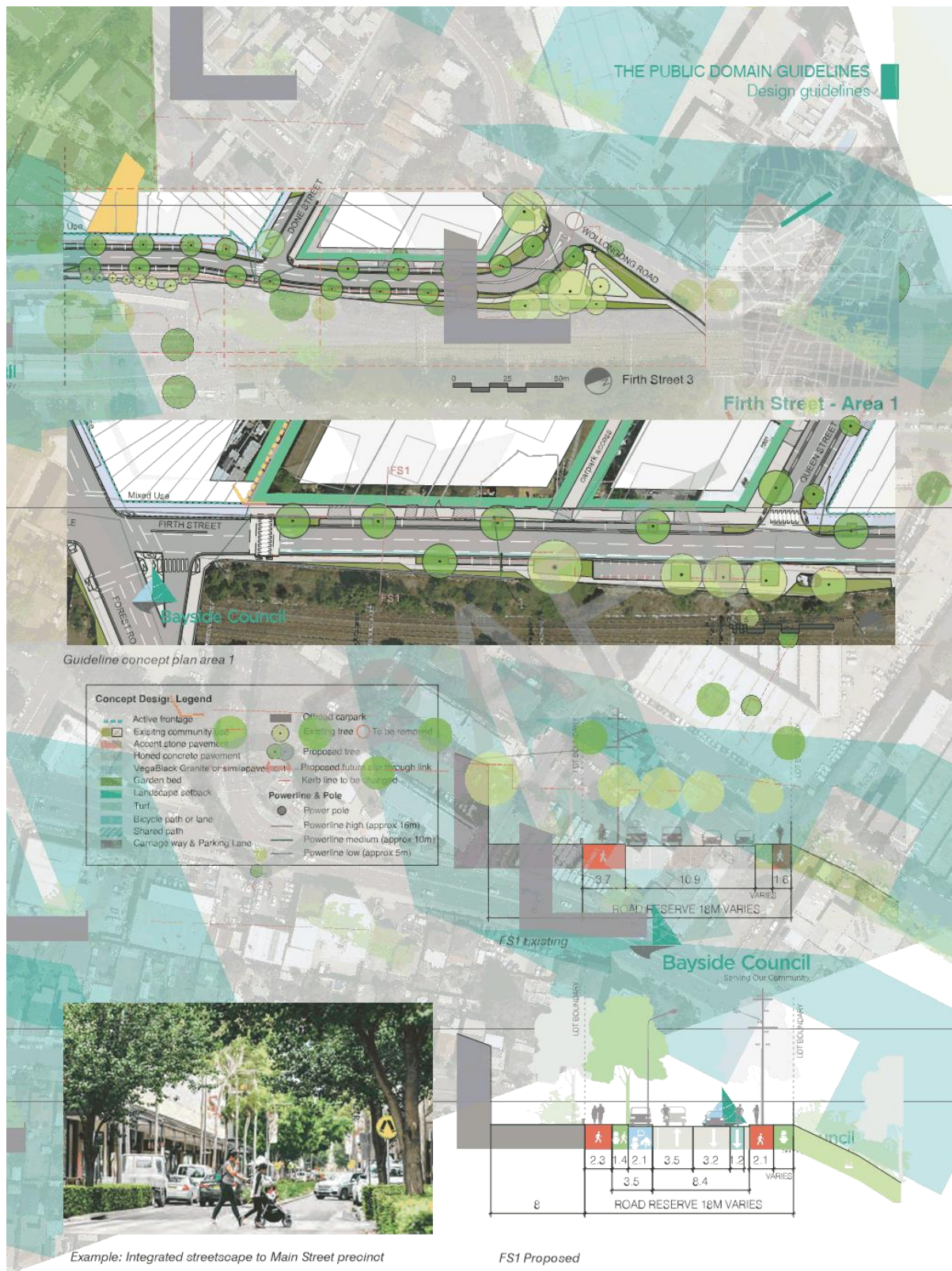
*Illustrative view:
Wollongong Road viewing north east at
Arncliffe Park*

THE PUBLIC DOMAIN GUIDELINES
Design guidelines

Wollongong Road

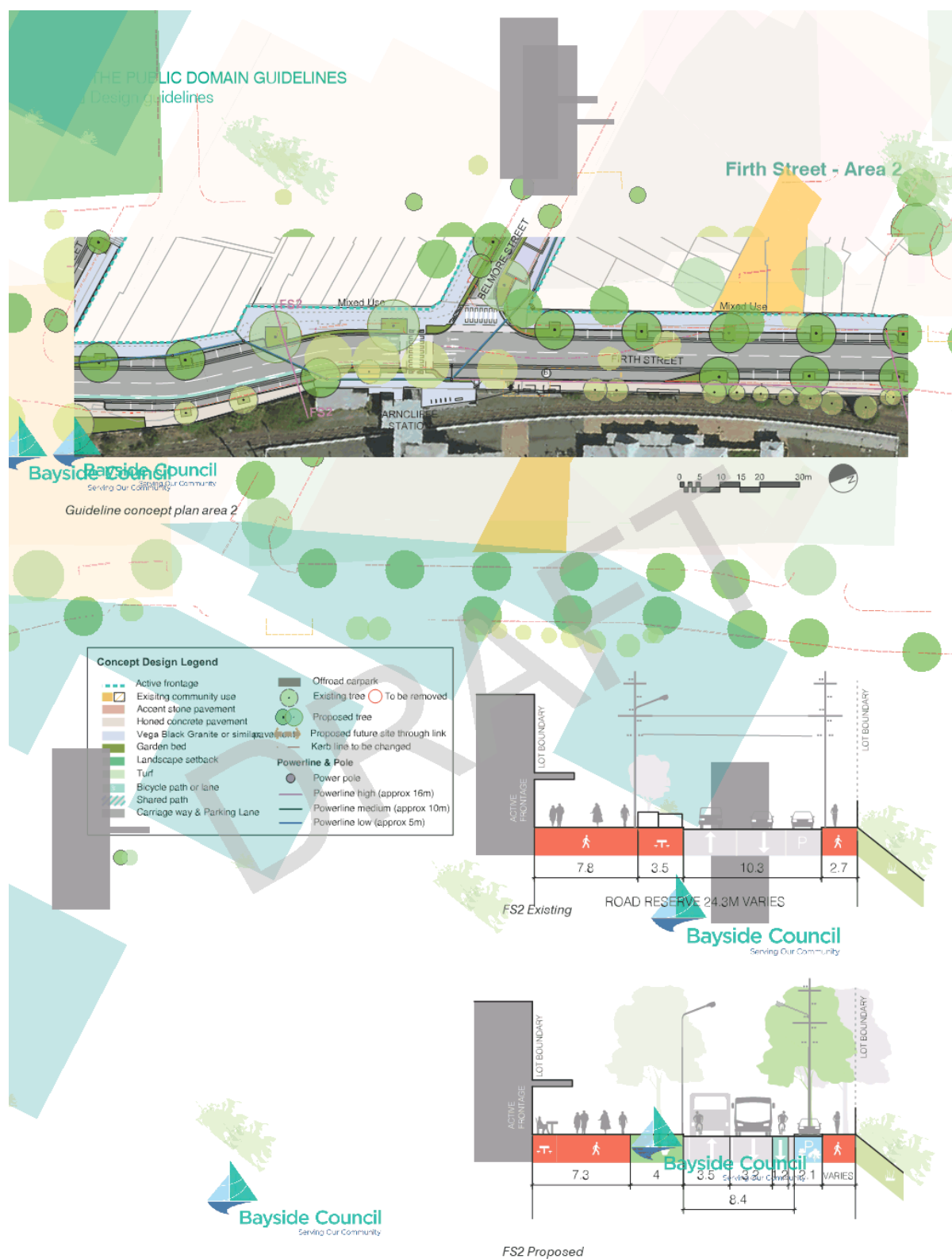


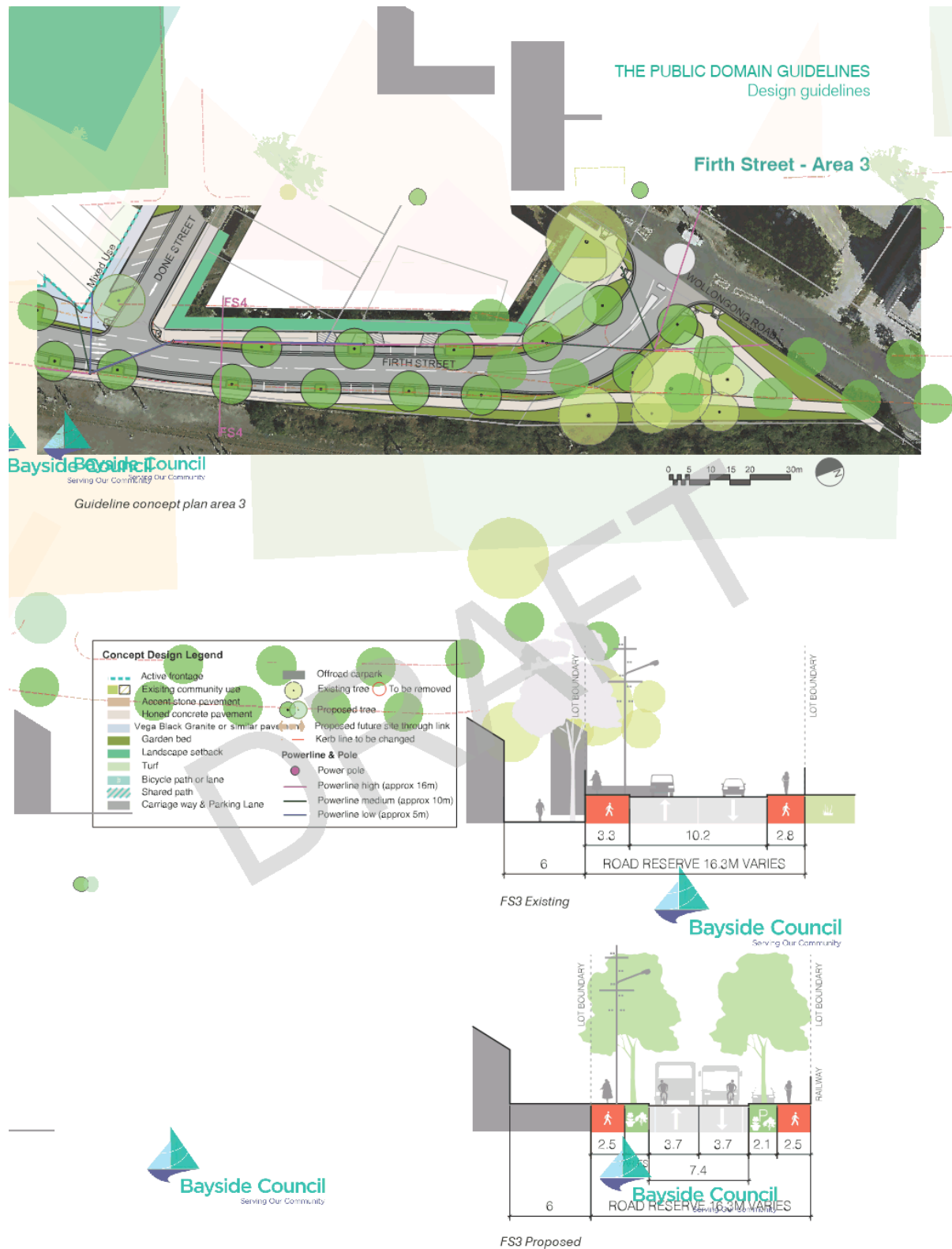




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*Existing view:
Firth Street viewing south at Belmore Street*

*Illustrative view:
Firth Street viewing south at Belmore Street*



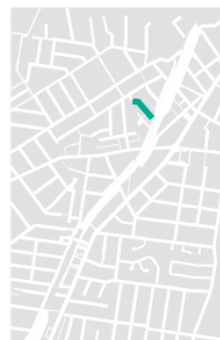
THE PUBLIC DOMAIN GUIDELINES
Design guidelines

Firth Street



THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Queen Street

Applying the public domain principles

function	character	comfort	resilience
<ul style="list-style-type: none"> i. maximise pedestrian through zone to north side mixed use frontage integrating with Firth Street ii. provide pedestrian pathway to south side as access from residential areas to Firth Street and to Station iii. minimise interruptions (driveways) iv. On street alfresco seating to retail frontage > 3.6m and footway widenings v. pursue future undergrounding of overhead services to maximise tree canopy opportunities with redevelopment 	<ul style="list-style-type: none"> i. maximise tree canopy as per "Green Plan" ii. medium evergreen species to south side within constraint of overhead services iii. small deciduous trees to north side to maximise winter light iv. integrate "street gardens" of sufficient scale to have visual impact v. reflect building frontage uses through pavement materials vi. coordinated street furniture to mixed use frontage 	<ul style="list-style-type: none"> i. maximise tree canopy for shade amenity ii. provide awnings along retail frontages as per RDCP 2011 iii. pedestrian level lighting along corridor by pedestrian pole-tops or street lighting iv. Integrate street design with adjoining publicly accessible spaces (parks and through site links) to promote use 	<ul style="list-style-type: none"> i. provide small to medium tree canopy with adequate soil volumes (>35m³) ii. provide fewer / larger street garden areas for more impact, resilience and easier maintenance iii. use water effective species

General design requirements

Footway arrangement (refer section 3.2)

- i. widen footway to north side to serve mixed use frontage
- ii. minor narrowing of footway to south side
- iii. minimum 2400mm target pedestrian clear through zone to mixed use frontage
- iv. on street alfresco seating to retail frontages > 3.6m

Driveways (refer section 3.2c)

- i. no driveways to retail frontages

Power & telecommunications (refer section 3.2e)

- i. overhead services to be retained in medium term

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 3.5m traffic lanes including dish drain

Parking (refer section 3.4)

- i. kerbside parking between tree pits generally
- ii. proposed spaces 26 (loss of 1 space)

Lighting (refer section 5.3)

- i. Street lighting (refer technical guideline LT2) to required level integrated between tree plantings and at pedestrian crossings
- ii. pedestrian Pole-top Lighting (refer technical guideline LT3) or Under Awning Lighting to retail frontages
- iii. footways illuminated by street lighting to residential frontages
- iv. all lighting to Comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Materials and finishes

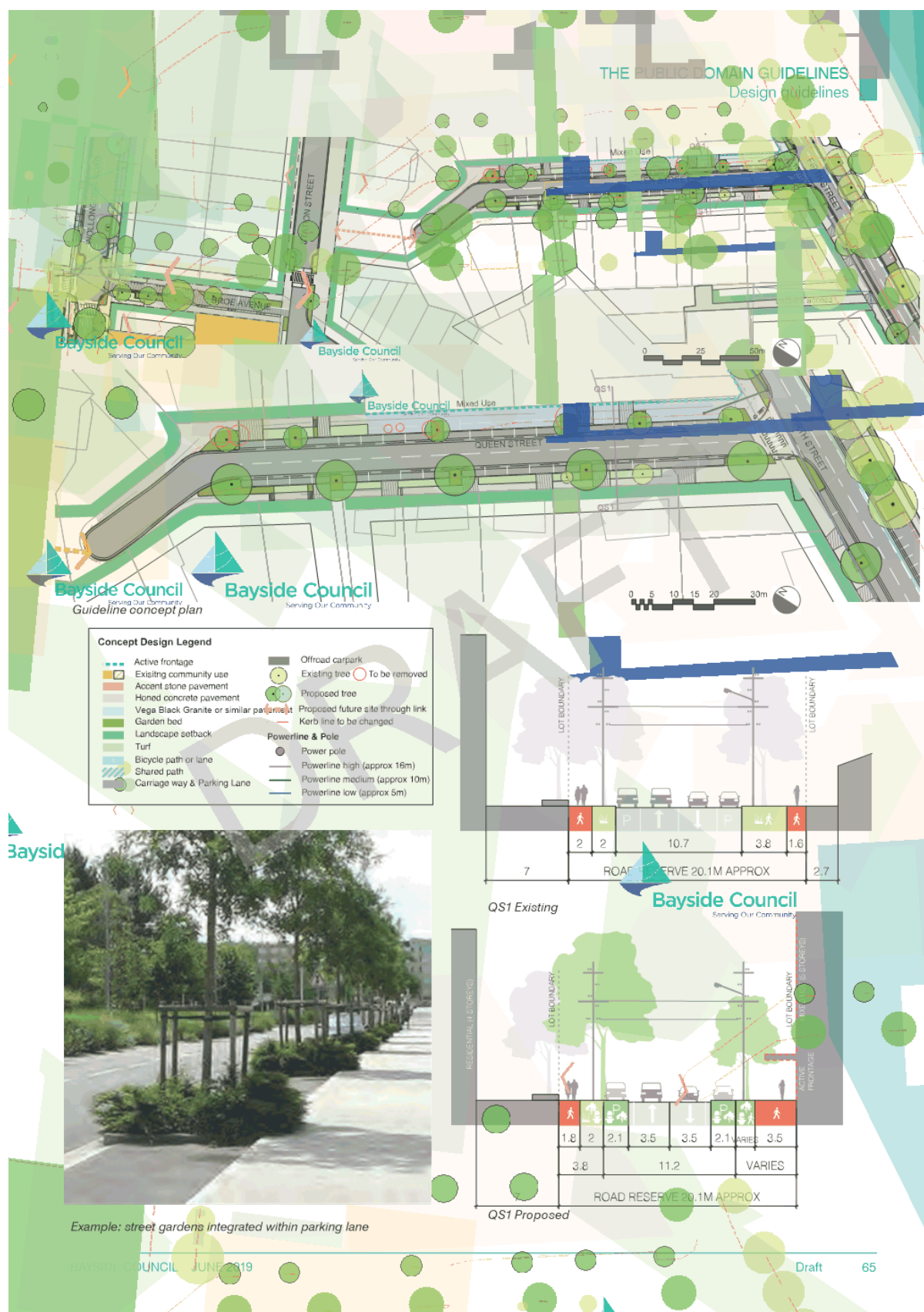
Footway pavements (refer section 5.1)

- i. stone pavement to active frontages (refer technical guideline PA1)
- ii. general pedestrian pavement (refer technical guideline PA2)
- iii. driveways to match adjoining pavement finish
- iv. paving infill lids generally with exception of Telstra and Optus services (refer technical guideline PA1-4/5 for stone pavement)
- v. Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer section 5.2)

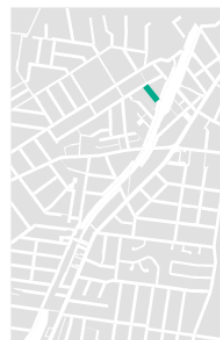
Tree planting (refer section 5.4)

- i. Tuckeroo (*Cupaniopsis anacardioides*) generally to south side
- ii. Tulip tree (*Liriodendron tuliperfera*) to north side
- iii. refer technical guideline ST1 for trees to carparking lane
- iv. refer technical guideline ST3 for trees to street gardens
- v. refer technical guideline ST4 for street gardens



THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Belmore Street

Applying the public domain principles

function	character	comfort	resilience
i. maximise pedestrian through zone to north and south side mixed use frontage integrating with Firth Street	i. maximise tree canopy as per "Green Plan"	i. maximise tree canopy for shade amenity	i. provide small to medium tree canopy with adequate soil volumes (>35m ³)
ii. provide pedestrian pathway to south side as access from residential areas to Firth Street and to Station	ii. medium evergreen species to south side within constraint of overhead services	ii. provide awnings along retail frontages as per RDCP 2011	ii. provide large street garden areas for more impact, resilience and easier maintenance
iii. minimise interruptions (driveways)	iii. small deciduous trees to north side to maximise winter light	iii. pedestrian level lighting along corridor by pedestrian pole-tops or street lighting	iii. use water effective species
iv. On street alfresco seating to retail frontage > 3.6m and footway widenings	iv. integrate "street gardens" of sufficient scale to have visual impact	iv. Integrate street design with adjoining publicly accessible spaces (parks and through site links) to promote use	
v. standard size bus movement one way westbound	v. reflect building frontage uses through pavement materials		
vi. pursue future undergrounding of overhead services to maximise tree canopy opportunities with redevelopment	vi. coordinated bin and seat street furniture to mixed use frontage		

General design requirements

Footway arrangement (refer section 3.2)

- i. widen footway to north side to serve mixed use frontage
- ii. widen footway to south side to serve mixed use frontage and to provide wider pedestrian access adjoining sandstone cutting
- iii. minimum 2400mm target pedestrian clear through zone to mixed use frontage
- iv. on street alfresco seating to retail frontages > 3.6m

Driveways (refer section 3.2c)

- i. no driveways to retail frontages

Power & telecommunications (refer section 3.2e)

- i. overhead services to be retained in medium term

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 5.8m one way traffic lane including dish drain catering for bus movement

Parking (refer section 3.4)

- i. kerbside parking between tree pits generally
- ii. proposed spaces 20 (loss of 7 spaces)

Lighting (refer section 5.3)

- i. Street Lighting (refer technical guideline LT2) to required level for cycle lanes, traffic and pedestrian verge integrated between tree plantings and at pedestrian crossings
- ii. Pedestrian Pole-top Lighting (refer technical guideline LT3) or Under Awning Lighting to retail frontages
- iii. footways illuminated by street lighting to residential frontages
- iv. all lighting to Comply with Council approved lighting level as per (AS/ NZS 1158.3.1 - Lighting for Roads and Public Spaces

Materials and finishes

Footway pavements (refer section 5.1)

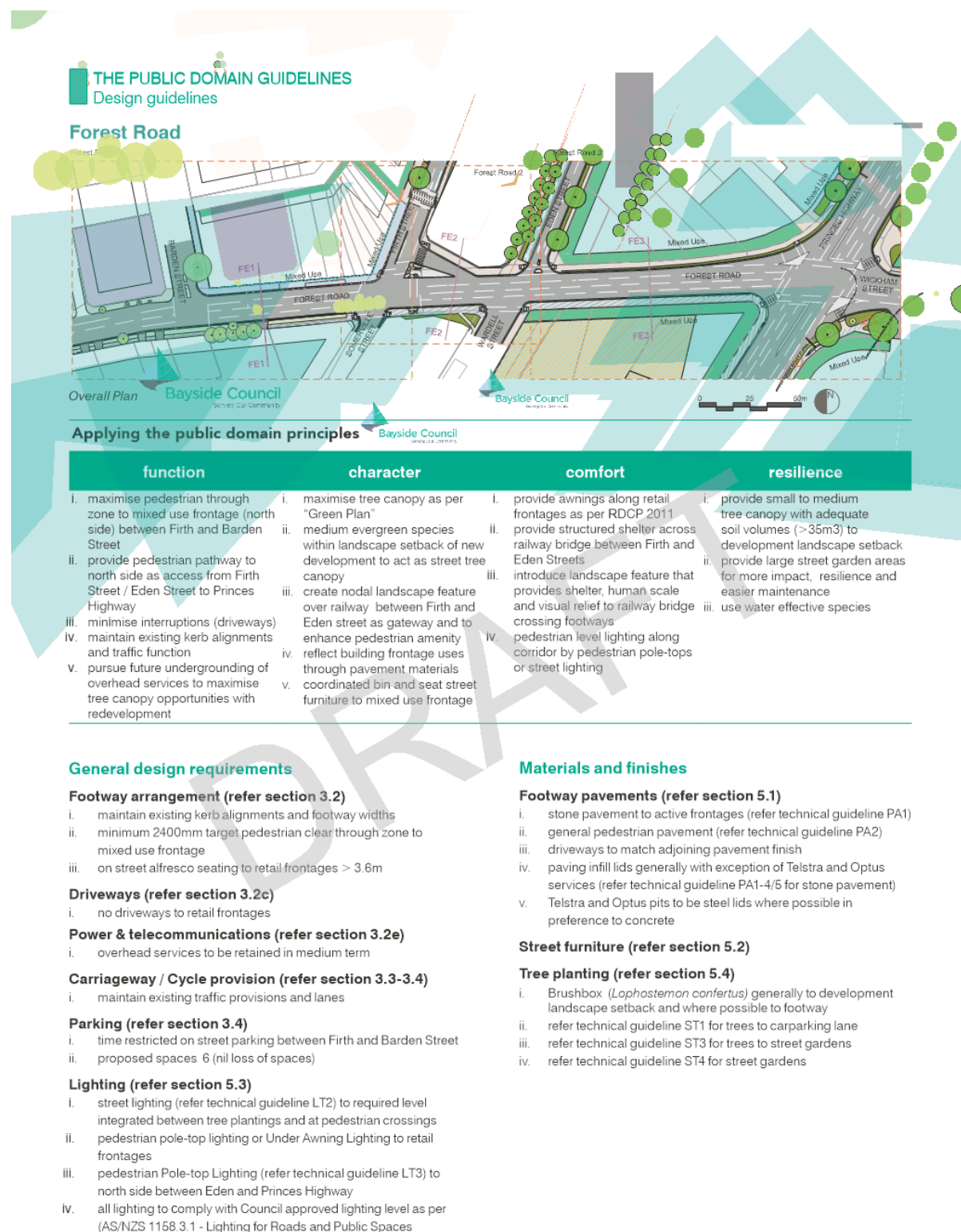
- i. stone pavement to active frontages (refer technical guideline PA1)
- ii. general pedestrian pavement (refer technical guideline PA2)
- iii. driveways to match adjoining pavement finish
- iv. paving infill lids generally with exception of Telstra and Optus services (refer technical guideline PA1-4/5 for stone pavement)
- v. Telstra and Optus pits to be steel lids where possible in preference to concrete

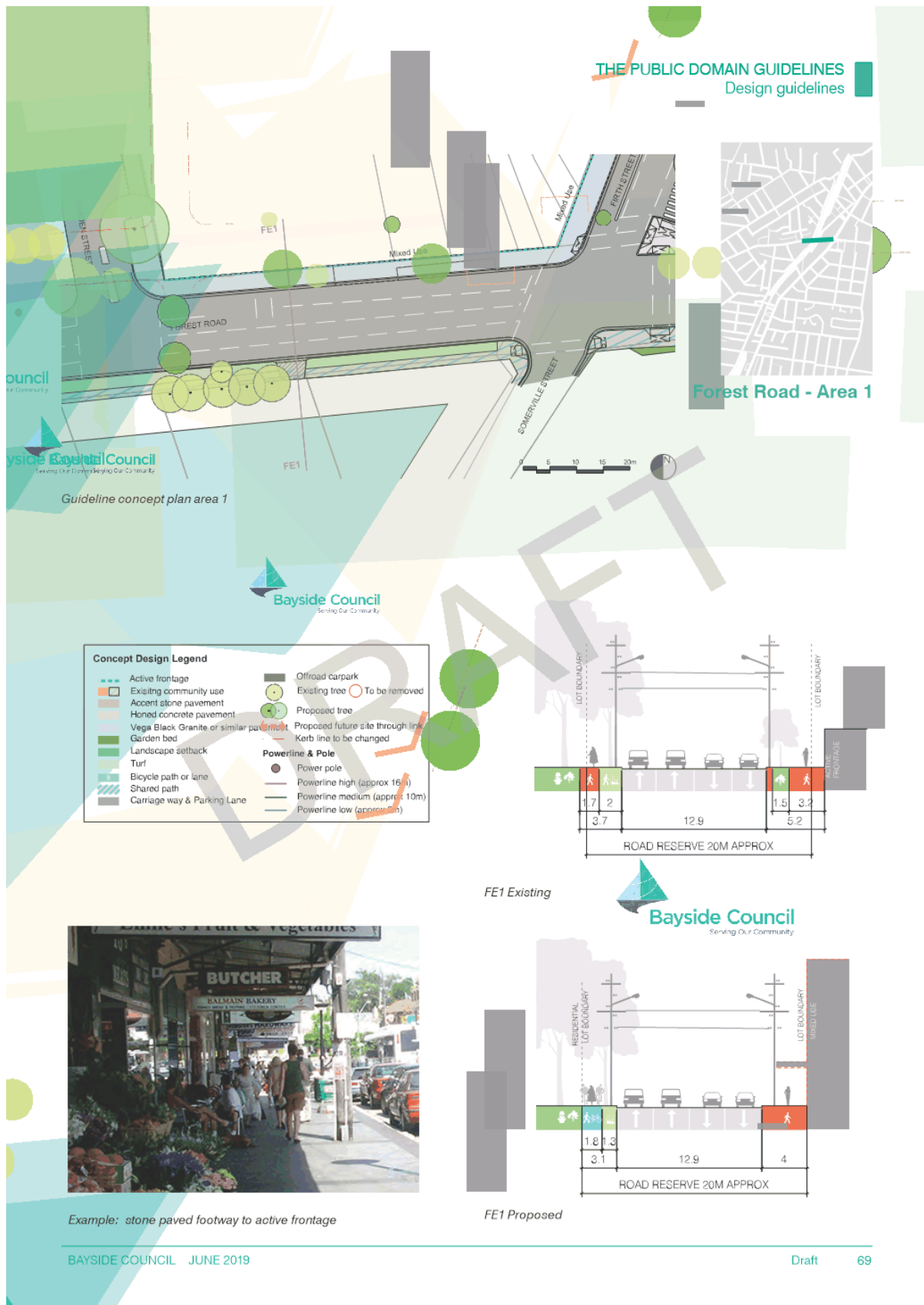
Street furniture (refer section 5.2)

Tree planting (refer section 5.4)

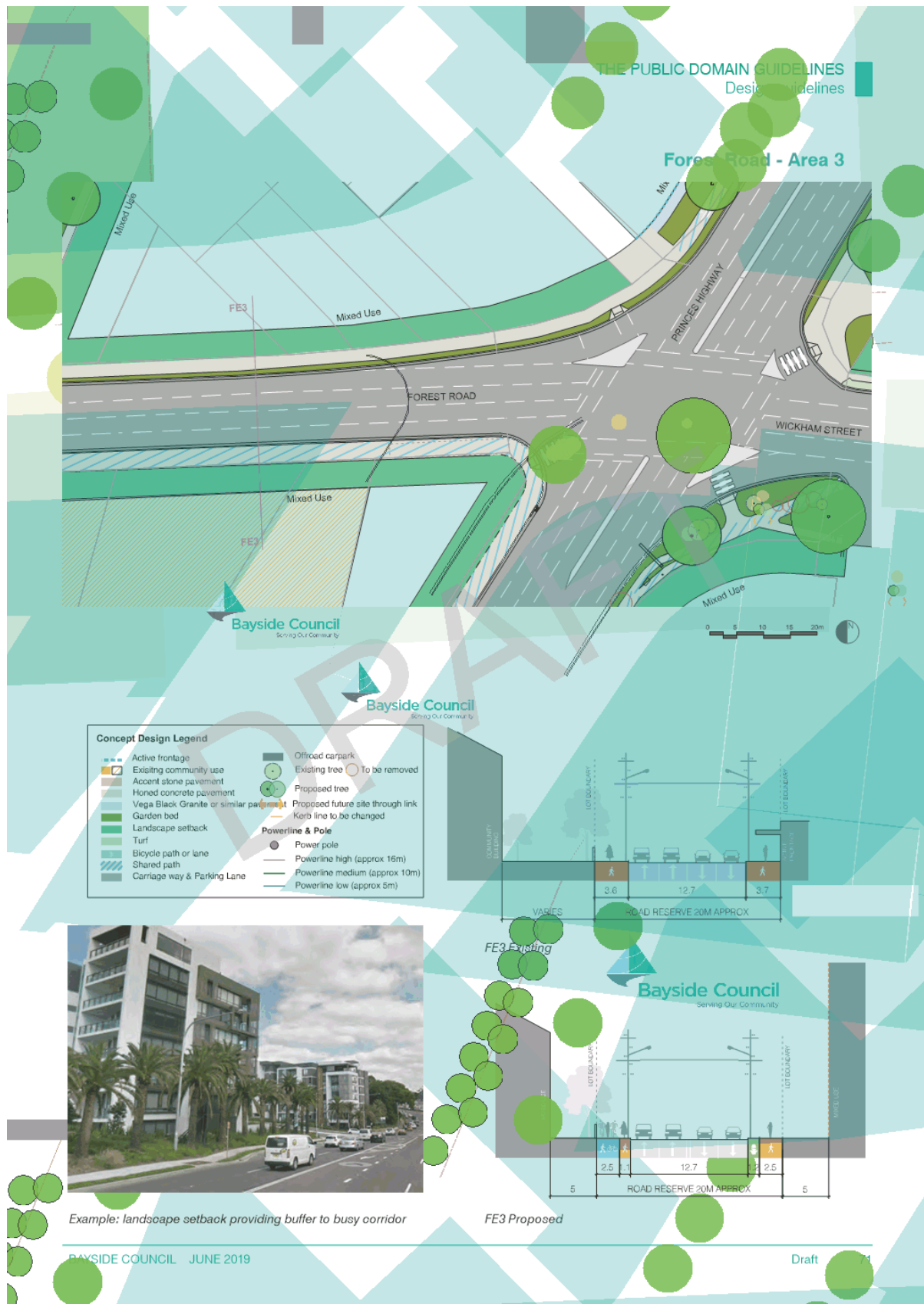
- i. Tuckeroo (*Cupaniopsis anacardioides*) generally to south side
- ii. Tulip tree (*Liriodendron tuliperfera*) to north side
- iii. refer technical guideline ST1 for trees to carparking lane
- iv. refer technical guideline ST3 for trees to street gardens
- v. refer technical guideline ST4 for street gardens





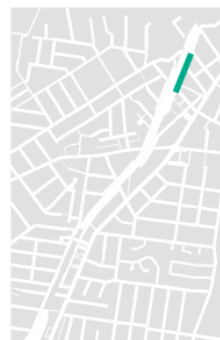






THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Arncliffe Street

Applying the public domain principles

function	character	comfort	resilience
i. maximise pedestrian pathway width to Arncliffe Station park frontage as access to Station	i. maximise tree canopy as per "Green Plan"	i. maximise tree canopy for shade amenity	i. provide medium to small tree canopy with adequate soil volumes (>35m ³)
ii. Integrate pedestrian access with Arncliffe Station park path system	ii. medium to large evergreen species for visual impact and shade to street	ii. pedestrian level lighting along corridor by pedestrian pole-tops or street lighting	ii. provide large street garden areas for more impact, resilience and easier maintenance
iii. no interruptions (driveways)	iii. medium deciduous trees to southern footway where footway widens	iii. Integrate street design with adjoining publicly accessible park to promote use	iii. use water effective species
iv. cater for district cycle connection with on road cycle facility	iv. reflect building frontage uses through pavement materials	iv. provide intermittent seating and bins in usable and comfortable locations to park frontage (east)	iv. integrate WSUD to open space at new Arncliffe Station Park
v. Investigate opportunities to widen road reserve to better cater for pedestrian and cycle access	v. coordinated street furniture	v. coordinated with park design	
vi. undergrounding of overhead services to maximise tree canopy opportunities		v. provide awnings along retail frontages as per RDCP 2011	

General design requirements

Footway arrangement - east side (refer section 3.2)

- i. minimum 2.0m footway adjoining park
- ii. parallel parking adjoining park

Footway arrangement - west side (refer section 3.2)

- i. existing off street parking retained in interim - integrate tree planting gardens to enable shade and visual relief tree planting
- ii. provide maximum possible pedestrian path width to northern zone beyond station parking
- iii. investigate opportunities to widen road reserve to better cater for pedestrian and cycle access

Driveways (refer section 3.2c)

- i. no driveway access

Power & telecommunications (refer section 3.2e)

- i. overhead services to be undergrounded

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 3.5m traffic lanes including dish drain
- ii. on road mixed traffic cycle link

Parking (refer section 3.4)

- i. parallel parking to east side
- ii. parking area maintained in interim to west side
- iii. proposed spaces (excluding off street parking) 79 (loss of 11 spaces)

Lighting (refer section 5.3)

- i. street Lighting (refer technical guideline LT2) to required level for cycle paths, traffic and pedestrian verge integrated between tree plantings and at pedestrian crossings
- ii. pedestrian Pole-top Lighting (refer technical guideline LT3) to north side integrated with park design and facilities
- iii. all lighting to Comply with Council approved lighting level as per (AS/ NZS 1158.3.1 - Lighting for Roads and Public Spaces

Materials and finishes

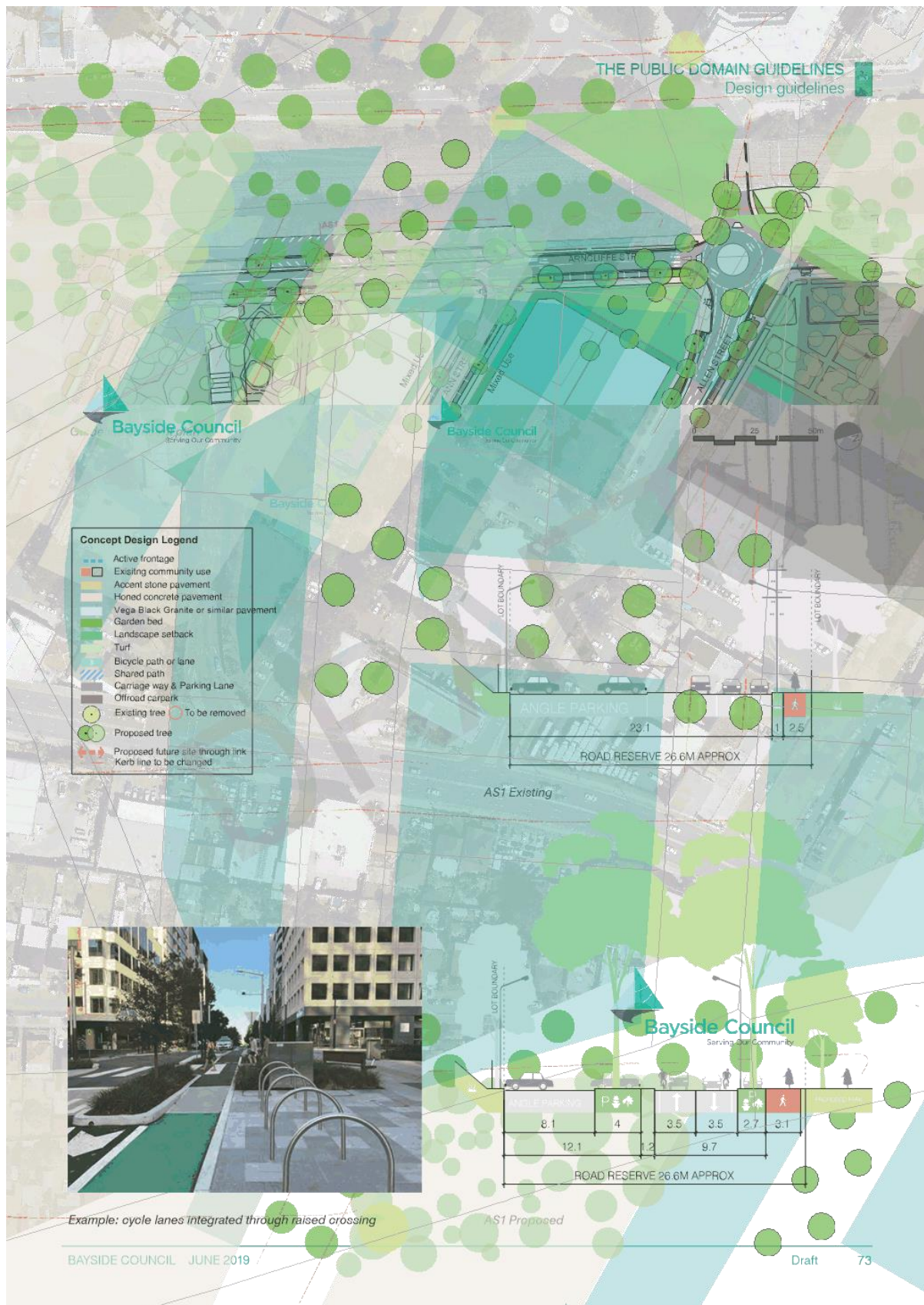
Footway pavements (refer section 5.1)

- i. general pedestrian pavement (refer technical guideline PA2)
- ii. paving infill lids generally with exception of Telstra and Optus services
- iii. Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer section 5.2)

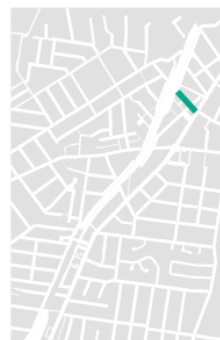
Tree planting (refer section 5.4)

- i. Smooth Barked Apple (*Angophora costata*)
- ii. refer technical guideline ST1 for trees to carparking lane
- iii. refer technical guideline ST3 for trees to street gardens
- iv. refer technical guideline ST4 for street gardens



THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Burrows Street

Applying the public domain principles

function	character	comfort	resilience
<ul style="list-style-type: none"> i. maximise pedestrian pathway width to residential frontages as access to Station ii. no interruptions (driveways) - where necessary integrate between tree plantings iii. cater for district cycle connection with separated dual direction cycle path iv. undergrounding of overhead services to maximise tree canopy opportunities 	<ul style="list-style-type: none"> i. maximise tree canopy as per "Green Plan" ii. medium to large evergreen species to north side for visual impact adjoining new Arncliffe Station Park iii. small deciduous species to south side to planted separator adjoining separated cycle path iv. continuous street garden adjoining cycle path v. medium deciduous trees to southern footway where footway widens vi. reflect building frontage uses through pavement materials vii. coordinated street furniture 	<ul style="list-style-type: none"> i. maximise tree canopy for shade amenity ii. pedestrian level lighting along corridor by pedestrian pole-tops or street lighting iii. integrate street design with adjoining publicly accessible park to promote use iv. provide intermittent seating and bins in usable and comfortable locations to residential frontage (south) v. provide street furniture in usable and comfortable locations to park frontage (north) coordinated with park design vi. provide awnings along retail frontages as per RDCP 2011 	<ul style="list-style-type: none"> i. provide medium to small tree canopy with adequate soil volumes (>35m³) ii. provide large street garden areas for more impact, resilience and easier maintenance iii. use water effective species iv. integrate WSUD to open space at new Arncliffe Station Park

General design requirements

Footway arrangement - generally (refer section 3.2)

- i. mid block raised crossing linking between through site link and new Arncliffe Station Park
- ii. new raised crossing / threshold at Arncliffe Street intersection linking to new park and slowing traffic at entry to railway parking

Footway arrangement - north side (refer section 3.2)

- i. minimum 2.0m footway adjoining park
- ii. ninety degree angle parking adjoining park

Footway arrangement - south side (refer section 3.2)

- iii. 3.0m separated dual direction cycle path with 1700mm planted separator to traffic lane
- iv. minimum 2.5m footway adjoining residential frontage due to available width

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 3.5m traffic lanes including dish drain
- ii. 3.0m separated dual direction cycle path linking to Eden Street and transitioning to mixed traffic cycle link to Arncliffe Street

Power & telecommunications (refer section 3.2e)

- i. overhead services to be undergrounded

Lighting (refer section 5.3)

- i. street lighting (refer technical guideline L2) to required level for cycle paths, traffic and pedestrian verge integrated between tree plantings and at pedestrian crossings
- ii. pedestrian Pole-top Lighting (refer technical guideline L3) to residential frontage due to separation from road lanes
- iii. pedestrian Pole-top Lighting (refer technical guideline L3) to north side integrated with park design and facilities
- iv. all lighting to Comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces

Driveways (refer section 3.2c)

- i. no driveway access

Parking (refer section 3.4)

- i. ninety degree angle parking to north side in accordance with DCP
- ii. proposed spaces 30 (loss of 2 spaces)

Materials and finishes

Footway pavements (refer section 5.1)

- i. general pedestrian pavement (refer technical guideline PA2)
- ii. driveways to match adjoining pavement finish
- iii. paving infill lids generally with exception of Telstra and Optus services
- iv. Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer section 5.2)

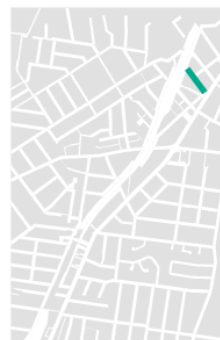
Tree planting (refer section 5.4)

- i. Smooth barked Apple (*Angophora costata*) to north side
- ii. Capital Pear (*Pyrus calleryana 'Capital'*) to south side in cycle path separator island
- iii. Cimaroon (*Fraxinus pennsylvanica*) to western residential frontage to south side of road
- iv. refer technical guideline ST1 for trees to carparking lane
- v. refer technical guideline ST3 for trees to street gardens
- vi. refer technical guideline ST4 for street gardens



THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Ann Street

Applying the public domain principles

function	character	comfort	resilience
i. provide pedestrian pathway to footways as access from residential areas to Station and Princes Highway	i. maximise tree canopy as per "Green Plan"	i. maximise tree canopy for shade amenity	i. provide small to medium tree canopy with adequate soil volumes (>35m ³)
ii. minimise interruptions (driveways)	ii. medium evergreen species to south side	ii. pedestrian level lighting along corridor by street lighting	ii. provide large street garden areas for more impact, resilience and easier maintenance
iii. reflect ground level residential uses through specific materials	iii. Small deciduous trees to north side to maximise winter light	iii. Integrate street design with adjoining publicly accessible spaces (parks through site links) to promote use	iii. use water effective species
iv. undergrounding of overhead services to maximise tree canopy opportunities	iv. integrate "street gardens" of sufficient scale to have visual impact	iv. provide awnings along retail frontages as per RDCP 2011	
	v. reflect building frontage uses through pavement materials		
	vi. coordinated street furniture		

General design requirements

Footway arrangement (refer section 3.2)

- i. widen footway to north and south sides to enhance planting opportunities and pedestrian movement
- ii. minimum 1800mm pedestrian pathway to mixed use frontage

Driveways (refer section 3.2c)

- i. new driveways integrated between tree bays

Power & telecommunications (refer section 3.2e)

- i. overhead services to be undergrounded

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 3.5m traffic lanes including dish drain

Parking (refer section 3.4)

- i. kerbside parking between tree pits generally
- ii. proposed spaces 38 (loss of 21 spaces)

Lighting (refer section 5.3)

- i. street Lighting (refer technical guideline LT2) to required level integrated between tree plantings
- ii. footways illuminated by street lighting to residential frontages
- iii. all lighting to Comply with Council approved lighting level as per (AS/ NZS 1158.3.1 - Lighting for Roads and Public Spaces

Materials and finishes

Footway pavements (refer section 5.1)

- i. general pedestrian pavement (refer technical guideline PA2)
- ii. driveways to match adjoining pavement finish
- iii. paving infill lids generally with exception of Telstra and Optus services
- iv. Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer section 5.2)

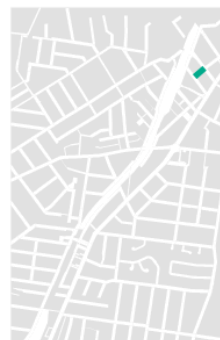
Tree planting (refer section 5.4)

- i. Tuckeroo (*Cupaniopsis anacardioides*) generally to south side
- ii. Tulip tree (*Liriodendron tulipifera*) to north side
- iii. refer technical guideline ST1 for trees to carparking lane
- iv. refer technical guideline ST3 for trees to street gardens
- v. refer technical guideline ST4 for street gardens



THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Argyle Street

Applying the public domain principles

function	character	comfort	resilience
i. provide pedestrian pathway to footways as access from residential areas to Station and Princes Highway	i. maximise tree canopy as per "Green Plan"	i. maximise tree canopy for shade amenity	i. provide small to medium tree canopy with adequate soil volumes (>35m ³)
ii. minimise interruptions (driveways)	ii. medium evergreen species to south side	ii. pedestrian level lighting along corridor by street lighting	ii. provide large street garden areas for more impact, resilience and easier maintenance
iii. undergrounding of overhead services to maximise tree canopy opportunities	iii. Small deciduous trees to north side to maximise winter light	iii. Integrate street design with adjoining publicly accessible spaces (parks through site links) to promote use	iii. use water effective species
	iv. integrate "street gardens" of sufficient scale to have visual impact	iv. provide awnings along retail frontages as per RDCP 2011	
	v. reflect building frontage uses through pavement materials		
	vi. coordinated street furniture		

General design requirements

Footway arrangement (refer section 3.2)

- i. widen footway to south side to enhance planting opportunities and pedestrian movement (to be similar to existing north side footway)
- ii. minimum 1800mm pedestrian pathway to residential frontage

Driveways (refer section 3.2c)

- i. new driveways integrated between tree bays

Power & telecommunications (refer section 3.2e)

- i. overhead services to be undergrounded

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 3.5m traffic lanes including dish drain

Parking (refer section 3.4)

- i. kerbside parking between tree pits generally
- ii. proposed spaces 12 (loss of 2 spaces)

Lighting (refer section 5.3)

- i. street Lighting (refer technical guideline LT2) to required level integrated between tree plantings
- ii. footways illuminated by street lighting to residential frontages
- iii. all lighting to Comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Materials and finishes

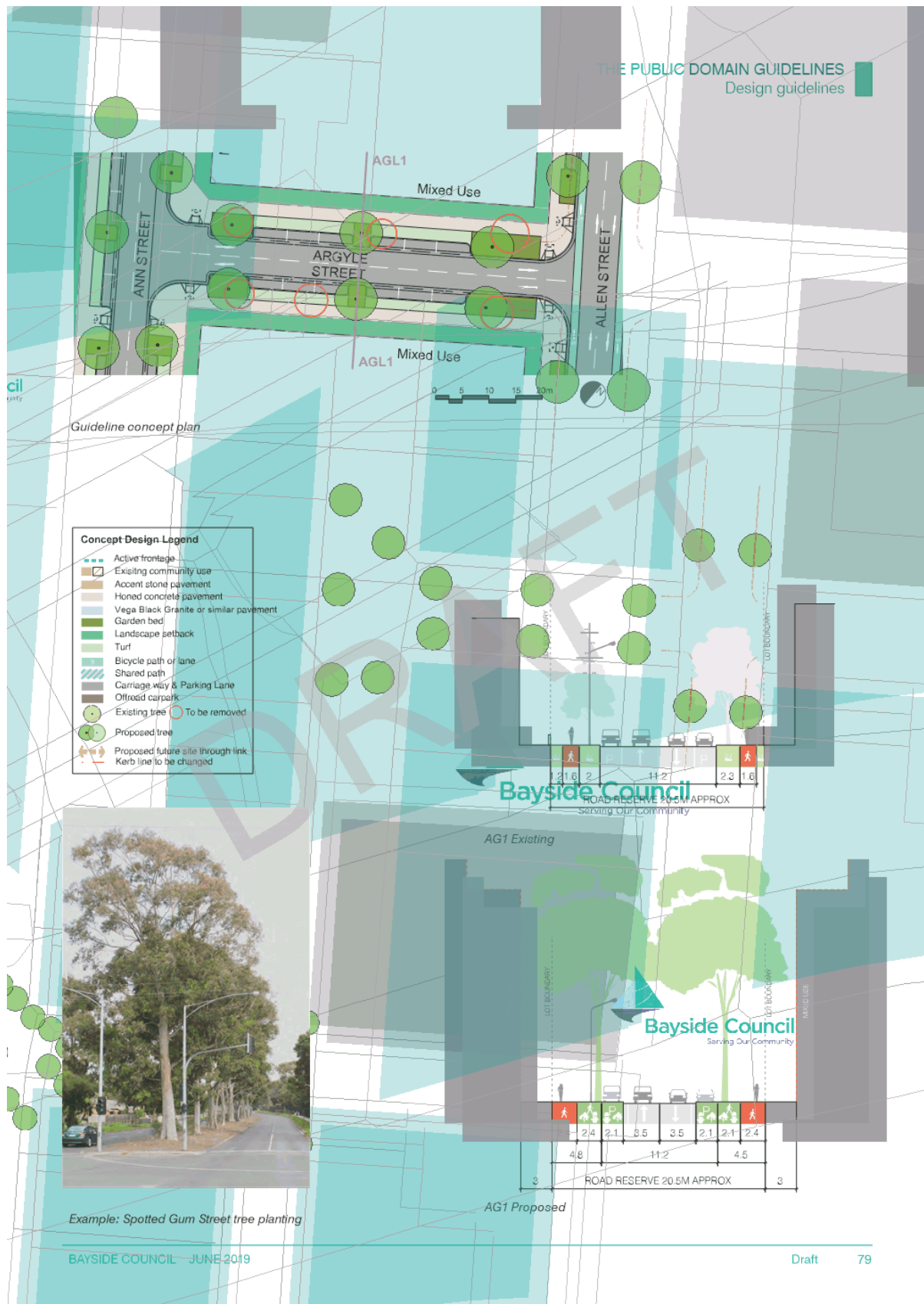
Footway pavements (refer section 5.1)

- i. general pedestrian pavement (refer technical guideline PA2)
- ii. driveways to match adjoining pavement finish
- iii. paving infill lids generally with exception of Telstra and Optus services
- iv. Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer section 5.2)

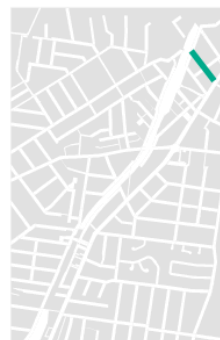
Tree planting (refer section 5.4)

- i. Spotted gum (*Corymbia maculata*)
- ii. refer technical guideline ST1 for trees to carparking lane
- iii. refer technical guideline ST3 for trees to street gardens
- iv. refer technical guideline ST4 for street gardens



THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Allen Street

Applying the public domain principles

Function	Character	Comfort	Resilience
i. provide pedestrian pathway to footways as access from residential areas to Station and Princes Highway	i. maximise tree canopy as per "Green Plan"	i. maximise tree canopy for shade amenity	i. provide medium to large tree canopy with adequate soil volumes (>35m ³)
ii. minimise interruptions (driveways)	ii. medium evergreen species for visual impact	ii. pedestrian level lighting along corridor by pedestrian pole-tops or under awning lighting	ii. provide large street garden areas for more impact, resilience and easier maintenance
iii. cater for district cycle connection with on road cycle lanes	iii. integrate "street gardens" of sufficient scale to have visual impact	iii. Integrate street design with adjoining publicly accessible spaces (parks through site links) to promote use	iii. use water effective species
iv. reflect ground level residential use through specific materials	iv. reflect building frontage uses through pavement materials	iv. provide intermittent seating in usable and comfortable locations	iv. integrate WSUD to open spaces at corner of Arncliffe Road
v. undergrounding of overhead services to maximise tree canopy opportunities	v. coordinated street furniture	v. provide awnings along retail frontages as per RDCP 2011	

General design requirements

Footway arrangement (refer section 3.2)

- i. narrowing of footways to north and south to facilitate on road cycle lanes
- ii. minimum 2800mm pedestrian pathway

Driveways (refer section 3.2c)

- i. new driveways integrated between tree bays

Power & telecommunications (refer section 3.2e)

- i. overhead services to be undergrounded

Carriageway / Cycle provision (refer section 3.3-3.4)

- i. 3.4m traffic lanes adjoining one way cycle lanes
- ii. 1.5 one way linemarked cycle lanes
- iii. signage to identify mixed cycle vehicle traffic through roundabout

Parking (refer section 3.4)

- i. kerbside parking between tree pits generally
- ii. proposed spaces 33 (loss of 2 spaces)

Lighting (refer section 5.3)

- i. street Lighting (refer technical guideline L2) to required level for cycle lanes, traffic and pedestrian verge integrated between tree plantings
- ii. footways illuminated by street lighting to residential frontages
- iii. all lighting to Comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Materials and finishes

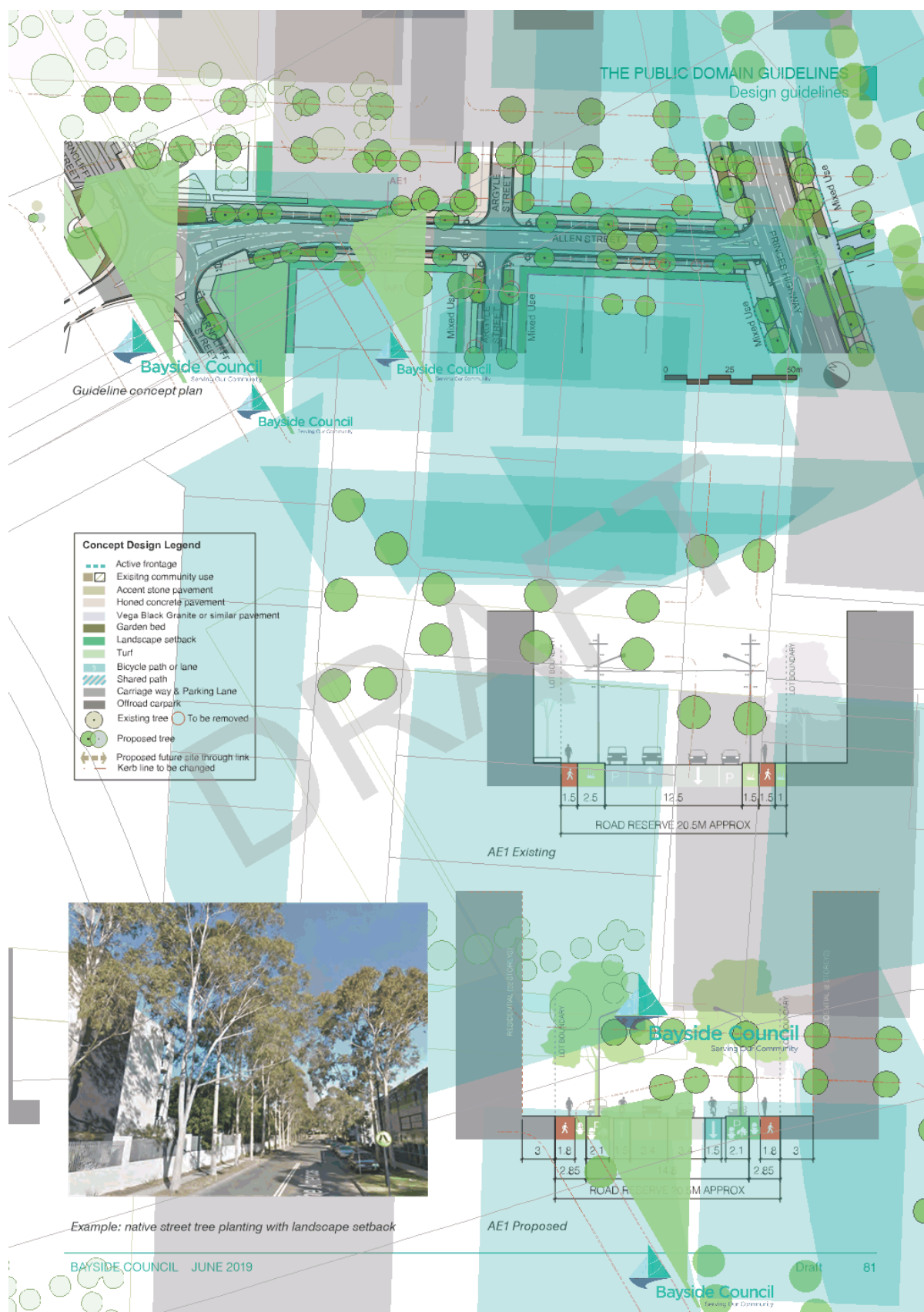
Footway pavements (refer section 5.1)

- i. general pedestrian pavement (refer technical guideline PA2)
- ii. driveways to match adjoining pavement finish
- iii. paving infill lids generally with exception of Telstra and Optus services
- iv. Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer section 5.2)

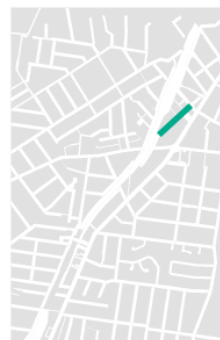
Tree planting (refer section 5.4)

- i. Spotted Gum (*Corymbia maculata*) generally to street (north and south sides) with generous footway against tall buildings
- ii. refer technical guideline ST1 for trees to carparking lane
- iii. refer technical guideline ST3 for trees to street gardens
- iv. refer technical guideline ST4 for street gardens



THE PUBLIC DOMAIN GUIDELINES

Design guidelines



Eden Street

Applying the public domain principles

function	character	comfort	resilience
i. maintain pedestrian through zone to mixed use frontages reflecting town centre retail and transport hub role	i. maximise tree canopy as per "Green Plan"	i. maximise tree canopy for shade amenity	i. provide medium to small tree canopy with adequate soil volumes (>35m ³)
ii. maximise pedestrian pathway width to residential frontages as access to Station	ii. medium evergreen species to south/east side for visual impact	ii. provide awnings along retail frontages as per RDCP 2011	ii. provide large street garden areas for more impact, resilience and easier maintenance
iii. minimise interruptions (driveways) - where necessary integrate between tree plantings	iii. small deciduous species to north/west side for winter solar / light access	iii. pedestrian level lighting along corridor by pedestrian pole-tops or under awning lighting	iii. use water effective species
iv. no on street alfresco seating to retail frontages due to limited road reserve < 3.6m	iv. large deciduous trees to gathering spaces provide summer shade and visual highlight	iv. Integrate street design with adjoining publicly accessible spaces (parks through site links) to promote use	iv. integrate WSUD to open space at corner of Eden Street development site
v. cater for district cycle connection with separated dual direction cycle path	v. integrate "street gardens" of sufficient scale to have visual impact	v. provide street furniture in usable and comfortable locations to mixed use frontages	
vi. undergrounding of overhead services to maximise tree canopy opportunities	vi. reflect building frontage uses through pavement materials		
	vii. coordinated street furniture		

General design requirements

Footway arrangement - north/west side (refer 3.2)

- i. minimum 2.7m footway adjoining mixed use
- ii. minimum 1.8m footway adjoining residential / railway corridor
- iii. minimum 2200mm target pedestrian clear through zone beyond 0.5 setback from kerb / cycle path
- iv. 3.0m separated dual direction cycle path with 1700mm planted separator to traffic lane

Footway arrangement - south/east side (refer 3.2)

- v. minimum 2.8m footway adjoining mixed use
- i. minimum 1.8m footway adjoining residential
- ii. minimum 2200mm target pedestrian clear through zone beyond 0.6 signage / lighting setback from kerb

Driveways (refer section 3.2c)

- i. no driveways to retail frontages

Power & telecommunications (refer 3.2e)

- i. overhead services to be undergrounded

Carriageway / Cycle provision (refer 3.3-3.4)

- ii. 3.5m traffic lanes including dish drain
- iii. 3.0m separated dual direction cycle path

Parking (refer 3.4)

- i. kerbside parking between tree pits generally to south/east side
- ii. proposed spaces 37 (loss of 44 spaces)

Lighting (refer 5.3)

- i. street lighting (refer technical guideline LT2) to required level for cycle paths, traffic and pedestrian verge integrated between tree plantings and at pedestrian crossings
- ii. pedestrian pole-top lighting (refer technical guideline LT3) or Under Awning Lighting to retail frontages
- iii. footways illuminated by street lighting to residential frontages
- iv. all lighting to comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Materials and finishes

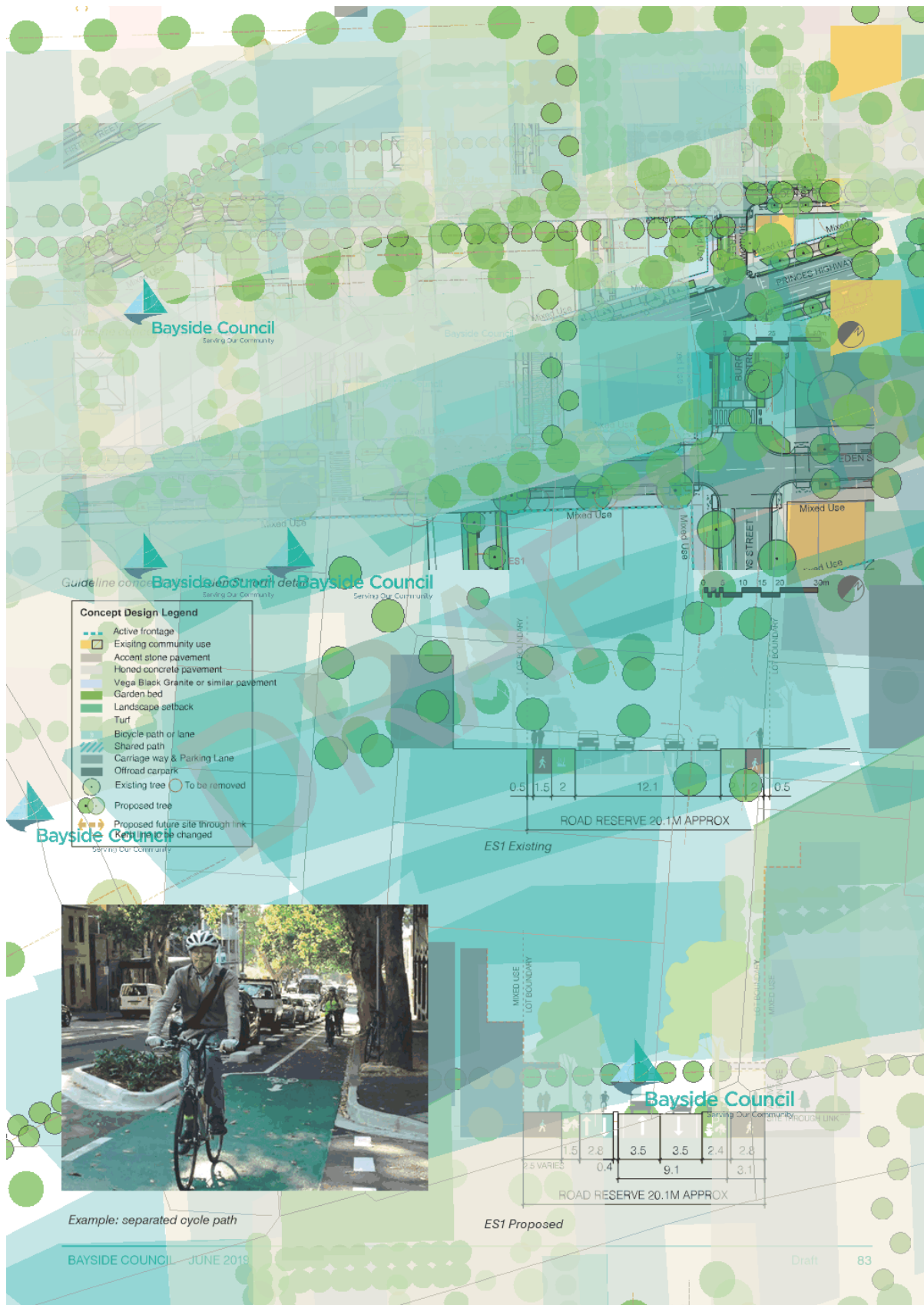
Footway pavements (refer 5.1)

- i. stone pavement to active frontages (refer technical guideline PA1)
- ii. general pedestrian pavement (refer technical guideline PA2)
- iii. driveways to match adjoining pavement finish
- iv. paving infill lids generally with exception of Telstra and Optus services (refer technical guideline PA1-4/5 for stone pavement)
- v. Telstra and Optus pits to be steel lids where possible in preference to concrete

Street furniture (refer 5.2)

Tree planting (refer 5.4)

- i. Tuckeroo (*Cupaniopsis anacardioides*) to south/east side
- ii. Capital Pear (*Pyrus calleryana* 'Capital') to north/west side
- iii. refer technical guideline ST1 for trees to carparking lane
- iv. refer technical guideline ST3 for trees to street gardens
- v. refer technical guideline ST4 for street gardens



THE PUBLIC DOMAIN GUIDELINES

General design requirements

4.2 Through site links

Applying the public domain principles

function	character	comfort	resilience
i. pedestrian access linkage between public domain areas	i. integrate character with that of adjoining streets through extension of pavements and planting	i. shaded seating areas	i. provide soil volumes in compliance with <i>Apartments Design Guide (ADG)</i> for on podium planting areas
ii. secondary private access to adjoining private development	ii. create sense of visual interest and movement	ii. maintain at grade access to all through site links	ii. maintenance effective design
iii. incidental recreational amenity provided through seating	iii. offset trees to maximise impact and maintain passive surveillance from adjoining frontages	iii. consider winter solar access in tree placement and species	iii. ensure maintenance access from site edge
		iv. lighting provides for after dark use of link	

General design requirements

- refer to Rockdale DCP 2011 - 7.7 Arncliffe and Banksia - 3.4 Through Site Links for general controls
- provide minimum 3m wide pedestrian pathway
- articulate width of pathway between 3-5m to create variation and diversity while maintaining direct sight line between ends of link
- integrate seating to corners and edges including low walling and park seating
- integrate private development accesses

Materials and finishes

Pavements (refer section 5.1)

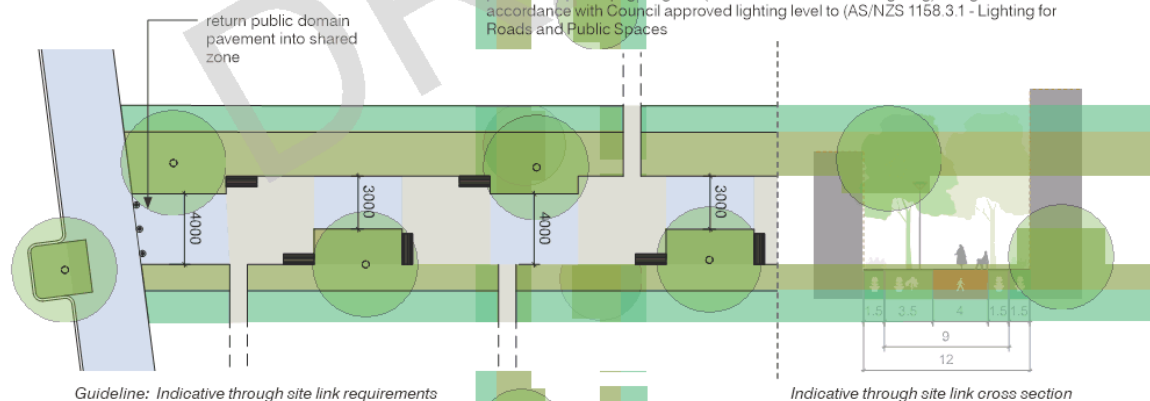
- use combination of pavements PA1 (Vega Black Granite) PA2 (honed insitu concrete) and PA3 (sandstone) integrating with public domain (refer technical guidelines PA1 PA2 PA3)
- extend adjoining public domain material into the threshold of the through site link to emphasise continuation of public access

Planting (refer section 5.4)

- All planting chosen in response to shadow regime of space:
- small to medium evergreen tree from street tree species to southern / eastern edges;
- small to medium deciduous tree from street tree species to northern / western edges;
- and
- understorey planting as per designated street gardens list.
- refer street tree and street garden guidelines ST3 and ST4

Lighting (refer section 5.3)

- pedestrian poletop lighting LT3 (refer 5.3 Public Domain Lighting) designed in accordance with Council approved lighting level to (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)



Examples: through site links

THE PUBLIC DOMAIN GUIDELINES
General design requirements

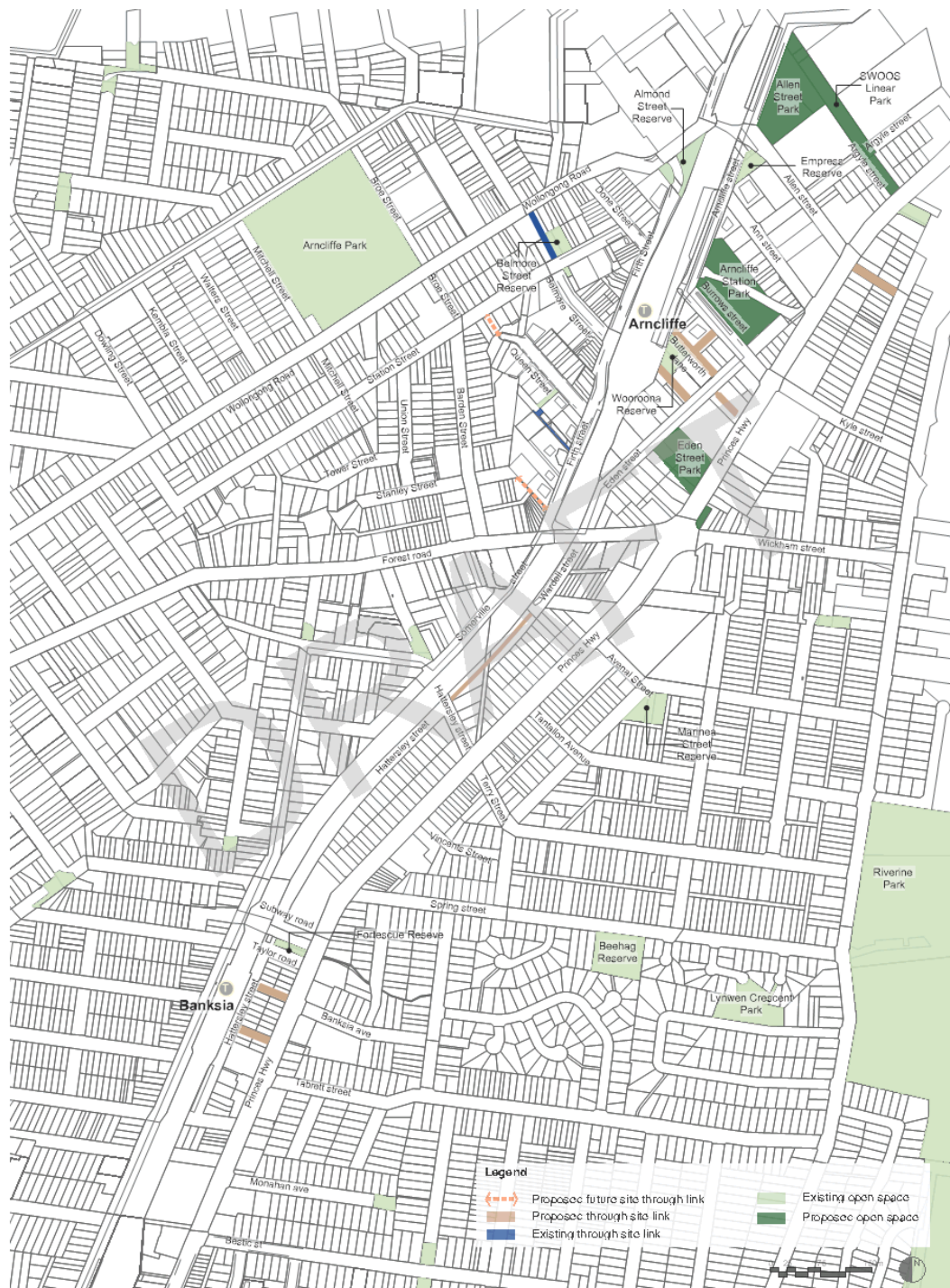


Figure 4.3 Existing and potential through site links

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THE PUBLIC DOMAIN GUIDELINES

General design requirements

4.3 Open Space

There are a number of new parks to be implemented and a further park to be upgraded as part of the Rockdale DCP 2011 - 7.7 Arncliffe and Banksia recommendations. An overview of the DCP requirements and supplementary requirements to be met in each open space follows.

The park sites include:

1. Allen Street (integrated with Southern and Western Sydney Ocean Outfall Sewer (SWSOOS))
2. Empress Reserve (existing)
3. Arncliffe Station park
4. Wooronna Reserve (existing)
5. Eden Street park

Arncliffe Park is subject to a separate programme of park improvements while the SWOOS open space will be a Special Infrastructure Contribution project. Un-labelled open space identified on the diagram below is existing open space which will be subject to future upgrade as part of Councils open space programmes

The following guidelines must be read in conjunction with the Rockdale DCP 2011 - 7.7 Arncliffe and Banksia and are subject to ongoing design development.



Figure 4.4 New and upgraded open space



Allen Street Reserve site



Empress Reserve site



Arncliffe Station Park site



Wooronna Reserve site



Eden Street Park site

THE PUBLIC DOMAIN GUIDELINES

General design requirements

1. Allen Street Park

Addressing the desired place character for public domain

.....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. contributing to native tree canopy reflecting the local riverine environment	i. is compatible and complementary to the heritage fabric of the SWOOS	i. providing a multipurpose space attractive to families and youth for a range of activities
ii. assisting with water quality enhancement for local catchment and local flood mitigation	ii. integrates potential for youth oriented public art in wall faces and court surfaces	ii. providing pleasant spaces for older or less active users to sit and watch activity
iii. assisting with water quality enhancement for local catchment		

Applying the public domain principles

function	character	comfort	resilience
i. active recreational facilities: -ball court -half court -fitness equipment ii. toddlers play space iii. single BBQ fixture iv. picnic tables and bins v. park seating (FN1-FN2) vi. pedestrian access from all street frontages	i. urban park character ii. Integrated character with SWWOS linear park iii. use combination of pavements PA2 (honed insitu concrete) and PA3 (sandstone) iv. 70% native tree canopy v. generous landscape buffer to adjoining building to south vi. integrate temporary / ephemeral public art opportunities to level changes	i. shaded seating areas to Arncliffe street frontage oriented into park ii. at grade cross access between Allen Street and SWOOS iii. consider winter solar access in tree placement and species iv. pedestrian lighting and specialised court lighting provides for after dark use of court facilities	i. flood mitigation integrated into design as required ii. bioremediation beds to treat local road runoff and be landscape feature to road edge iii. maintenance effective design iv. ensure maintenance access from site edge



Materials and finishes

Pavements (refer section 5.1)

- use combination of pavements PA2 (honed insitu concrete) and PA3 (granite) integrating with adjoining public domain (refer technical guidelines PA2 PA3) to access ways
- court surface to meet site specific requirements

Furniture (refer section 5.2)

- Furniture to meet site requirements refer guidelines FN1-FN5

Lighting (refer section 5.3)

- Pedestrian Poletop Lighting LT3 (refer 5.3 Public Domain Lighting) designed in accordance with Council approved lighting level to (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)
- Supplementary sports lighting and floodlighting to site specific design

Planting (refer section 5.4)

- all planting chosen in response to shadow regime of space
- refer street tree and street garden guidelines ST3 and ST4



Example: open space facilities

THE PUBLIC DOMAIN GUIDELINES

General design requirements

2. Empress Reserve

Addressing the desired place character for public domain

....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. contributing to native tree canopy cover reflecting the local riverine environment	i. integrates interpretive information relating to existing park and its role in the former community	i. providing a pleasant space to sit and rest
ii. assisting with water quality enhancement for local catchment		ii. retains a small grassed space as a flexible space for small gatherings and activities
iii. providing landscape / visual counterpoint to adjoining urban development		

Applying the public domain principles

function	character	comfort	resilience
i. pedestrian access from Arncliffe Street and Allen Street frontages	i. urban park character	i. shaded seating areas to Arncliffe Street frontage oriented into park	i. bioremediation beds to treat local road runoff and be landscape feature to road edge
ii. through park access path linking to seating	ii. pavements to be PA2 (honed insitu concrete)	ii. at grade cross access between Allen Street and SWOOS	ii. maintenance effective design
iii. park seating	iii. 100% native tree canopy		iii. ensure maintenance access from site edge
	iv. generous landscape buffer to adjoining building to south		



Materials and finishes

Pavements (refer section 5.1)

- i. use combination of pavements PA2 (honed insitu concrete) and PA3 (granite) integrating with adjoining public domain (refer technical guidelines PA2 PA3) to access ways
- ii. court surface to meet site specific requirements

Furniture (refer section 5.2)

- iii. furniture to meet site requirements refer guidelines FN1-FN5

Lighting (refer section 5.3)

- iv. pedestrian poletop lighting LT3 (refer 5.3 Public Domain Lighting) designed in accordance with Council approved lighting level to (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces)

Planting (refer section 5.4)

- v. all planting chosen in response to shadow regime of space
- vi. refer street tree and street garden guidelines ST3 and ST4



Example: open space facilities and character

THE PUBLIC DOMAIN GUIDELINES

General design requirements

3. Arncliffe Station Park

Addressing the desired place character for public domain

....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. contributing to native tree canopy cover reflecting the local riverine environment	i. lies adjacent and provides an outlook for the Masjid Darul Imaan Mosque to the south	i. providing a multipurpose space attractive to families and diverse age groups catering for a range of activities
ii. assisting with water quality enhancement for local catchment and local flood mitigation	ii. Integrates a permanent piece of public art that interprets the local riverine environment	ii. providing pleasant spaces for older or less active users to sit and watch activity
iii. providing a major green space within zone of major redevelopment		

Applying the public domain principles

function	character	comfort	resilience
i. toilet amenities building	i. urban park character	i. shaded seating areas set within park	i. flood mitigation integrated into design as required
ii. village green grassed area for informal uses	ii. use combination of pavements PA2 (honed insitu concrete) and PA3 (sandstone)	ii. sense of respite and retreat from adjoining streets	ii. bioremediation feature to treat local road runoff and be landscape feature as central feature within park - potential for permanent water element
iii. all ages and abilities destination play space	iii. 70% native tree canopy	iii. at grade cross park access	iii. maintenance effective design
iv. centralised BBQ facilities	iv. play space to interpret local riverine environment	iv. consider winter solar access in tree placement and species	iv. ensure maintenance access from site edge
v. picnic tables and bins	v. generous landscape buffer to adjoining building to north	v. LA3 Lighting provides for after dark use of park and through access	
vi. pedestrian access from all street frontages	vi. integrate permanent public art element as part of design		
vii. pedestrian connections to Wooroona Reserve and Station			



Materials and finishes

Pavements (refer section 5.1)

- use combination of pavements PA2 (honed insitu concrete) and PA3 (granite) integrating with adjoining public domain (refer technical guidelines PA2 PA3) to access ways
- court surface to meet site specific requirements

Furniture (refer section 5.2)

- furniture to meet site requirements refer guidelines FN1-FN5

Lighting (refer section 5.3)

- pedestrian poletop lighting LT3 (refer 5.3 Public Domain Lighting) designed in accordance with Council approved lighting level to (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces
- supplementary floodlighting and feature lighting to site specific design

Planting (refer section 5.4)

- all planting chosen in response to shadow regime of space
- refer street tree and street garden guidelines ST3 and ST4



Example: open space facilities and character



THE PUBLIC DOMAIN GUIDELINES
General design requirements

5. Eden Street Park

Addressing the desired place character for public domain
.....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. contributing to native tree canopy reflecting the local riverine environment	i. providing visual links to heritage building	i. providing a multipurpose space attractive to families and all age groups for a range of activities
ii. assisting with water quality enhancement for local catchment and local flood mitigation	ii. providing a multi purpose village green suitable for small gatherings and events	ii. providing pleasant spaces for older or less active users to sit and watch activity
iii. providing a major green space within zone of major redevelopment	iii. integrating a permanent piece of public art that interprets the past residential community of local social housing	

Applying the public domain principles

function	character	comfort	resilience
i. pathway connections connecting Princes Highway to Eden Street and Arncliffe Station	i. urban park character	i. shaded seating areas set to north and south edges of park	i. bioremediation feature to treat local road runoff and be landscape feature as central feature within park - potential for permanent water element
ii. address level changes east to west to provide at grade access	ii. Use combination of pavements PA2 (honed insitu concrete) and PA3 (sandstone)	i. southern seating to maximise winter solar access	ii. maintenance effective design
iii. village green grassed area for informal uses	iii. maximise existing tree retention	ii. sense of respite and retreat from adjoining streets	iii. ensure maintenance access from site edge
iv. variety of seating to walls, large seating platforms and park seating	iv. 70% native tree canopy	iii. LT3 Lighting provides for after dark access and use of park	
v. picnic tables and bins	v. sensitive level changes executed with to reduce impact	iv. integrate at grade access to Princes Highway by external lift	
	vi. landscape buffer to adjoining buildings to north and south		
	vii. Integrate permanent public art element as part of design		

Materials and finishes

Pavements (refer section 5.1)

- Use combination of pavements PA2 (honed insitu concrete) and PA3 (granite) integrating with adjoining public domain (refer technical guidelines PA2/PA3) to access ways
- court surface to meet site specific requirements

Furniture (refer section 5.2)

- Furniture to meet site requirements refer guidelines FN1-FN5

Lighting (refer section 5.3)

- pedestrian poletop lighting LT3 (refer 5.3 Public Domain Lighting) designed in accordance with Council approved lighting level to (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces
- Supplementary feature lighting to site specific design

Planting (refer section 5.4)

- All planting chosen in response to shadow regime of space
- refer street tree and street garden guidelines ST3 and ST4

Example: open space facilities and character

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THE PUBLIC DOMAIN GUIDELINES

5.0 Technical & materials guidelines

5.1 Footway pavements and kerbs

Footway pavements are one of the two key elements (along with tree canopy) in shaping the character and comfort of the public domain. Paving forms the ground plane and trees the major three dimensional presence to all experiences of the street and public spaces. The pavements approach for Arncliffe and Banksia seeks to address the desired place character for the public domain and respond to the four public domain principles.

Refer to guidelines PA1-PA7 for footway pavement and kerb guidelines.

Addressing the desired place character for public domain

....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. natural character compatible and complementary to the riverine environment	iii. compatible and complementary to heritage fabric	vi. provide continuity and legibility that become recognisable by the community as part of the identity of Arncliffe banksia
ii. sustainable supply lines are available	iv. flexible and adaptable to a range of uses including events	
	v. provide an accent for targeted application to reflect different movement or use	

Applying the public domain principles

function	character	comfort	resilience
i. surfaces facilitate easy and safe access for all abilities across public domain areas	i. finish and colour are compatible and complementary to alluvial textures and tones of the riverine environment	i. contribute to comfort by being generally lighter in tone and less heat absorbant	i. enable effective maintenance
ii. contribute to clarity and ease of wayfinding	ii. finishes (colours, sizes, and detailing) offer potential for use in varied expressions while maintaining unity	ii. provide a simple, quality, robust canvas for street and community life to occur	ii. sustainable supply and installation
iii. providing a unifying character between public domain to east and west of railway		iii. provide flexibility for a variety of uses to occur	



Figure 5.1 Public domain pavements

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THE PUBLIC DOMAIN GUIDELINES

Footway pavements and kerbs

PA1 Main Street active frontages

The high quality surface finish that defines main street active frontages and plaza areas catering for the highest level of street activity. This includes pedestrian movement and footway dining and spaces where a range of public and civic events will occur

Approach

Provide a high quality stone pavement that caters for pedestrian and on street trading needs while developing an identifiable image and character for main street areas that has strong finish and colour references to the natural riverine environment of the locality.

Recommendation

- 400 x 600 x 40mm Vega Black Granite pavement slabs to pedestrian traffic areas (PA1 pedestrian)
- 200 x 200 x 60mm Vega Black Granite pavement slabs to vehicular traffic areas (PA1 vehicular)
- Stone Finish: Exfoliated non-slip
- Stone Type: to be "Vega Black Granite"
- stone paving to be tested prior to supply and upon installation to achieve a P5 classification of pedestrian surface material when wet to AS/NZS 4586-2013
- provide stone sealant equal to Technical Protective Sealant for Paving Stones WLI applied to manufacturers specifications



PA2 General Footways and raised thresholds

The quality surface finish to the general residential footways of streets that provides a unifying thread through the public domain areas including streets and open spaces

Approach

Provide a honed concrete surface to provide a cost effective in situ finish with a lightly exposed aggregate surface using grey brown and white aggregates that reference the natural riverine environment of the locality.

Recommendation

- concrete slab 32Mpa
-130mm reinforced (P2 pedestrian)
-180mm reinforced (P2 vehicular)
- Teralba Aggregate 10-20mm
- lightly honed surface finish to expose fine aggregates
- honing extends to edges of joints with 10mm tooled pencil round
- concrete paving to be tested upon installation to achieve a P5 classification of pedestrian surface material when wet to AS/NZS 4586-2013



THE PUBLIC DOMAIN GUIDELINES

Footway pavements and kerbs

PA3 Feature and accent paving areas

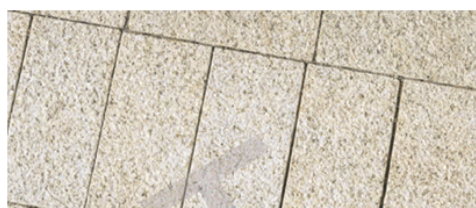
The high quality surface finish to streets and public spaces when a change of material and colour is desirable to reinforce change in function and to provide a design accent.

Approach

Provide a warmly toned quality stone pavement that provides a contrast to the other pavement surfaces but maintains a colour reference to the natural riverine environment of the locality.

Recommendation

- 40mm granite pavement slabs to pedestrian traffic areas (not used to vehicular traffic areas):
 - 300x600x40mm granite margin with mitred corners
 - 300x400x40mm granite paving in ashlar pattern 43%
 - 200x300x40mm granite paving in ashlar pattern 43%
 - 200x200x40mm granite paving in ashlar pattern 14%
- Granite type: shall be "Honey Jasper" sawn Granite slabs
- stone Finish: Bush Hammered
- stone Paving to be tested prior to supply and upon installation to achieve a P5 classification of pedestrian surface material when wet to AS/NZS 4586-2013
- seal stone surface as for PA1 Vega Black Granite



PA4 Street Kerb

The footway edge that defines pedestrian verges and road drainage

Approach

Provide a wider profile kerb that proportionally integrates with footway stone pavements and provides an urban character differentiating with local residential and industrial streets

Recommendation

- 200mm wide extruded concrete kerb

Refer to guidelines PA5 and PA6 for kerb ramps to footways.



PA7 Tactile Indicators

In pavement tactile markers that alert pedestrians to changes in condition of the footway in particular at kerb crossings, raised crossings and bus stops. Are implemented in accordance with AS 1428 *Design for Access and Mobility* other than to State Roads where they are implemented in accordance with RMS policy

Approach

Provide a unified tactile indicator treatment across Arncliffe and Banksia and Bayside LGA generally for maintenance and cost effectiveness.

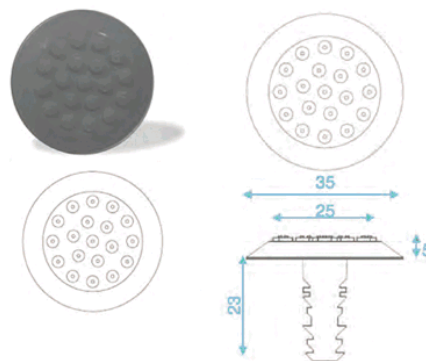
Recommendation

Warning TGSi:

- Austact Full Polyurethane TGSi product code: FP20SLS_1
- Charcoal Colour to insitu concrete and granite
- White colour to Vega Black Granite pavement
- Confirm 30% Luminance contrast on site for above colours
- outer Dia: 35mm x Top Dia: 25mm x Thickness: 5mm x Shaft: 23mm

Directional TGSi:

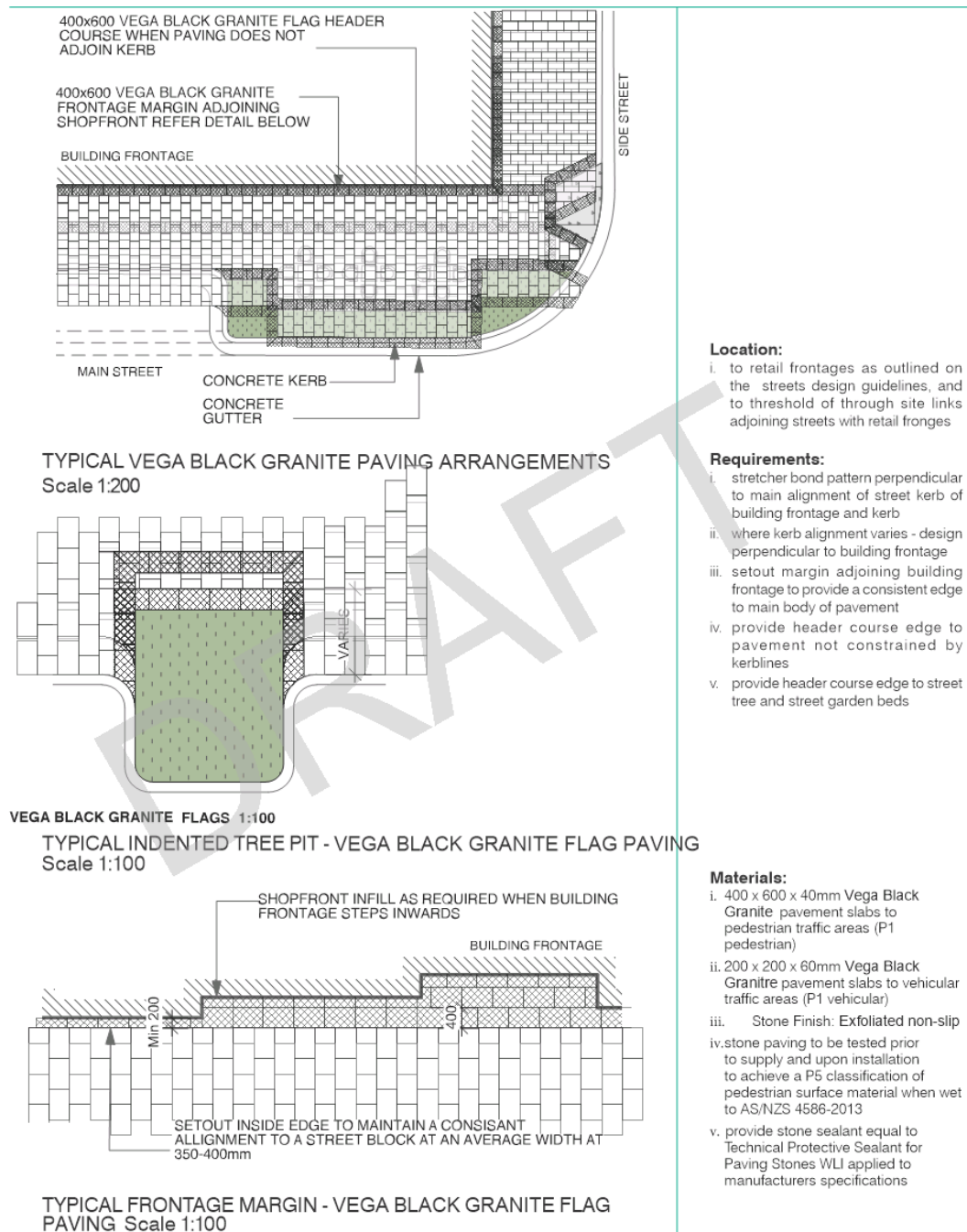
- Austact Full Polyurethane Directional TGSi product code: FPD20SLS_1
- Charcoal Colour to insitu concrete and granite
- White colour to Vega Black Granite pavement
- Confirm 30% Luminance contrast on site for above colours



THE PUBLIC DOMAIN GUIDELINES

Footway pavements and kerbs

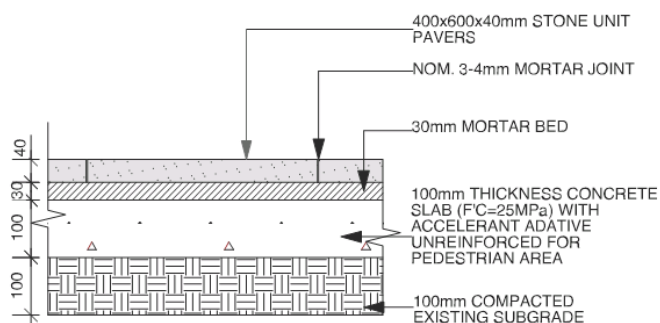
PA1 Vega Black Granite Flag Pavement - typical arrangement PA1-1



Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

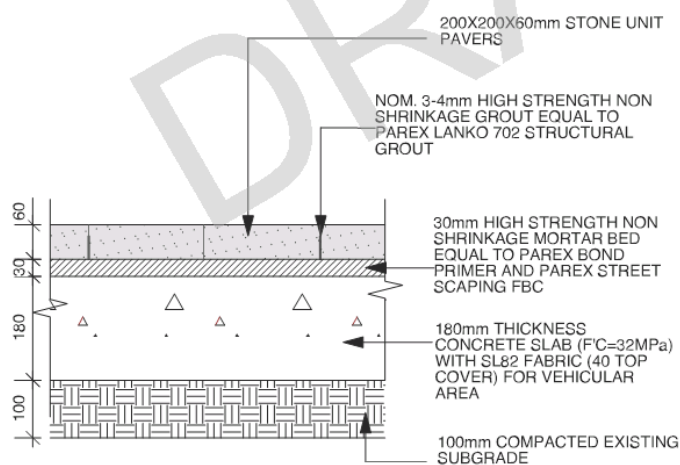
THE PUBLIC DOMAIN GUIDELINES
Footway pavements and kerbs

PA1 Vega Black Granite Flag Pavement - typical laying **PA1-2**



NOTE:
- PAVERS TO BE LAID EVENLY ON MORTAR BED WITH EVEN JOINTING IN ALL DIRECTIONS.

TYPICAL GRANITE FLAG LAYING - PEDESTRIAN AREAS
Scale 1:10



NOTE:
- PAVERS TO BE LAID EVENLY ON MORTAR BED WITH EVEN JOINTING IN ALL DIRECTIONS.

TYPICAL GRANITE FLAG LAYING - DRIVEWAYS
Scale 1:10

Location:

- to retail frontages as outlined on the streets design guidelines, and to threshold of through site links adjoining streets with retail fringes

Requirements:

- site specific structural design of pavement subbase required
- provide high strength non shrinkage bedding course and grouting to stone pavement subject to vehicular traffic (for example driveways)

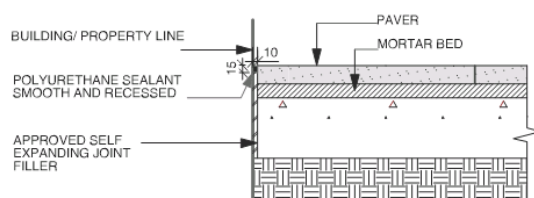
Materials:

- 400 x 600 x 40mm Vega Black Granite pavement slabs to pedestrian traffic areas (P1 pedestrian)
- 200 x 200 x 60mm Vega Black Granite pavement slabs to vehicular traffic areas (P1 vehicular)
- Stone Finish: Exfoliated non-slip
- stone paving to be tested prior to supply and upon installation to achieve a P5 classification of pedestrian surface material when wet to AS/NZS 4586-2013
- provide stone sealant equal to Technical Protective Sealant for Paving Stones WLI applied to manufacturers specifications

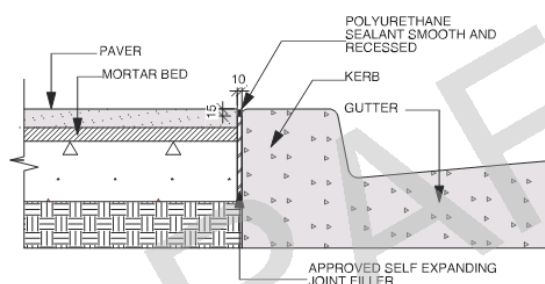
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THE PUBLIC DOMAIN GUIDELINES
Footway pavements and kerbs

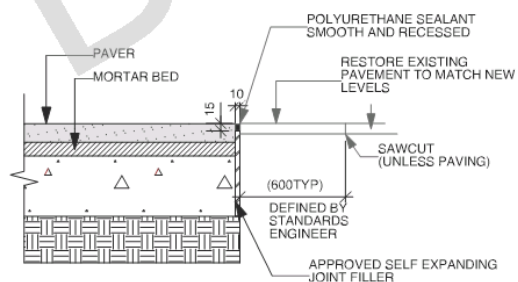
PA1 Vega Black Granite Flag Pavement - typical junctions PA1-3



TYPICAL VEGA BLACK GRANITE JUNCTION WITH BUILDING
Scale 1:10



TYPICAL VEGA BLACK GRANITE JUNCTION WITH KERB
Scale 1:10



TYPICAL VEGA BLACK GRANITE JUNCTION WITH EXISTING PAVEMENT
Scale 1:10

Location:

- i. To all streets with Vega Black Granite Pavement

Requirements:

- i. provide treatment of joint to provide neat and durable finish of all junctions of stone pavement to adjoining surfaces

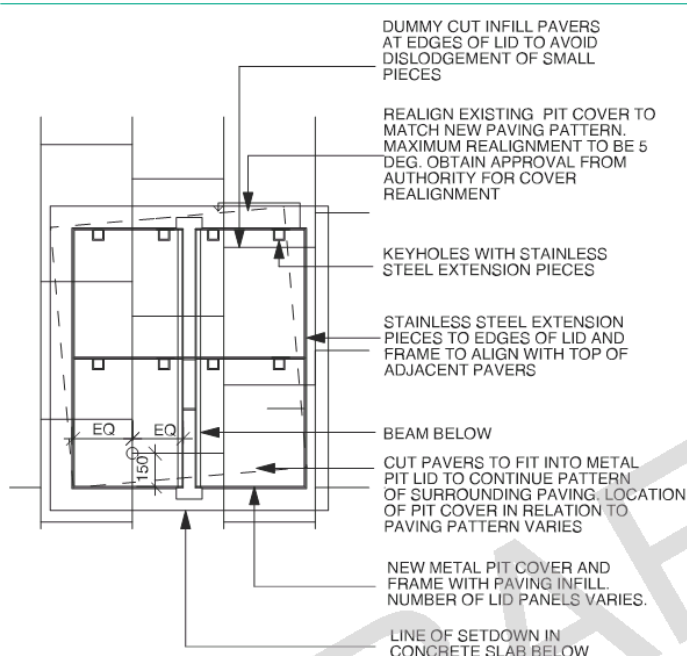
Materials:

- i. 400 x 600 x 40mm Vega Black Granite pavement slabs to pedestrian traffic areas (P1 pedestrian)
- ii. 200 x 200 x 60mm Vega Black Granite pavement slabs to vehicular traffic areas (P1 vehicular)
- iii. Stone Finish: Exfoliated non-slip
- iv. stone paving to be tested prior to supply and upon installation to achieve a P5 classification of pedestrian surface material when wet to AS/NZS 4586-2013
- v. provide stone sealant equal to Technical Protective Sealant for Paving Stones WLI applied to manufacturers specifications

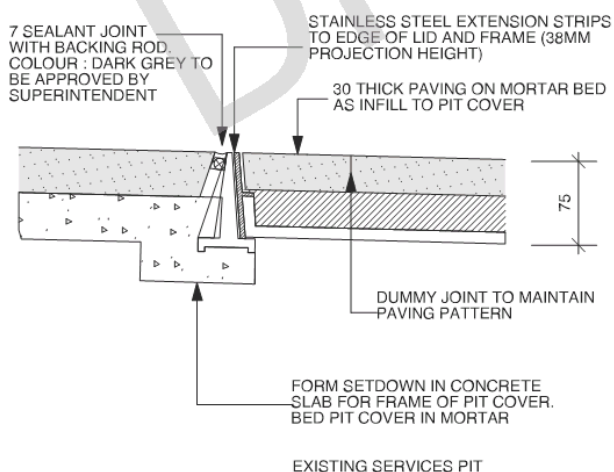
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THE PUBLIC DOMAIN GUIDELINES
Footway pavements and kerbs

PA1 Stone pavement infill to multi part pit lid **PA1-4**



TYPICAL PAVEMENT INFILL TO PIT LID - PLAN
Scale 1:25



TYPICAL PAVEMENT INFILL TO PIT LID - SECTION
Scale 1:10

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample infill paving lid

Location:

- Paving infill lids to be preferred treatment to service pit lids to all streets
- Vega Black Granite flagging insert to active frontages
- Honed insitu concrete to general pedestrian areas
- Excludes pit lids to Telstra and Optus pits which shall be to authority standard - steel lids preferred
- To larger single or multi part lids to power or telecoms services provide new steel pit lids compliant with

Requirements:

- Paving infill pattern and alignment shall integrate with / match adjoining pavement
- Steel lids shall generally be replaced in new works to provide consistent finish and plate pattern across project

Materials:

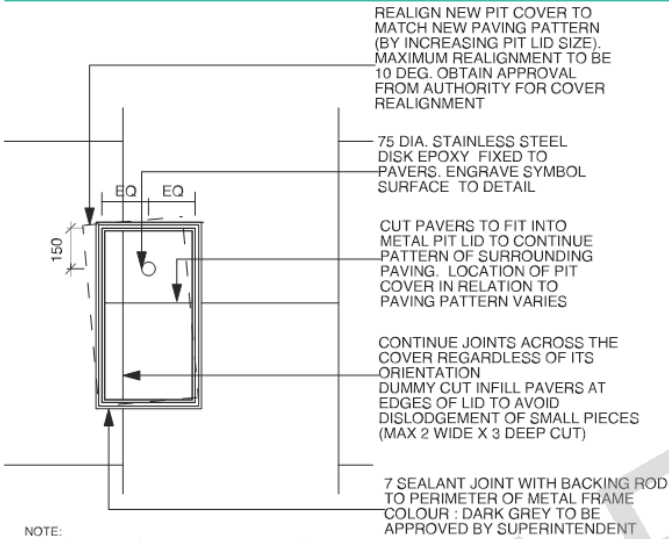
Materials to match adjoining surface finish:

- Stone pavement epoxy fixed to lid frame
- Concrete infill fixed and honed

THE PUBLIC DOMAIN GUIDELINES

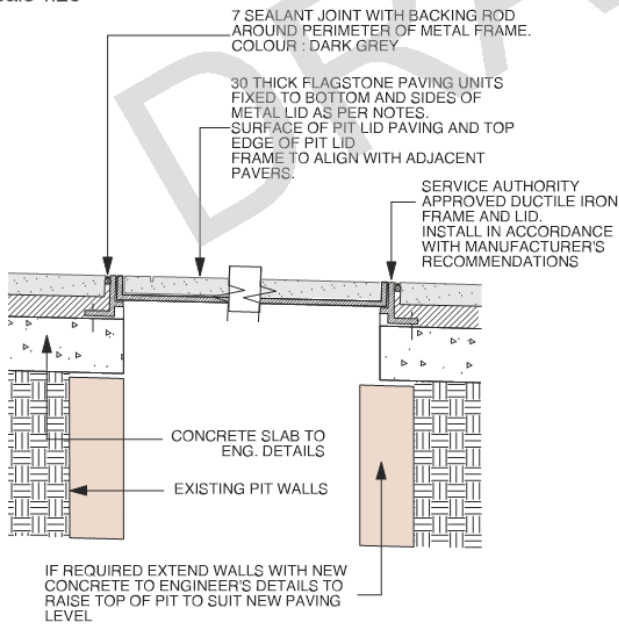
Footway pavements and kerbs

PA1 Stone pavement infill to single pit lid **PA1-5**



NOTE:
PAVING INSERTS TO BE FLUSH WITH AND MATCH
ADJACENT PAVING SURROUNDS
CONTINUE FLAGSTONE JOINTS ACROSS THE COVER
REGARDLESS OF ITS ORIENTATION

TYPICAL PAVEMENT INFILL TO PIT LID - PLAN
Scale 1:25



TYPICAL PAVEMENT INFILL TO PIT LID - SECTION
Scale 1:10

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample infill paving lid

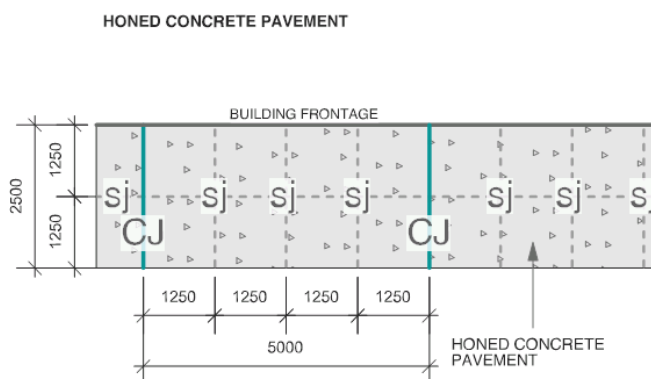
- Location:**
- i. Paving infill lids to be preferred treatment to service pit lids to all streets
 - ii. Vega Black Granite flagging insert to active frontages
 - iii. Honed insitu concrete to general pedestrian areas
 - iv. Excludes pit lids to Telstra and Optus pits which shall be to authority standard - steel lids preferred
 - v. To larger single or multi part lids to power or telecoms services provide new steel pit lids compliant with

- Requirements:**
- i. Paving infill pattern and alignment shall integrate with / match adjoining pavement
 - ii. Steel lids shall generally be replaced in new works to provide consistent finish and plate pattern across project

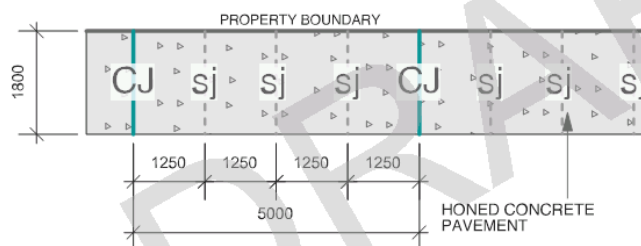
- Materials:**
Materials to match adjoining surface finish:
- i. Stone pavement epoxy fixed to lid frame
 - ii. Concrete infill fixed and honed

THE PUBLIC DOMAIN GUIDELINES
Footway pavements and kerbs

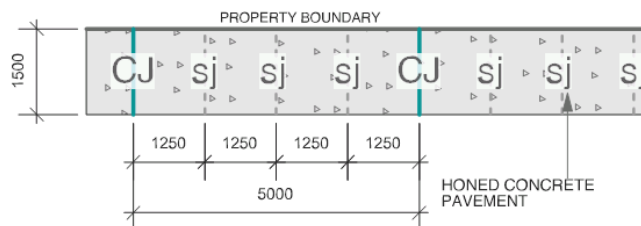
PA2 Honed concrete insitu pavement arrangement **PA2-1**



2500MM WIDE HONED CONCRETE PAVEMENT PLAN
Scale 1:100



1800MM WIDE HONED CONCRETE PAVEMENT PLAN
Scale 1:100



1500MM WIDE HONED CONCRETE PAVEMENT PLAN
Scale 1:100

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample honed concrete

Location:

- to general pedestrian areas on streets, to open spaces and to through site links

Requirements:

- design to width requirement as defined by street design guidelines for individual streets
- provide treatment to provide neat and durable finish of all junctions of concrete pavement to adjoining surfaces as per guideline P1-3

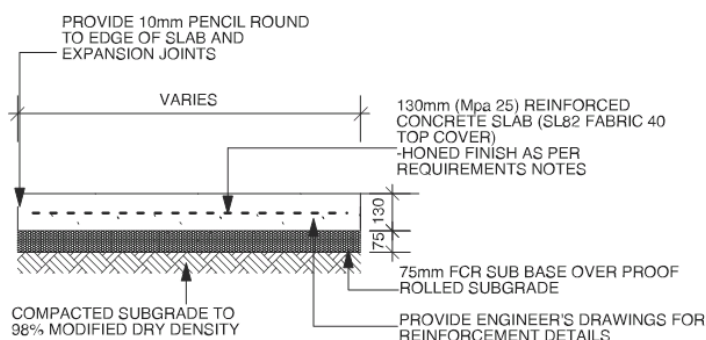
Materials:

- Reinforced concrete slab 32Mpa
- Teralba Aggregate 10-20mm
- Lightly honed surface finish to expose fine aggregates
- Honing extends to edges of joints with 10mm tooled pencil round
- Materials and construction: To AS 3600, AS 4671.
- Concrete: To AS 1379
- Flexural strength assessment of concrete: To AS 1012.8 and AS 1012.11

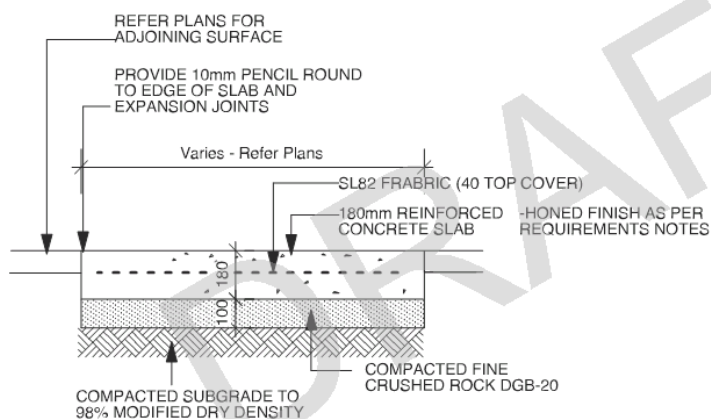
THE PUBLIC DOMAIN GUIDELINES

Footway pavements and kerbs

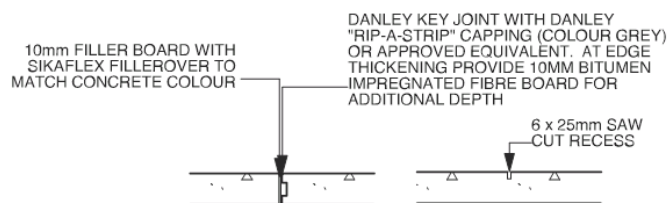
PA2 Honed concrete insitu pavement construction PA2-2



P2A HONED INSITU PEDESTRIAN CONCRETE PAVEMENT
Scale 1:20



P2B HONED INSITU VEHICULAR CONCRETE PAVEMENT
Scale 1:20



NOTE: PROVIDE KEY JOINTS AT 6000mm MAX CTS. NOMINAL LOCATIONS SHOWN ON PLAN (CP04). ACTUAL POSITION TO BE CONFIRMED ON SITE WITH SUPERINTENDENT

KEY JOINT

NOTE: SAW CUT JOINTS TO BE SETOUT AT MAXIMUM 1500mm CTS TO BE CONFIRMED ON SITE WITH SUPERINTENDENT

SAWN JOINT

HONED INSITU CONCRETE PAVEMENT JOINTING
Scale 1:20

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample honed concrete

Location:

- to general pedestrian areas on streets, to open spaces and to through site links

Requirements:

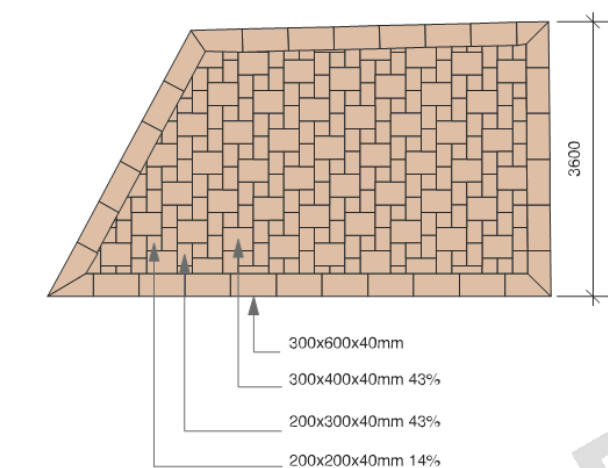
- design to width requirement as defined by street design guidelines for individual streets
- provide treatment to provide neat and durable finish of all junctions of concrete pavement to adjoining surfaces as per guideline PA1-3

Materials:

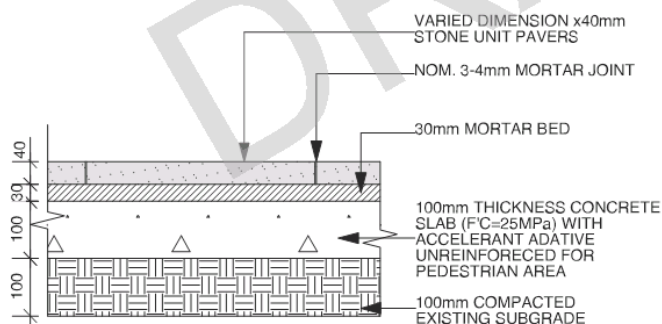
- Reinforced concrete slab 32Mpa
- Teralba Aggregate 10-20mm
- Lightly honed surface finish to expose fine aggregates
- Honing extends to edges of joints with 10mm tooled pencil round
- Materials and construction: To AS 3600, AS 4671.
- Concrete: To AS 1379
- Flexural strength assessment of concrete: To AS 1012.8 and AS 1012.11

THE PUBLIC DOMAIN GUIDELINES
Footway pavements and kerbs

PA3 Granite Accent Pavement **PA3-1**

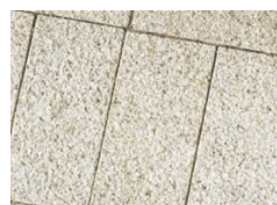


GRANITE ACCENT PAVEMENT - TYPICAL PLAN
Scale 1:75



NOTE:
- PAVERS TO BE LAID EVENLY ON MORTAR BED
WITH EVEN JOINTING IN ALL DIRECTIONS.

GRANITE ACCENT PAVEMENT - TYPICAL SECTION - PEDESTRIAN
Scale 1:10



- sample granite pavement

Location:

- to Princes Highway in zones between street gardens and to open spaces as accent / feature pavement

Requirements:

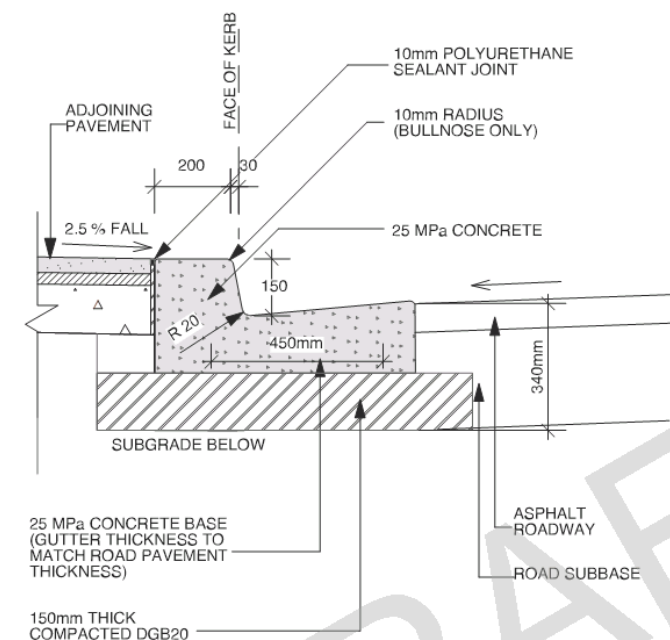
- ashlar pattern with stone margin as illustrated on plan
- avoid to heavily shaded areas to open spaces or areas subject to major leaf and fruit drop

Materials:

- 40mm granite pavement slabs to pedestrian traffic areas (not used to vehicular traffic areas);
- 300x600x40mm granite margin with mitred corners
- 300x400x40mm granite paving in ashlar pattern 43%
- 200x300x40mm granite paving in ashlar pattern 43%
- 200x200x40mm granite paving in ashlar pattern 14%
- stone Finish: Bush Hammered
- stone Paving to be tested prior to supply and upon installation to achieve a P5 classification of pedestrian surface material when wet to AS/NZS 4586-2013
- provide stone sealant equal to Technical Protective Sealant for Paving Stones WLI applied to manufacturers specifications

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

THE PUBLIC DOMAIN GUIDELINES

200mm Concrete Kerb / Kerb and Gutter **PA4**

TYPICAL CONCRETE KERB AND GUTTER

Scale NTS



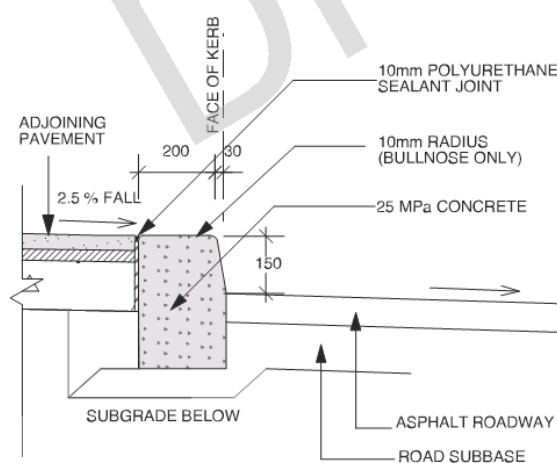
- sample concrete kerb

Location:

- i. To all streets

Requirements:

- i. Refer to streets design guidelines for general guidance on arrangement of kerb only, kerb and gutter, and dish drains
- ii. Dish drain where applicable to be double gutter profile (2x450mm - 900mm overall at 30mm depth)



TYPICAL CONCRETE KERB
Scale NTS

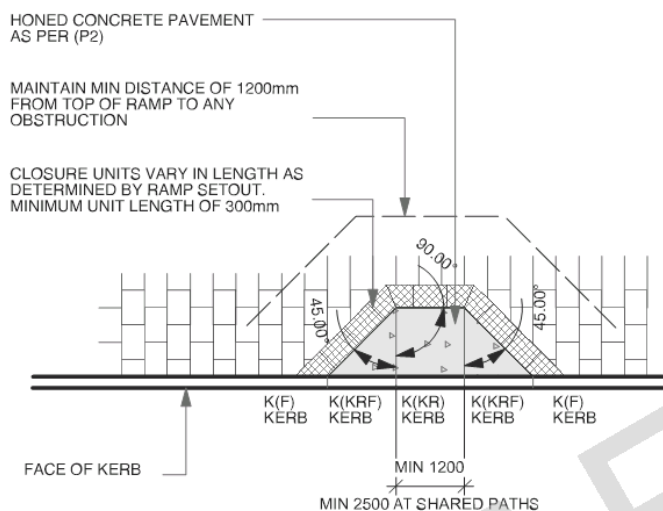
Materials:

- i. Materials and construction: To AS 3600, AS 4671.
- ii. Concrete: To AS 1379
- iii. Flexural strength assessment of concrete: To AS 1012.8 and AS 1012.11

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

THE PUBLIC DOMAIN GUIDELINES
Footway pavements and kerbs

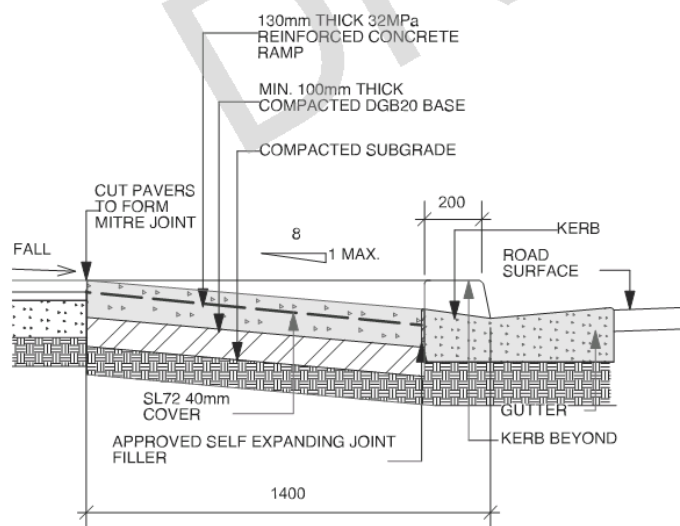
Kerb Ramp - adjoining stone pavement **PA5-1**



KERB TYPES:

TYPE K(F): FULL HEIGHT
TYPE K(KRF): PEDESTRIAN CHAMFERED TO FALL
TYPE K(KR): PEDESTRIAN CROSSOVER

TYPICAL PLAN
Scale 1:100



TYPICAL SECTION
Scale 1:20

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample kerb ramp

Location:

- to streets with Vega Black Granite flag pavement

Requirements:

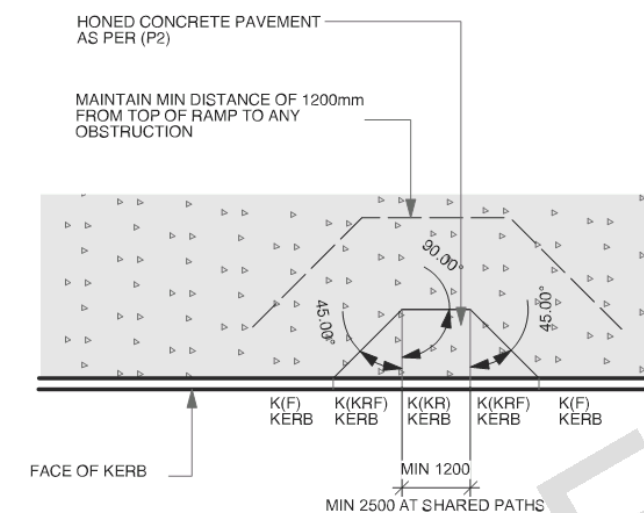
- design kerb ramp to required and available width to serve pedestrian crossing function for individual streets
- provide treatment to provide neat and durable finish of all junctions of concrete pavement to adjoining surfaces as per guideline PA1-3

Materials:

- Reinforced concrete slab 32Mpa
- Teralba Aggregate 10-20mm
- Lightly honed surface finish to expose fine aggregates
- Honing extends to edges of joints with 10mm tooled pencil round
- Materials and construction: To AS 3600, AS 4671.
- Concrete: To AS 1379
- Flexural strength assessment of concrete: To AS 1012.8 and AS 1012.11

THE PUBLIC DOMAIN GUIDELINES

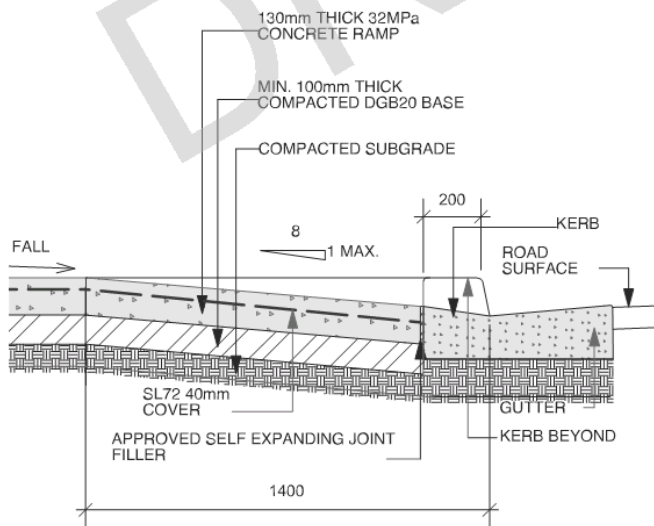
Kerb Ramp - adjoining concrete pavement **PA5-2**



KERB TYPES:

TYPE K(F): FULL HEIGHT
TYPE K(KRF): PEDESTRIAN CHAMFERED TO FALL
TYPE K(KR): PEDESTRIAN CROSSOVER

TYPICAL PLAN
Scale 1:100



TYPICAL SECTION
Scale 1:20

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

- sample kerb ramp

Location:

- i. to streets with honed insitu concrete pavement

Requirements:

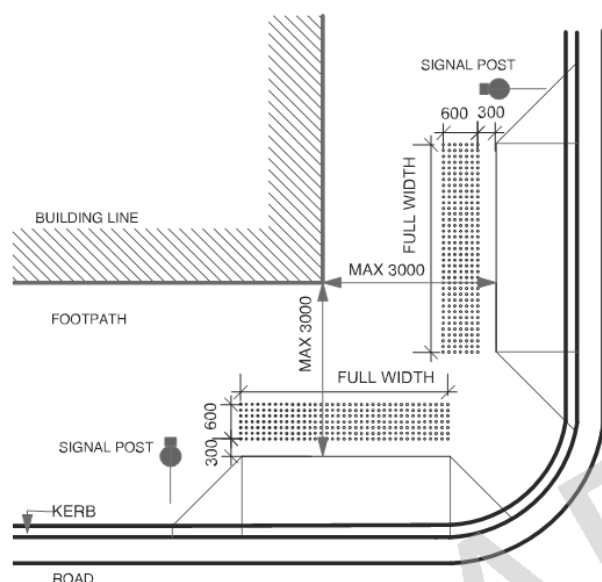
- i. design kerb ramp to required and available width to serve pedestrian crossing function for individual streets
- ii. provide treatment to provide neat and durable finish of all junctions of concrete pavement to adjoining surfaces as per guideline PA1-3

Materials:

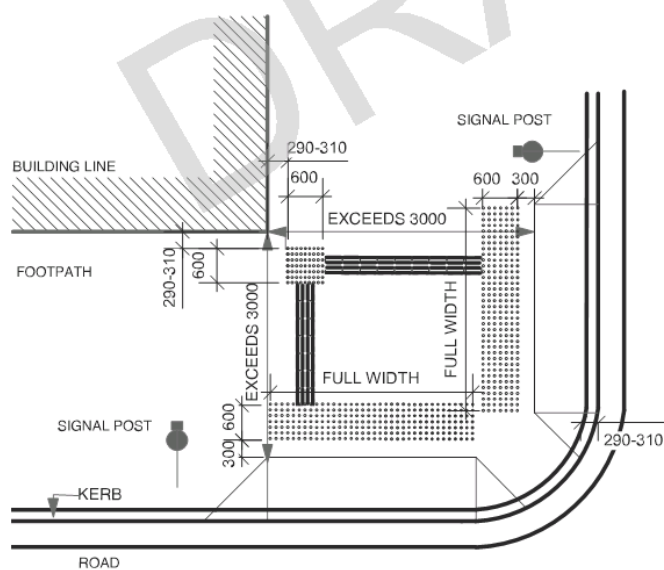
- i. Reinforced concrete slab 32Mpa
- ii. Teralba Aggregate 10-20mm
- iii. Lightly honed surface finish to expose fine aggregates
- iv. Honing extends to edges of joints with 10mm tooled pencil round
- v. Materials and construction: To AS 3600, AS 4671.
- vi. Concrete: To AS 1379
- vii. Flexural strength assessment of concrete: To AS 1012.8 and AS 1012.11

THE PUBLIC DOMAIN GUIDELINES
Footway pavements and kerbs

Kerb Ramp - tactile indicator arrangement **PA5-3**



TOP OF RAMP WITHIN 3000mm FROM BUILDING LINE
Scale NTS



TOP OF RAMP GREATER THAN 3000mm FROM BUILDING LINE
Scale NTS

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

- sample tactiles

Location:

- to local streets managed by Bayside Council and to RMS managed State Roads as advised by RMS

Requirements:

- apply TGSi approach subject to width of footway between building frontage and top of ramp
- install TGSi in accordance with AS 1428.1 Design for Access and Mobility
- core drill and fix TGSi in accordance with manufactureres specifications

Materials:

Warning TGSi:

- Austact Full Polyurethane TGSi
- Product code: FP20SLS_1
- Charcoal Colour to insitu concrete and granite pavement
- White colour to Vega Black Granite pavement
- Outer Dia: 35mm x Top Dia: 25mm x Thickness: 5mm x Shaft: 23mm

Directional TGSi:

- Austact Full Polyurethane Directional TGSi
- Product code: FPD20SLS_1
- Charcoal Colour to insitu concrete and granite pavement
- White colour to Vega Black Granite pavement

THE PUBLIC DOMAIN GUIDELINES

5.2 Street Furniture

Street furniture supports the use of the public domain both in terms of day to day access and movement in addition to its role as a place for street and community life. At its best street furniture can enhance the identity and character of the public domain as part of a coordinated design and materials approach.

Refer to guidelines FN1-FN5 for street furniture guidelines.

Addressing the desired place character for public domain

....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. the public domain of Arncliffe Banksia is a place that is easy and safe to use for all	i. street furniture is compatible and complementary to heritage fabric	i. provide continuity and legibility that become recognisable by the community as part of the identity of Arncliffe and Banksia
ii. sustainable supply lines are available	ii. street furniture is flexible and adaptable to a range of uses including events	

Applying the public domain principles

function	character	comfort	resilience
i. facilitate easy and safe use for all abilities across public domain areas through provision of suitably located and appropriate street furniture	i. finishes and colours are complementary to natural riverine environment by being true to nature (for example uncoloured plain steel finishes, oil finished timber)	i. is located where it can be effectively and comfortably used	i. uses existing furniture types being used in Bayside where possible
ii. facilitates flexible and adaptable use of public domain spaces through thoughtful location of fixed furniture	ii. a minimal furniture range coordinated across Arncliffe and Banksia	ii. is provided to cater to day to day use without proliferation	ii. facilitates effective maintenance
iii. complement off the shelf seating with bespoke seating opportunities such as low walls and raised decking		iii. contributes to comfort by being generally lighter in tone and less heat absorbant	iii. sustainable supply and installation
iv. providing a unifying character between public domain to east and west of railway		iv. enables flexibility for a variety of uses to occur	



THE PUBLIC DOMAIN GUIDELINES

Street Furniture

Seats

Provided to streets and open space to provide for day to day use and serve less mobile and elderly users.

Approach

Elegant steel and timber seat in raw material finishes / colours that is available in backed and bench options. Locate at bus stops, taxi ranks, kerb extensions and outside public buildings subject to detail design approval

Recommendation

- i. Furniture Type:
 - Backed seat (Channel seat A - CHL0-A-GS-T-HW)
 - Bench (Channel bench -CHL02-A-MS-G-HW)
- ii. Frame Finish: galvanised steel
- iii. Timber: Hardwood timber slats
- iv. Fixing to Ground: Subsurface mounted to footing to manufacturers specification
- v. Size: 1750L x 590D x 800mmH



Bins

Provided to streets and open space to cater for day to day rubbish collection in locations where bins can be effectively serviced.

Approach

Continue the Bayside standard bin enclosure for sustainability of long term maintenance and replacement. Locate near retail centres, recreation spaces, bus stops and other areas with high activity levels where people congregate.

Recommendation

- i. Furniture Type: Bin enclosure (Cronulla Bin Enclosure, 240L with Bennelong Hood and Posts, chute - EM224)
- ii. Material: Full unit stainless steel
- iii. Fixing to Ground: Subsurface mounted to footing to manufacturers specification
- iv. Size: 740W x 755D x 1170H to top of chute with overall height with hood and pins is at an additional 200mm



Cycle Racks

Provided to streets and open space where cyclists may wish to park cycles such as near transport and town centre areas.

Approach

Use simple steel loop fixture and locate where racks will not impede safe access of the footway. Racks are normally sited in multiples of four to six.

Recommendation

- i. Securabike BR85B (surface mounting)
- ii. Securabike BR85F (sub-surface mounting)
- iii. 850m length x 800mm height (50 diam)
- iv. Grade 304 Stainless Steel Satin Finish



THE PUBLIC DOMAIN GUIDELINES

Street Furniture

Bollard

Provided to junction of vehicular carriageway and footway where the pavement surfaces are flush and a means of definition and control of vehicle movement is required. Only to be used where no other form of delineation / access management is feasible or effective.

Approach

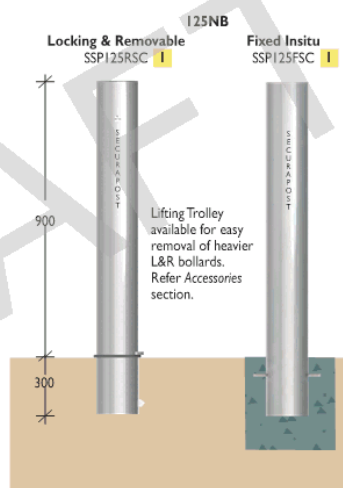
Use simple steel cylindrical bollard used elsewhere in Bayside Council area

Only use where definition of pedestrian zone is necessary for safety such as in wide raised thresholds and areas of shared zones not definable by landscape measures.

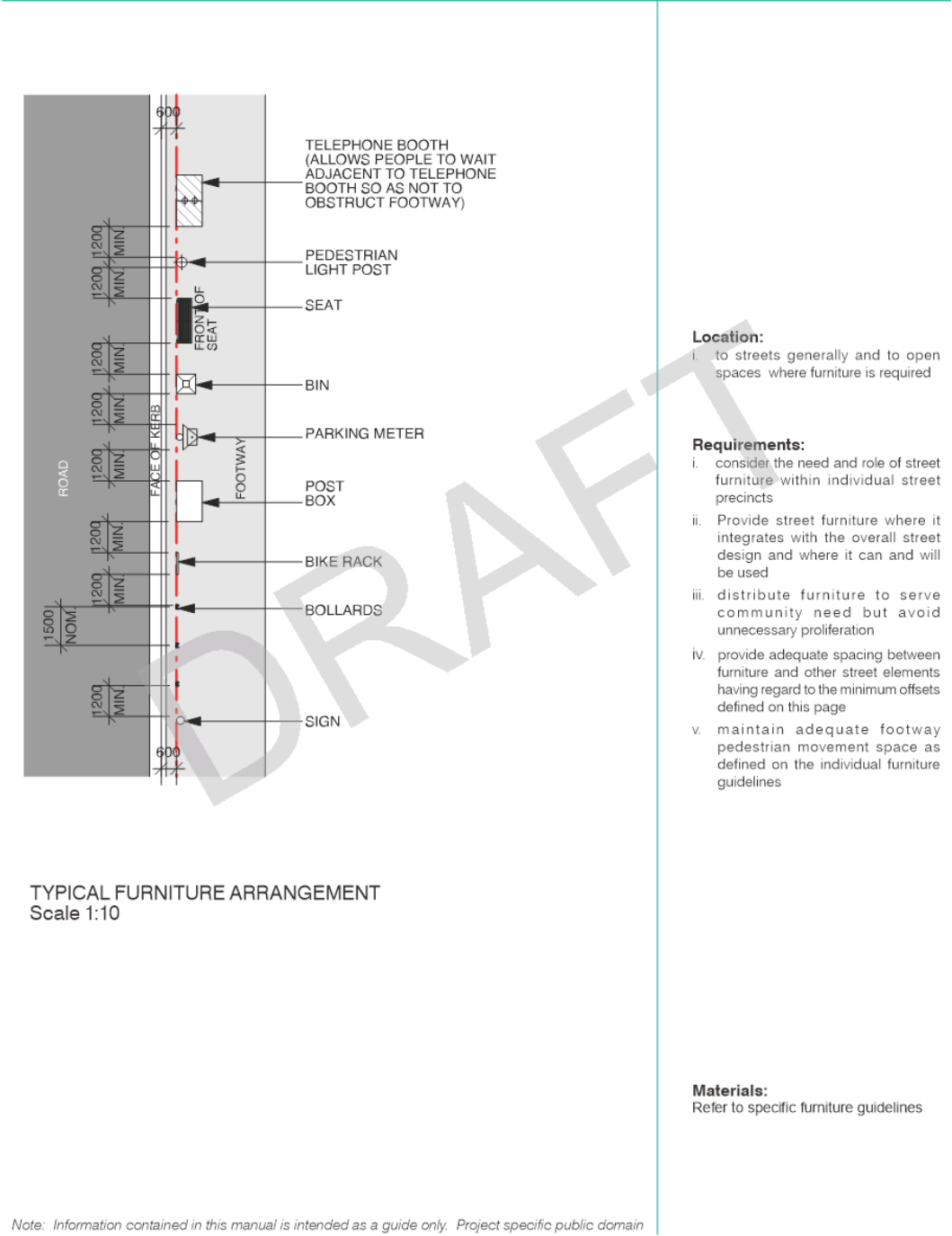
Maximum 1.5m spacing to deter vehicles unless approved otherwise.

Recommendation

- i. Securapost SSP150FSC (fixed)
- ii. Securabike SSP150RSC (removable)
- iii. 900mm high x 125mm diam
- iv. Grade 304 Stainless Steel Satin Finish



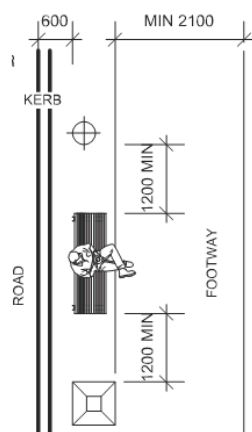
Typical furniture arrangement FN1



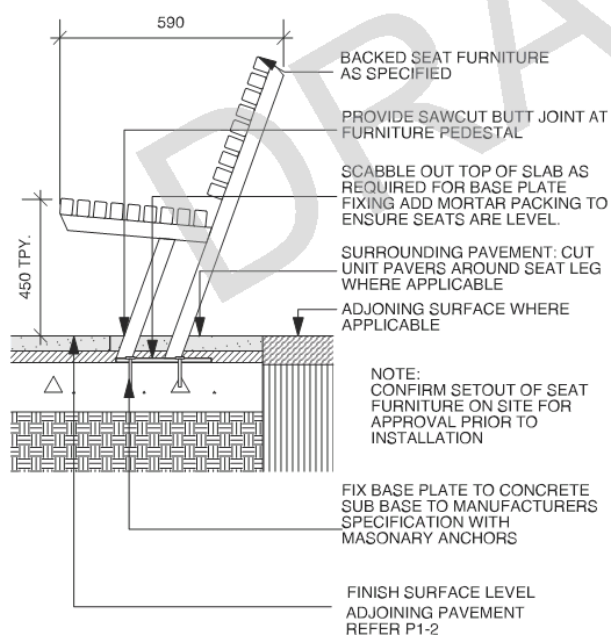
THE PUBLIC DOMAIN GUIDELINES

Street Furniture

Backed seat FN2



TYPICAL SEAT ARRANGEMENT TO FOOTWAY
Scale 1:100



TYPICAL SEAT INSTALLATION
Scale 1:100

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample

Location:

- locate at bus stops, taxi ranks, kerb extensions and outside public buildings subject to detail design approval

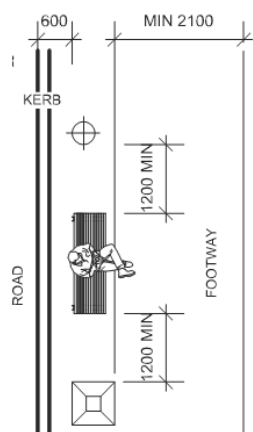
Requirements:

- consider the need and role of street furniture within individual street precincts
- provide street furniture where it integrates with the overall street design and where it can and will be used
- distribute furniture to serve community need but avoid unnecessary proliferation
- provide adequate spacing between furniture and other street elements having regard to the minimum offsets defined on this page
- maintain adequate footway pedestrian movement space as defined on the individual furniture guidelines
- Install subsurface to stone pavement and surface fixed to concrete pavement - order leg height accordingly

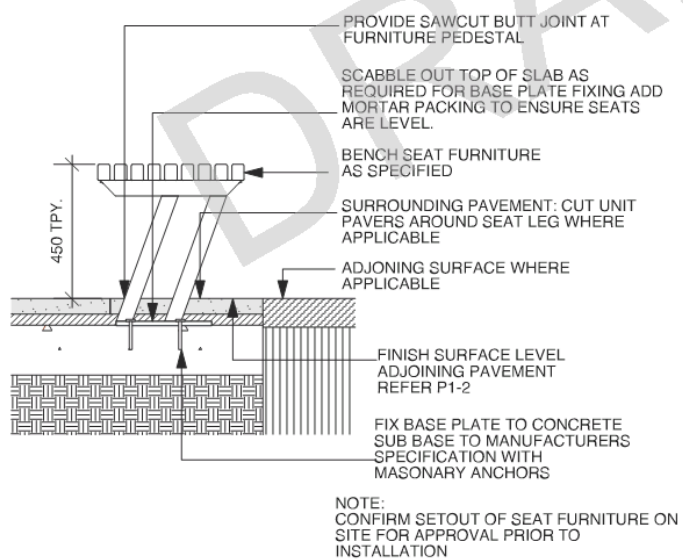
Materials:

- Furniture Type:
-Backed seat (Channel seat A - CHLO-A-GS-T-HW)
- Frame Finish: galvanised steel
- Timber: Hardwood timber slats
- Fixing to Ground: Subsurface mounted to footing to manufacturers specification
- Size: 1750L x 590D x 800mmH

THE PUBLIC DOMAIN GUIDELINES
Street Furniture

Bench seat **FN3**

TYPICAL BENCH ARRANGEMENT TO FOOTWAY
Scale 1:100



TYPICAL BENCH INSTALLATION
Scale 1:100

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample

Location:

- i. locate at bus stops, taxi ranks, kerb extensions and outside public buildings subject to detail design approval to provide flexible access

Requirements:

- i. consider the need and role of street furniture within individual street precincts
- ii. provide street furniture where it integrates with the overall street design and where it can and will be used
- iii. distribute furniture to serve community need but avoid unnecessary proliferation
- iv. provide adequate spacing between furniture and other street elements having regard to the minimum offsets defined on this page
- v. maintain adequate footway pedestrian movement space as defined on the individual furniture guidelines
- vi. Install subsurface to stone pavement and surface fixed to concrete pavement - order leg height accordingly

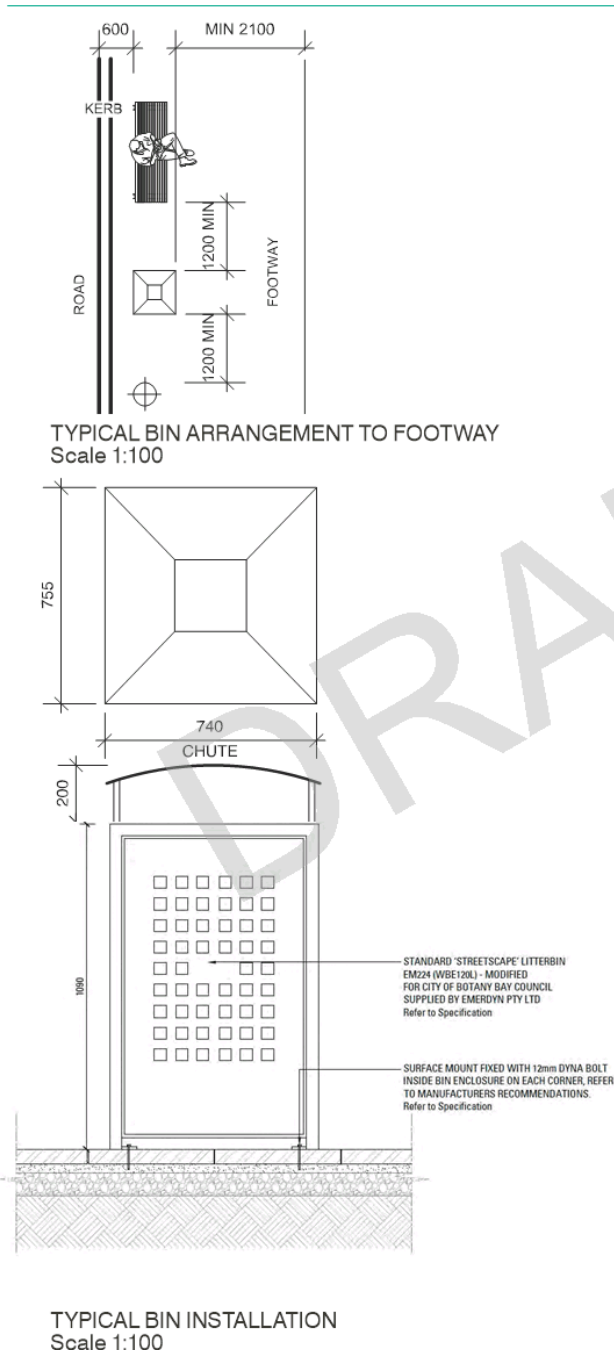
Materials:

- i. Furniture Type:
-Bench (Channel bench -CHL02-A-MS-G-HW)
- ii. Frame Finish: galvanised steel
- iii. Timber: Hardwood timber slats
- iv. Fixing to Ground: Subsurface mounted to footing to manufacturers specification
- v. Size: 1750L x 590D x 800mmH

THE PUBLIC DOMAIN GUIDELINES

Street Furniture

Rubbish bin enclosure FN4



- sample

Location:

- Provided to streets and open space to cater for day to day rubbish collection in locations where bins can be effectively

Requirements:

- locate near retail centres, recreation spaces, bus stops and other areas with high activity levels where people congregate.
 - consider the need and role of street furniture within individual street precincts
 - provide street furniture where it integrates with the overall street design and where it can and will be used
 - distribute furniture to serve community need but avoid unnecessary proliferation
 - provide adequate spacing between furniture and other street elements having regard to the minimum offsets defined on this page
 - maintain adequate footway pedestrian movement space as defined on the individual furniture guidelines
- Install subsurface to stone pavement and surface fixed to concrete pavement - order leg height accordingly

Materials:

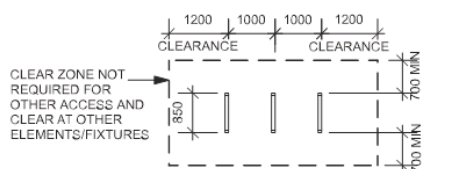
- Furniture Type: Bin enclosure (Cronulla Bin Enclosure, 240L with Bennelong Hood and Posts, chute - EM224)
- Material: Full unit stainless steel
- Fixing to Ground: Subsurface mounted to footing to manufacturers specification
- Size: 740W x 755D x 1170H to top of chute with overall height with hood and pins is at an additional 200mm

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

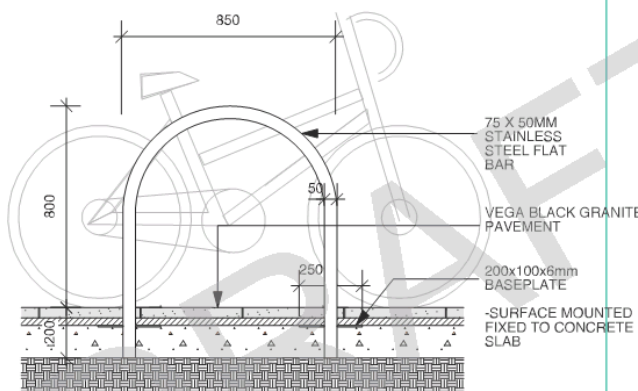
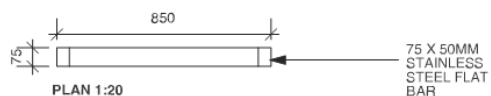
THE PUBLIC DOMAIN GUIDELINES

Street Furniture

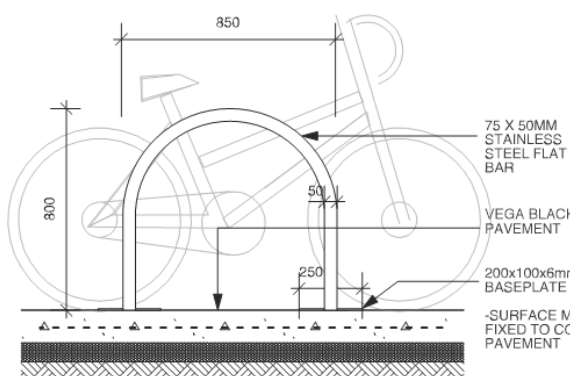
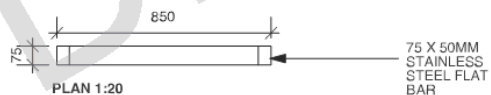
Cycle Rack FN5



TYPICAL CYCLE RACK ARRANGEMENT / CLEARANCES
Scale 1:100



TYPICAL CYCLE RACK INSTALLATION - TO P1 / P3 STONE
Scale 1:20



TYPICAL CYCLE RACK INSTALLATION - TO P2 CONCRETE
Scale 1:20

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample

Location:

- Provided to streets and open space where cyclists may wish to park cycles such as near transport and town centre areas.

Requirements:

- locate and locate where racks will not impede safe access of the footway. Racks are normally sited in multiples of four to six.
- consider the need and role of street furniture within individual street precincts
- provide street furniture where it integrates with the overall street design and where it can and will be used
- distribute furniture to serve community need but avoid unnecessary proliferation
- provide adequate spacing between furniture and other street elements having regard to the minimum offsets defined on this page
- maintain adequate footway pedestrian movement space as defined on the individual furniture guidelines
- Install subsurface to stone pavement and surface fixed to concrete pavement - order leg height accordingly

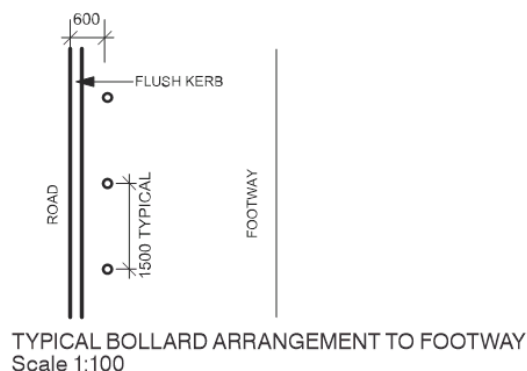
Materials:

- Securabike BR85B (surface mounting)
- Securabike BR85F (sub-surface mounting)
- 850m length x 800mm height (50 diam)
- Grade 304 Stainless Steel Satin Finish

THE PUBLIC DOMAIN GUIDELINES

Street Furniture

Bollard FN6



- sample

Location:

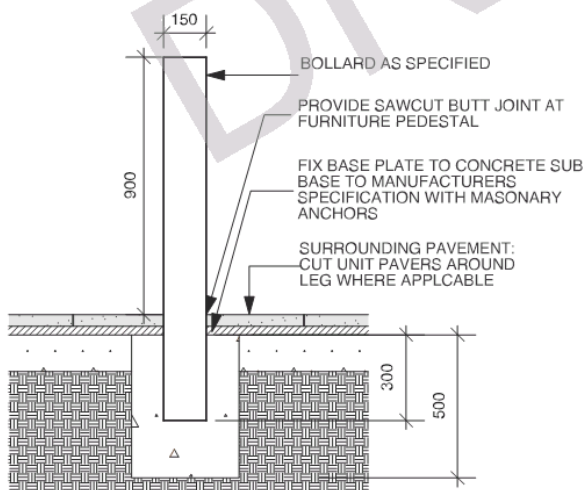
- Provided to junction of vehicular carriageway and footway where the pavement surfaces are flush and a means of definition and control of vehicle movement is required. Only to be used where no other form of delineation / access management is feasible or effective.

Requirements:

- only use where definition of pedestrian zone is necessary for safety such as in wide raised thresholds and areas of shared zones not definable by landscape measures.
- consider the need and role of street furniture within individual street precincts
- provide street furniture where it integrates with the overall street design and where it can and will be used
- distribute furniture to serve community need but avoid unnecessary proliferation
- provide adequate spacing between furniture and other street elements having regard to the minimum offsets defined on this page
- maintain adequate footway pedestrian movement space as defined on the individual furniture guidelines
- use removable bollard where regular temporary access is required

Materials:

- Securapost SSP150FSC (fixed)
- Securabike SSP150RSC (removable)
- 900mm high x 125mm diam



Note: information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

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THE PUBLIC DOMAIN GUIDELINES

5.3 Public domain lighting

Lighting is required to meet Australian Standard lighting levels for roads and public spaces for safety and wayfinding, in addition to enhancing the character and night use of key public spaces.

Refer to guidelines LT1-LT3 for public domain guidelines.

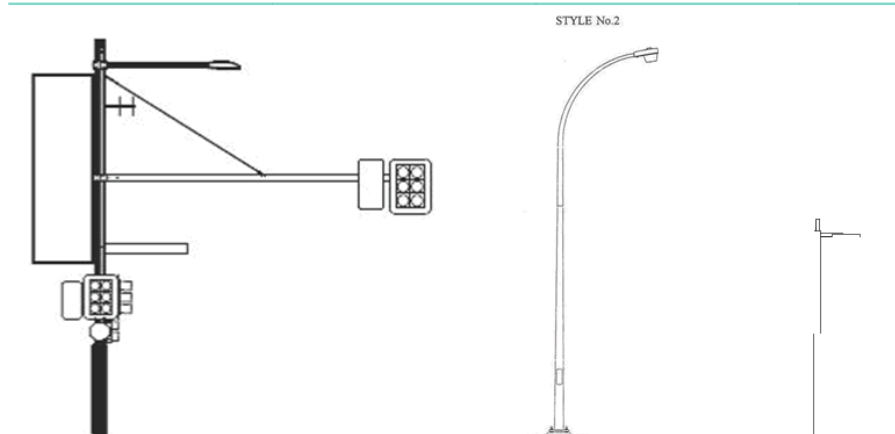
Addressing the desired place character for public domain

....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. The public domain of Arncliffe Banksia is a place that is easy and safe to use for all	i. Lighting is compatible and complementary to heritage fabric	i. Provide safety and legibility that facilitates use and enjoyment of public domain at night
ii. Lighting addresses potential for light spill impacts to adjoining residential areas in accordance with Australian Standards	ii. Lighting caters for a range of uses including events	
iii. Street lighting integrates with and complements overall street design arrangement	iii. Lighting enhances the presentation and interpretation of key heritage items and other public domain features	

Applying the public domain principles

function	character	comfort	resilience
i. Facilitate safe use of public domain areas that are accessed or used at night and / or have identified or past safety issues	i. Finish and colour are complementary to natural riverine environment by being true to nature (for example uncoloured plain steel finishes,	i. Is located to cater for day to day use without proliferation	i. Use Authority provided fixtures generally for maintenance and cost effectiveness
ii. Comply with Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces	ii. Provides an attractive night character to areas accessed or used at night		ii. Sustainable supply and maintenance
	iii. Provide bespoke feature lighting at key intersections (such as Forest Road at rail overpass)		



THE PUBLIC DOMAIN GUIDELINES

Public domain lighting

Street lighting - Princes Highway

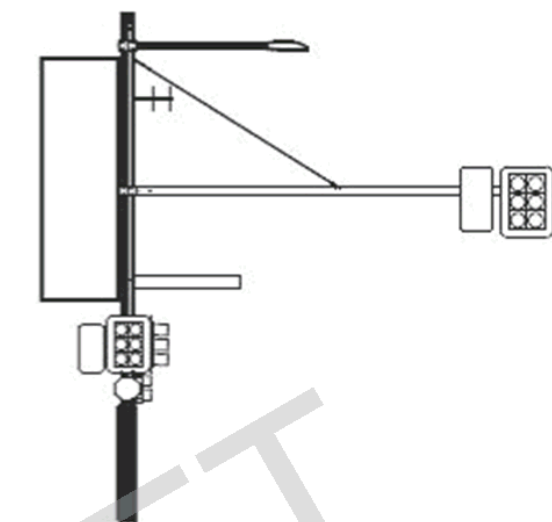
Street lighting to the major regional road corridor of the Princes Highway.

Approach

Reflect the regional status of the Princes Highway along with its "gateway" role to Arncliffe and Banksia with multi function poles that will consolidate street lighting and traffic signal functions at intersections and street lighting and banner displays to zones between intersections

Recommendation

- Hub Smart Pole 9.6m - Anodised Aluminium Finish
- Type S1 Type Ab as per City of Sydney Lights Public Domain Design Code
- Design to RMS approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces
- Lighting is required to meet Ausgrid Standard



9.6m S1 Type Ab

Street lighting - streets generally

Street lighting to streets generally in the Arncliffe and Banksia area.

Approach

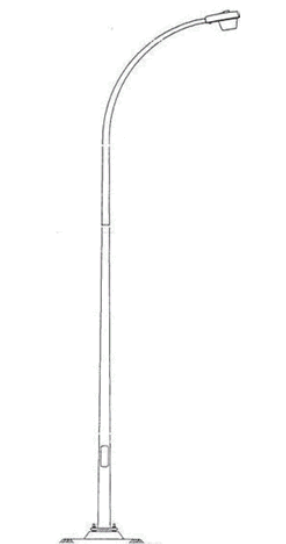
Use the highest order of standard street lighting poles as provided by Ausgrid that provides a cost and maintenance effective street lighting solution integrated with Bayside LGA generally and to be maintained by Ausgrid

Recommendation

- Ausgrid Prestigious lighting systems - Pole Style No 2 (ref NS 119 Figure D1
- Street LED light fitting
- Design to Council approved lighting level as per (AS/NZS 1158.3.1 - Lighting for Roads and Public Spaces
- Lighting is required to meet Ausgrid Standard



STYLE No.2



THE PUBLIC DOMAIN GUIDELINES

Public domain lighting

Pedestrian pole top lighting

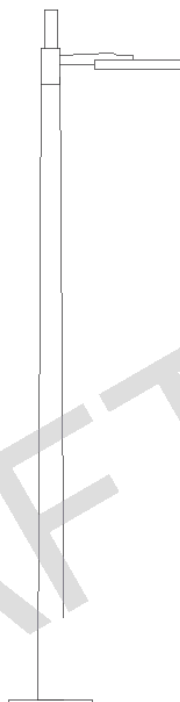
Lighting of pedestrian zones to open space and streets where a higher level of illumination that provided by street lighting is desired.

Approach

Provide an elegant pedestrian light pole and fitting in simple metallic finish that can use sustainable luminaires.

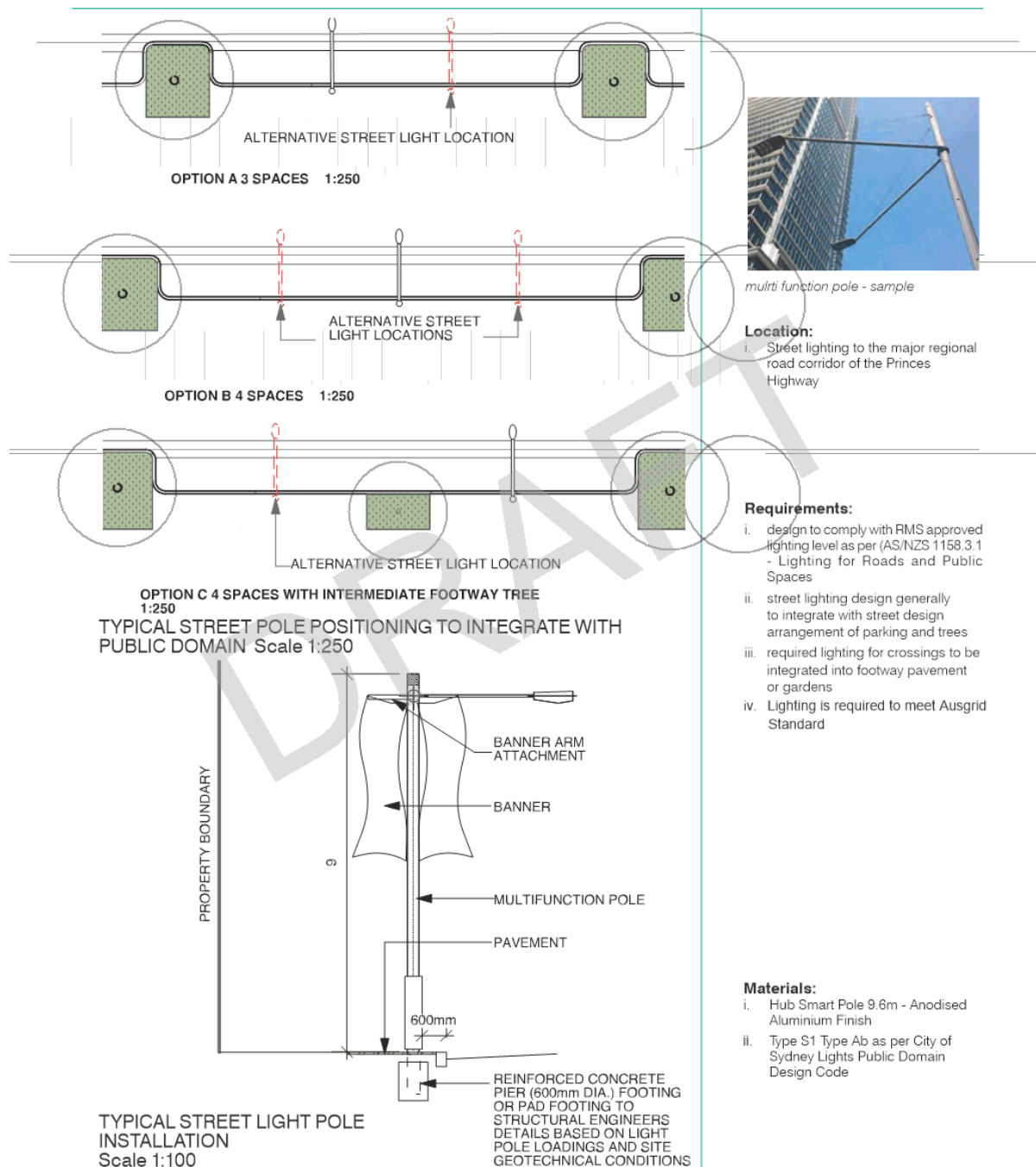
Recommendation

- i. LED Luminaire mounted at 4.5m on tapered round pole
- ii. Product Code: VFL520[14W] 350mA S70 distribution mounted directly
- iii. Basic dim luminaire to dim down 50% for times as specified by Council
- iv. Pole 4.5m 100mm diameter post
- v. Pole Finish: Powdercoat
- vi. Pole and luminaire Color: Light grey
- vii. Fixing to Ground: Subsurface mounted to footing to manufacturers specification - c/w 76mm spigot to suit square base cover plate. Rag bolt assembly, standard foundation cage and
- viii. Surge protection
- ix. Pavement finished up to pole
- x. Height: 4.5m
- xi. Design to Council approved lighting level as per (AS/ NZS 158.3.1 - Lighting for Roads and Public Spaces
- xii. Lighting is required to meet Ausgrid Standard



THE PUBLIC DOMAIN GUIDELINES
Public domain lighting

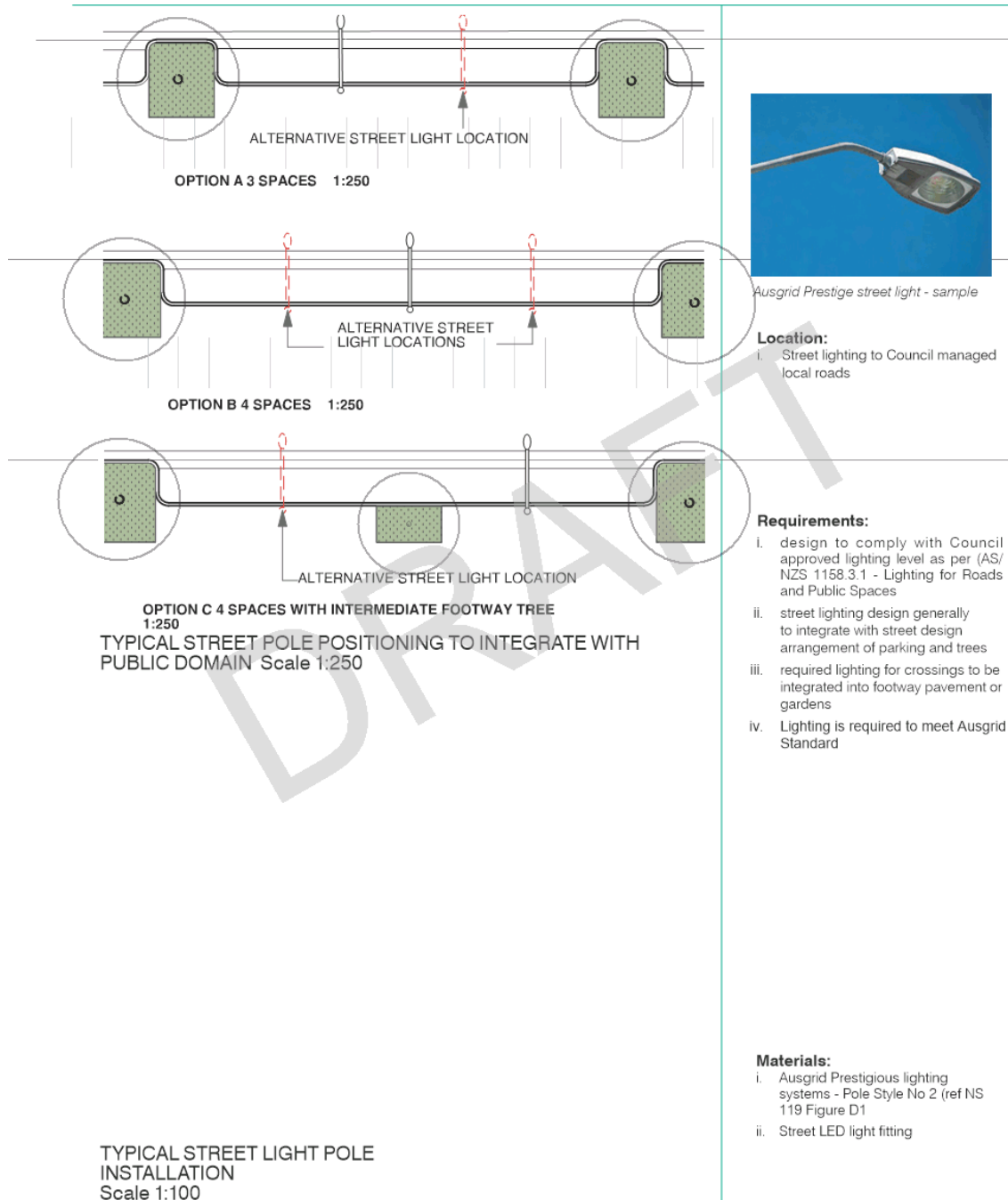
Multi Function Pole Street Lighting LT1



THE PUBLIC DOMAIN GUIDELINES

Public domain lighting

Ausgrid Street Lighting LT2

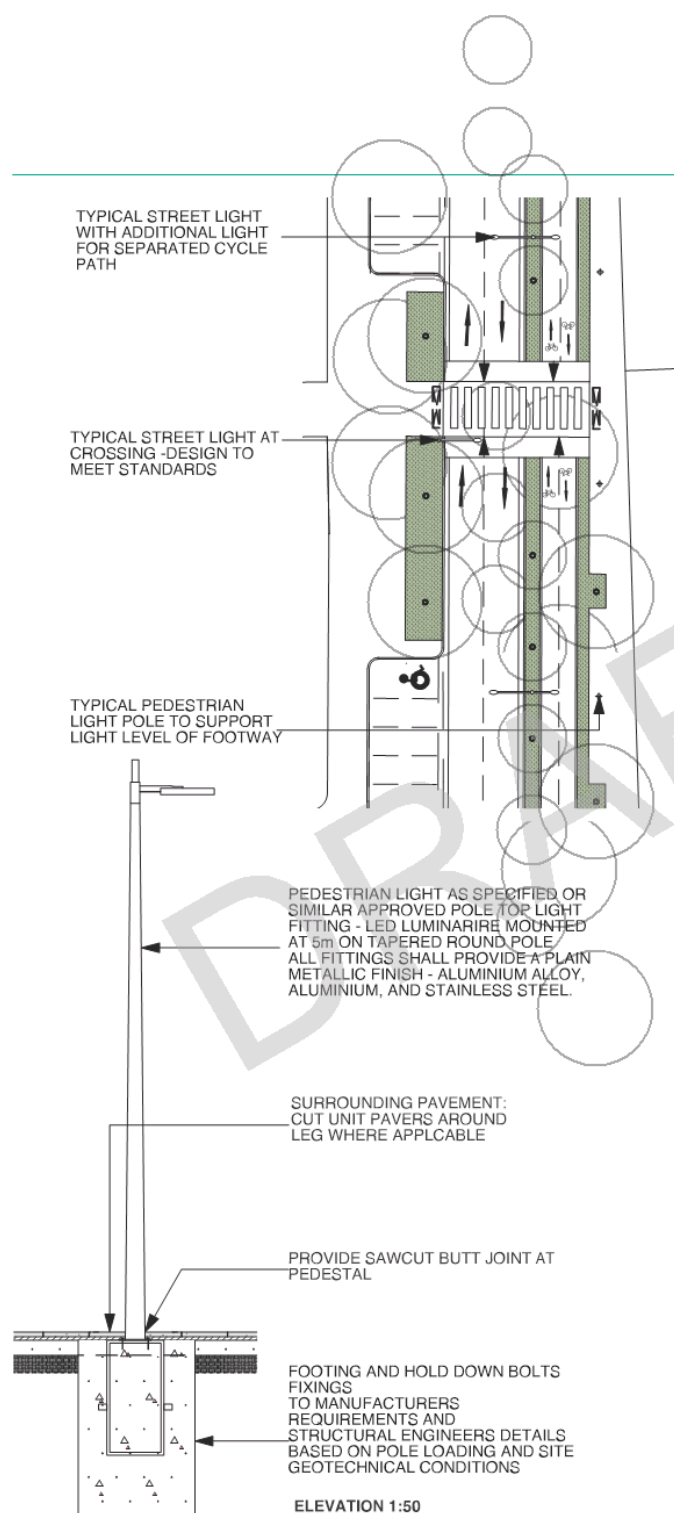


Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.

THE PUBLIC DOMAIN GUIDELINES

Public domain lighting

Pedestrian Pole Top Lighting LT3



Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



Pedestrian lighting - sample

Location:

- Lighting of pedestrian zones to open space and streets where a higher level of illumination that provided by street lighting is desired

Requirements:

- design to comply with Council approved lighting level as per (AS/ NZS 1158.3.1 - Lighting for Roads and Public Spaces
- pedestrian lighting design generally to integrate with street design arrangement of parking and trees
- Lighting is required to meet Ausgrid Standard

Materials:

- LED Luminaire mounted at 4.5m on tapered round pole
- Product Code: VFL520[14W] 350mA S70 distribution mounted directly
- Basic dim luminaire to dim down 50% for times as specified by Council
- Pole 4.5m 100mm diameter post
- Pole Finish: Powdercoat
- Pole and luminaire Color: Light grey
- Fixing to Ground: Subsurface mounted to footing to manufacturers specification - c/w 76mm spigot to suit square base cover plate. Rag bolt assembly, standard foundation cage and
- Surge protection
- Pavement finished up to pole
- Height: 4.5m

THE PUBLIC DOMAIN GUIDELINES

5.4 Street trees and street gardens

Street Trees

Street trees are a fundamental influence in shaping the character and comfort of the public domain and in creating a human scale to streets. For Arncliffe and Banksia a pattern of regular medium to large scale street tree canopy is to be prioritised as the key design structure to which all other public domain elements must integrate. Street specific street tree recommendations are made as part of an overall street tree masterplan (refer Figure 4.2 Street Tree Masterplan).

Refer to guidelines ST1-ST4 for street tree and street garden guidelines.

Addressing the desired place character for public domain

....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. street tree canopy is a the defining element of public domain structure	iii. street trees are compatible and complementary to heritage planting fabric	v. street trees provide continuity and legibility that become recognisable by the community as part of the identity of Arncliffe and Banksia
ii. selected species range maintains links to the vegetation of the riverine environment	iv. regular unified street tree planting creates identity and character to individual streets	vi. street trees will enhance potential for street and community life to streets and public spaces

Applying the public domain principles

function	character	comfort	resilience
i. regular medium to large sized street trees to all street corridors	i. provide tree pattern that creates a recognisable identity for Arncliffe Banksia	i. regular tree plantings create shade protection to street corridors	i. tree plantings provided in planting zones that maximise long term survival and health
ii. tree planting layout is the defining element of public domain structure to which all other elements respond and integrate	ii. contribute to a sense of unity and coordination of identity and character across the precinct by working with a limited tree species range	ii. contribute to comfort for pedestrians generally through reduction of urban heat island effect	ii. provision of habitat for appropriate urban fauna insects and birds
iii. design so that canopies do not impede traffic movements and provide adequate clearance to the type of vehicular traffic to individual streets	iii. create subtle variations to individual corridors through varied combinations of species to improve light and solar access	iii. generally evergreen tree to south / eastern side of street with greater solar access	
iv. design to maintain all required sight lines at pedestrian / cycle crossings, road intersections and driveways	iv. street tree planting to soften development architecture	iv. selectively use deciduous tree to more heavily shaded north / west side where light and solar access are limited	
	v. Planting to reference past vegetation communities of the riverine environment		

The designated street tree species are outlined on Figure 5.2 Street Tree Masterplan opposite and the street specific recommendations on the following pages.

Tree supply requirements

Street trees shall be provided with Root Barriers. This will help street trees and landscaping from conflicting with underground services.

Street trees shall be supplied at minimum sizes indicated on the species recommendations and at height spread and calipre in accordance with Specifying Trees: a guide to assessment of tree quality by Ross Clark (NATSPEC, 2003, as noted below:

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

THE PUBLIC DOMAIN GUIDELINES
Street Trees and Street Gardens

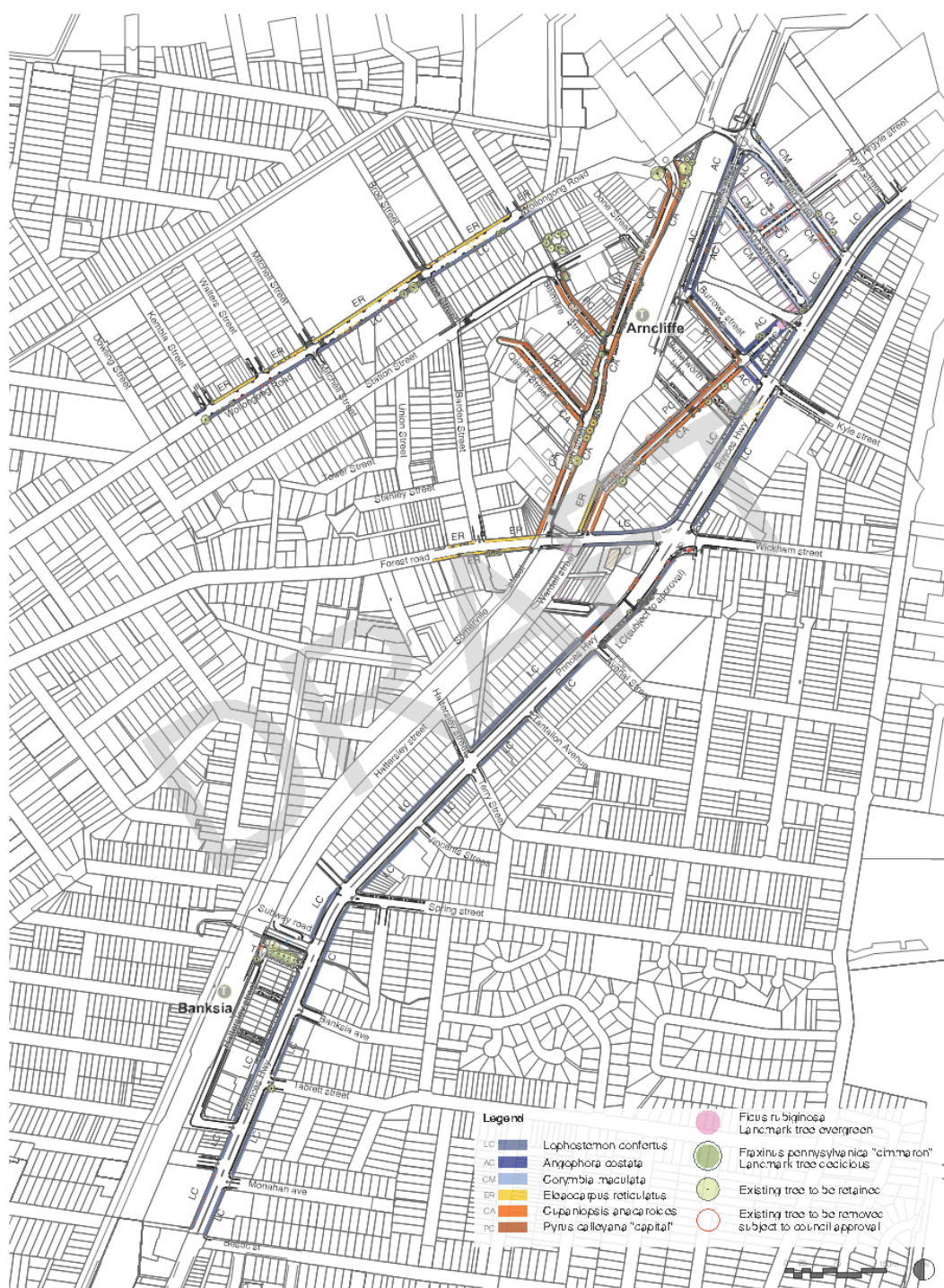


Figure 5.2 Street Tree Masterplan

BAYSIDE COUNCIL JUNE 2019

Draft 125

THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

Wollongong Road

Western footway

Blueberry Ash (200L supply size)
Eleocharis reticulatus

Rationale

- small columnar tree - to fit within power line constraints to west side of road
- Sandstone woodland reference
- evergreen narrow canopy form - good screen qualities
- flowering
- services infrastructure friendly

Eastern footway

Brushbox (200L supply size)
Lophostemon confertus

Rationale

- large scale canopy tree to east side of road
- long canopy form - good buffer qualities
- glossy green foliage
- strong shade qualities
- integration with Wolli Creek PDM



Queen Street Belmore Street

Southern footway

Tuckeroo (200L supply size)
Cupaniopsis anacardioides

Rationale

- Medium scale canopy tree
- Round canopy form - Feature
- glossy green foliage
- Shade tree

Northern footway

Tulip tree (200L supply size)
Liriodendron tulipifera

Rationale

- fastigate scale columnar tree
- deciduous tall narrow canopy form - good screen qualities
- glossy green foliage
- seasonal colour
- solar and light access



Firth Street

Generally to footway

Tuckeroo (400L supply size)
Cupaniopsis anacardioides

Rationale

- medium scale native canopy tree more potential to work around power lines to east side
- spreading canopy form - good buffer qualities
- integrates well with existing Brushbox and Fig canopy
- glossy green foliage
- good shade qualities

Nodal locations

Cimmaron (400L supply size)
Fraxinus pennsylvanica

Rationale

- large scale spreading canopy tree
- round canopy form
- seasonal colour
- winter Solar access
- summer shade



THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

Forest Road

Northern footway - to development setback and at adjoining streets

Brushbox (400L supply size)
Lophostemon confertus

Rationale

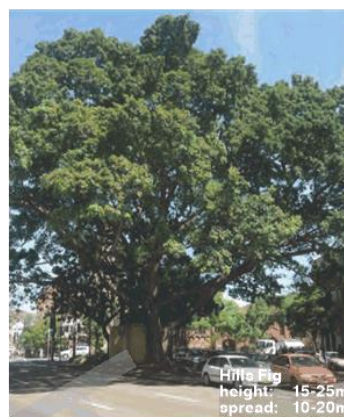
- large scale canopy tree to east side of road
- long canopy form - good buffer qualities
- glossy green foliage
- strong shade qualities
- integration with Wolli Creek PDM

Southern footway to wide footway

Hills Fig (400L supply size)
Ficus microcarpa hillii

Rationale

- large scale spreading tree typical of area
- visual and shade impact as stand alone tree



Burrows Street Arncliffe Street

Southern footway - Burrows Street

Capital Pear (400L supply size)
Pyrus calleryana 'Capital'

Rationale

- fastigate scale columnar tree
- deciduous tall narrow canopy form - good buffer qualities
- glossy green foliage
- seasonal colour
- solar and light access adjacent cycle way

Northern footway & Arncliffe Street

Smooth barked apple (400L supply size)
Angophora costata

Rationale

- sandstone woodland large scale native canopy tree - reference to local vegetation character
- engaging / recognisable avenue tree
- sculptural form
- interesting bark
- good shade qualities



Eden Street

West footway

Capital Pear (400L supply size)
Pyrus calleryana 'Capital'

Rationale

- fastigate scale columnar tree
- deciduous tall narrow canopy form - good buffer qualities
- glossy green foliage
- seasonal colour
- solar and light access adjacent cycle way

East footway

Tuckeroo (400L supply size)
Cupaniopsis anacardioides

Rationale

- Medium scale canopy tree
- Round canopy form - Feature
- glossy green foliage
- Shade tree



THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

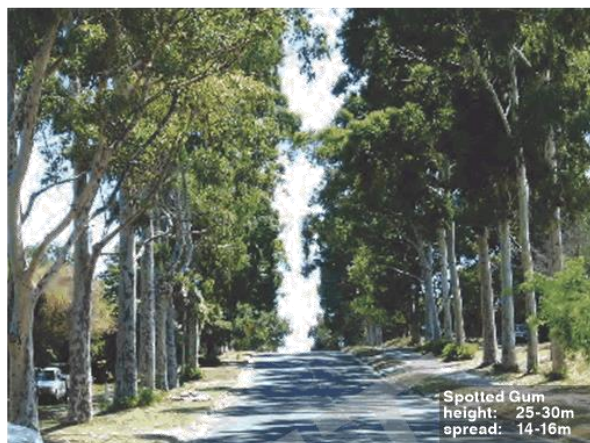
Anne Street
Argyle Street
Allen Street

All footways

Spotted Gum (200L supply size)
Corymbia maculata

Rationale

- large scale canopy tree
- generous footways enable large scale tree
- large scale tree desirable against building height
- Strong links to sandstone slopes vegetation



Princes Highway

Northern and southern footways including
within 6m landscape setback to B6 zoning

Eastern footway

Brushbox (400L supply size)
Lophostemon confertus

Rationale

- large scale canopy tree to east side of road
- long canopy form - good buffer qualities
- glossy green foliage
- strong shade qualities
- integration with Wolli Creek PDM and past plantings to Princes Highway north



THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

Street Gardens

Street gardens support street tree planting in creating a human scale to streets and providing green relief to the urban environment. For Arncliffe and Banksia street gardens seek to create a strong green presence at pedestrian level. The ability to select varied effects from a planting palette including colours textures and forms enable designers to create a variety of experiences within an overall unified character.

Addressing the desired place character for public domain

.....a place connected to the natural riverine environment that provides an enduring, quality and simple canvas for street and community life to evolve...

Environment	Culture	Community
i. strong visual presence of "green" at pedestrian level within the street environment	i. flexible and adaptable to a range of aspects and conditions	i. provide continuity and legibility that become recognisable by the community as part of the identity of Arncliffe and Banksia
ii. maintain links to the vegetation of the riverine environment	ii. provide an accent for targeted application to reflect different areas within the precinct	

Applying the public domain principles

function	character	comfort	resilience
i. larger consolidated garden beds create opportunities to frame formal and informal spaces within the public domain contribute to localised identity/character	i. contribute to comfort for pedestrians generally through reduction of urban heat island effect	i. larger consolidated garden beds create opportunities for sheltered comfortable public domain areas	i. large planted areas become major element in the street scene aiding a more human scale
ii. providing a cohesive and enhanced planting palette between public domain to east and west of railway	ii. contribute to mitigation of air pollution and particulate movement that can impact persons with allergies and medical conditions	ii. plant forms (colours, sizes, and textures) offer varied identity while maintaining unity	ii. provision of habitat for appropriate urban fauna insects and birds
	iii. planting to reference past vegetation communities of the riverine environment		

The Street Gardens planting palette is outlined on the following pages.

THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

Shrubs



Mexican lily
Beschorneria yuccoides
height: 1.2m
spread: 1.2m



Tall sedge
Carex appressa
height: 1.0m
spread: 1.0m



Gymea lily
Doryanthes excelsa
height: 1.5-2m (flower head to 4m)
spread: 1.5-2m



Tanika Lomandra
Lomandra longifolia Tanika
height: 0.8m
spread: 1.0m



Xanadu
Philodendron xanadu
height: 1.0m
spread: 1.5m

Planting combinations

STREETS	SHRUBS					GROUNDCOVERS						
	<i>Beschorneria yuccoides</i>	<i>Carex appressa</i>	<i>Doryanthes excelsa</i>	<i>Lomandra longifolia</i>	<i>Philodendron xanadu</i>	<i>Billardiera scandens</i>	<i>Dianella caerulea</i>	<i>Epacris pulchella</i>	<i>Epacris microphylla</i>	<i>Hibbertia scandens</i>	<i>Kunzea ambigua</i>	<i>Liriodendron</i>
Princes Highway	•		•	•	•		•			•		•
Eden Street	•				•		•					•
Burrows Street	•				•		•					•
Arncliffe Street		•					•			•		
Allen Street				•						•		
Forest Road	•		•	•	•		•	•	•	•		•
Firth Street	•	•			•		•	•	•	•		•
Queen Street	•	•			•		•	•	•	•		•
Belmore Street	•	•			•		•	•	•	•		•
Wollongong Road	•	•	•		•		•	•	•	•		•

THE PUBLIC DOMAIN GUIDELINES
Street Trees and Street Gardens

Groundcovers



Hairy apple berry
Billardiera scandens
height: 0.15m
spread: 0.75m



Flax lily
Dianella caerulea
height: 0.6m
spread: 1.0m



Wallum heath
Epacris pulchella
height: 0.15m
spread: 0.75m



Coral heath
Epacris microphylla
height: 0.6m
spread: 0.5m



Snake vine
Hibbertia scandens
height: 0.15m
spread: 0.75m



Prostrate tick-bush
Kunzea ambigua Prostrate
height: 0.3-0.65m
spread: 1-1.5m

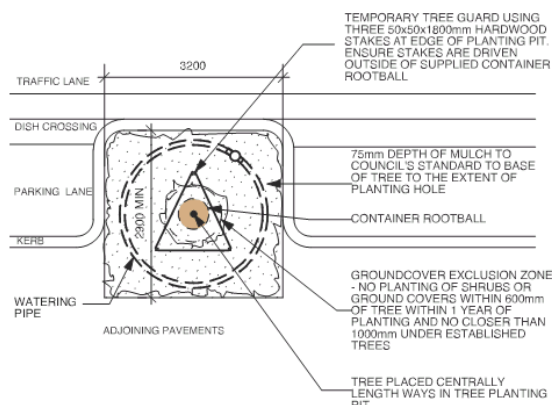


Evergreen giant
Liriope muscari
height: 0.6m
spread: 0.6m

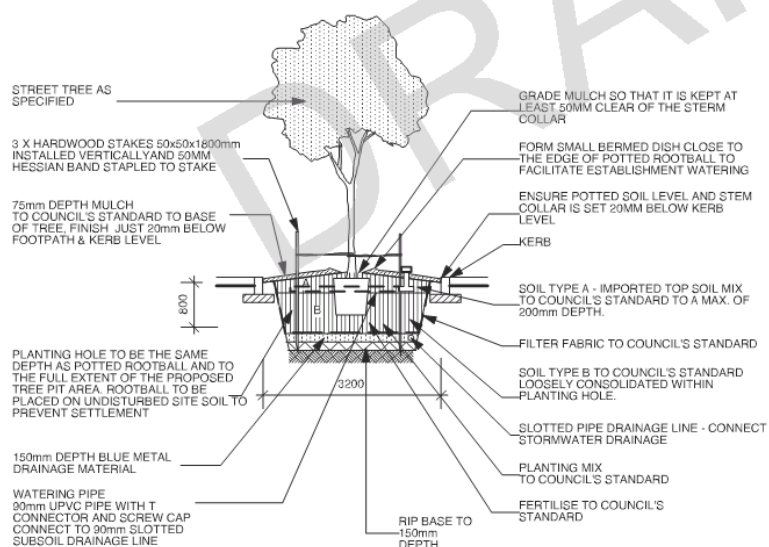
THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

Street tree planting integrated with kerb ST1



TYPICAL TREE PLANTING - PLAN
Scale NTS



TYPICAL TREE PLANTING - SECTION
Scale NTS

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample

Location:

- i. generally to streets in Arncliffe and Banksia excluding Princes Highway and Forest Road

Requirements:

- i. locate and arrange street tree pits in accordance with street specific design guidelines in section 4.0 of the manual
- ii. supplement soil volume with Stratavault soil cells as per guideline S2
- iii. design so that canopies do not impede traffic movements and provide adequate clearance to the type of vehicular traffic to individual streets
- iv. design to maintain all required sight lines at pedestrian / cycle crossings, road intersections and driveways
- v. provide watering pipe

Materials:

- i. Street trees

shall be supplied at minimum sizes indicated on the species recommendations and at height spread and caliper in accordance with Specifying Trees: a guide to assessment of tree quality by Ross Clark (NATSPEC, 2003)

- ii. Soil

Type A: moderately high fertility well drained topsoil for backfilling the surface 300mm of topsoil for advanced tree planting. Eg Benedicts Smart Mix 6 BS133

Type B: low organic matter well drained subsoil for backfilling to within 300mm of the surface and for bedding rootballs on prior to placing topsoil for advanced tree planting. Eg Benedicts Premium Turf Underlay (MW80/20)

Type C: An organic planting mix suitable for P Tolerant native plants and exotic garden bed plantings.

Eg Benedicts Organic Garden Mix M13

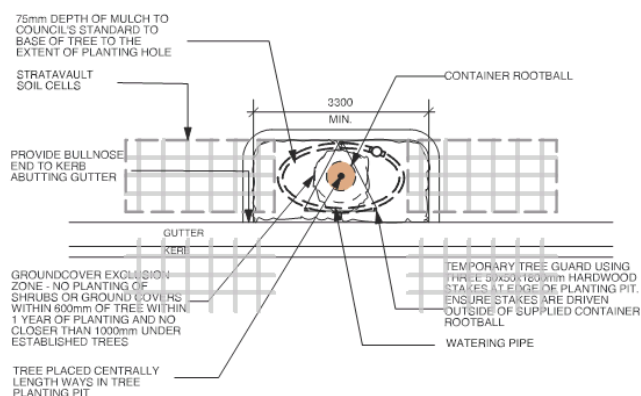
- iii. Mulch material:

Horticultural Grade Pinebark as supplied by Australian Native Landscapes to meet To AS 4454

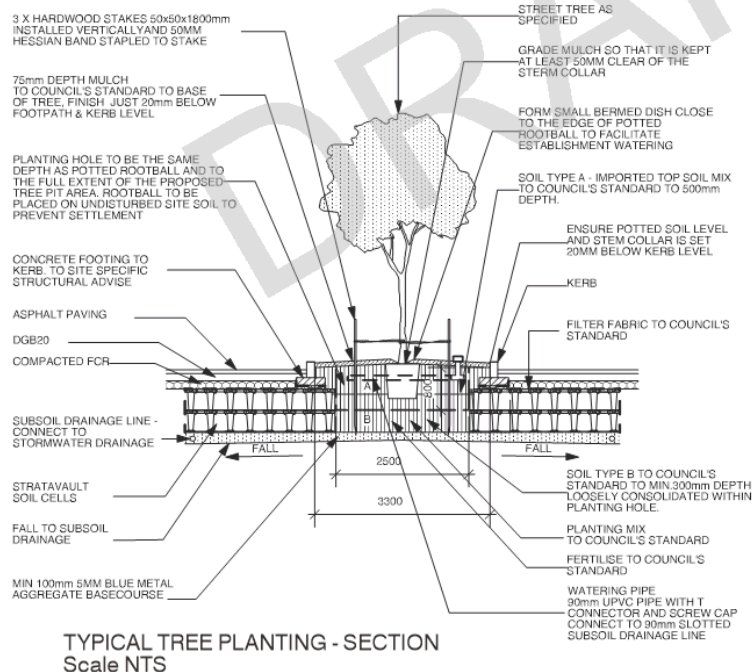
THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

Street tree planting to kerb island ST2



TYPICAL TREE PLANTING - PLAN
Scale NTS



TYPICAL TREE PLANTING - SECTION
Scale NTS

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample

Location:

- to Wollongong Road west side

Requirements:

- locate and arrange street tree pits in accordance with street specific design guidelines in section 4.0 of the manual
- supplement soil volume with Stratavault soil cells
- design so that canopies do not impede traffic movements and provide adequate clearance to the type of vehicular traffic to individual streets
- design to maintain all required sight lines at pedestrian / cycle crossings, road intersections and driveways
- provide watering pipe
- provide bullnose end to kerbs abutting gutter

Materials:

- Street trees

shall be supplied at minimum sizes indicated on the species recommendations and at height spread and caliper in accordance with Specifying Trees: a guide to assessment of tree quality by Ross Clark (NATSPEC, 2003)

- Soil

Type A: moderately high fertility well drained topsoil for backfilling the surface 300mm of topsoil for advanced tree planting. Eg Benedicts Smart Mix 6 BS133

Type B: low organic matter well drained subsoil for backfilling to within 300mm of the surface and for bedding rootballs on prior to placing topsoil for advanced tree planting. Eg Benedicts Premium Turf Underlay (MW80/20)

Type C: An organic planting mix suitable for P Tolerant native plants and exotic garden bed plantings.

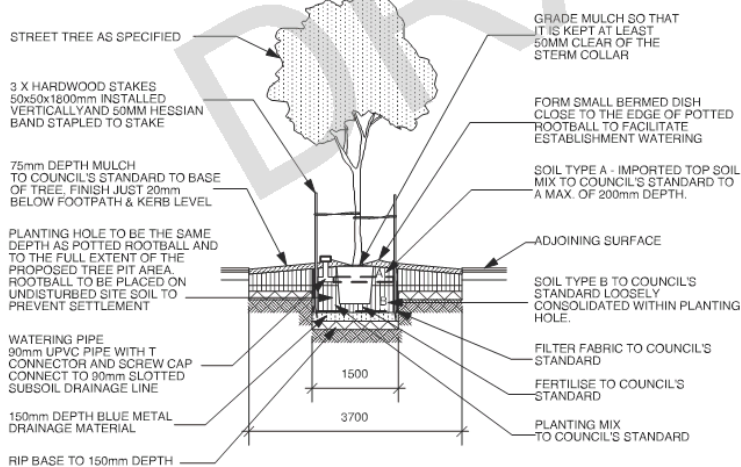
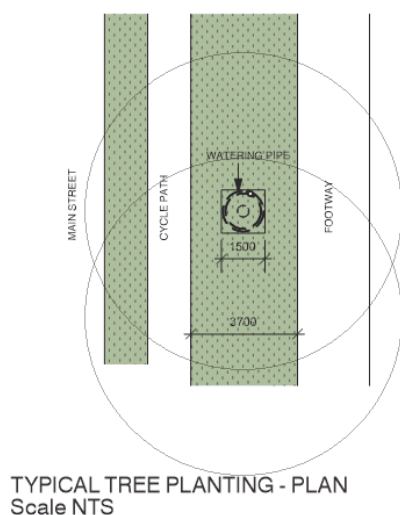
Eg Benedicts Organic Garden Mix M13

- Mulch material:
Horticultural Grade Pinebark as supplied by Australian Native Landscapes to meet To AS 4454

THE PUBLIC DOMAIN GUIDELINES

Street Trees and Street Gardens

Street tree planting to street garden ST3



TYPICAL TREE PLANTING - SECTION
Scale NTS

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample

Location:

- To Princes Highway and to streets generally in Arncliffe and Banksia.

Requirements:

- locate and arrange street tree pits in accordance with street specific design guidelines in section 4.0 of the manual
- supplement soil volume with Stratavault soil cells as per guideline S2
- design so that canopies do not impede traffic movements and provide adequate clearance to the type of vehicular traffic to individual streets
- design to maintain all required sight lines at pedestrian / cycle crossings, road intersections and driveways
- provide watering pipe

Materials:

- Street trees

shall be supplied at minimum sizes indicated on the species recommendations and at height spread and caliper in accordance with Specifying Trees: a guide to assessment of tree quality by Ross Clark (NATSPEC, 2003)

- Soil

Type A: moderately high fertility well drained topsoil for backfilling the surface 300mm of topsoil for advanced tree planting. Eg Benedicts Smart Mix 6 BS133

Type B: low organic matter well drained subsoil for backfilling to within 300mm of the surface and for bedding rootballs on prior to placing topsoil for advanced tree planting. Eg Benedicts Premium Turf Underlay (MW80/20)

Type C: An organic planting mix suitable for P Tolerant native plants and exotic garden bed plantings.

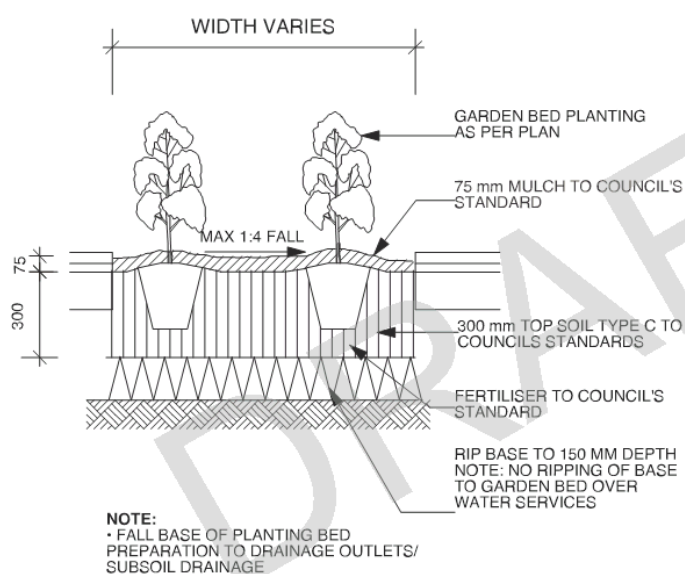
Eg Benedicts Organic Garden Mix M13

- Mulch material:

Horticultural Grade Pinebark as supplied by Australian Native Landscapes to meet To AS 4454

THE PUBLIC DOMAIN GUIDELINES
Street Trees and Street Gardens

Street Garden **ST4**



TYPICAL STREET GARDEN - SECTION
Scale 1:20

Turf to footway – provide Kikuyu turf on 100mm turf underlay

Note: Information contained in this manual is intended as a guide only. Project specific public domain civil structural and electrical design are to be prepared for approval by Bayside Council.



- sample

Location:

- i. To all streets generally in Arncliffe and Banksia.

Requirements:

- i. planting design shall reflect species palettes as defined in section 5.4 of this manual
- ii. design to maintain all required sight lines at pedestrian / cycle crossings, road intersections and driveways
- iii. provide establishment irrigation
- iv. For areas of Turf to footway – provide Kikuyu turf strips on 100mm turf underlay

Materials:

- i. Plants

All plant material must be true to species and sizes as specified. All plants shall be free of fungus and insect damage, healthy, well shaped, not soft or force grown and not be root bound.

- ii. Soil

Type C: An organic planting mix suitable for P Tolerant native plants and exotic garden bed plantings.

Eg Benedicts Organic Garden Mix M13

- iii. Mulch material:

Horticultural Grade Pinebark as supplied by Australian Native Landscapes to meet To AS 4454

APPROVALS

6.0 Public domain approvals

6.1 The approvals process

Approval is required to carry out works on land that is owned or managed by Bayside Council, and land that will be dedicated to Council.

This includes work on roads, drainage, footpaths, landscaping and other public lands, referred to as the public domain. Any work required in the public domain must be documented to Council standards described herein for each development stage

Preliminary Consultation & Pre-Lodgement (PL)

If desired, arrange a pre-lodgement meeting with Council's Public Domain Officer to seek advice about proposals for public domain development. It is recommended that pre-lodgement meetings are arranged for early identification of key issues.

Prepare a site analysis and public domain concept plan for review and discussion at the pre-lodgement meeting.

Development Application (DA)

Submit Site Survey and Alignment Plan in accordance with Council's requirements.

Respond to any written requirements from Council's development assessing officers following submission.

Council will prepare conditions to accompany the DA consent. These conditions must be addressed in order to obtain Construction and Occupation Certifications.

Construction Certificate (CC)

Submit Public Domain Plan in accordance with Council's requirements for Council's approval prior to the issue of Construction Certificate by Council or Private Certifier.

Incorporate any DA conditions proposed by Council.

Construction Phase

Construct public domain works in accordance with the approved DA plans, conditions, and Council approved CC documentation.

Arrange Council inspections in accordance with the requirements detailed.

Additional daily checks may be made by Council staff throughout the construction phase to monitor construction work in the public domain.

Occupation Certificate (OC)

Prepare and submit Works-as-Executed Plans in accordance with the constructed public domain works.

Rectify any defects and outstanding works identified by Council officers identified at inspections.

Achieve final sign off by Council's Civil Assets Officer prior to any issue of OC by Council or private certifier

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